



WESTNET RAIL UPGRADE – NARNGULU
TO TILLEY (MORAWA)
FLORA AND VEGETATION ASSESSMENT



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FLORA AND VEGETATION ASSESSMENT

Prepared for

Strategen

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PERMITS

This flora and vegetation assessment was undertaken under the following licences issued by the Department of Environment and Conservation: SL008926 issued to Ciaran Sgherza, SL008928 issued to Emma Carroll, SL009117 issued to Hayden Ajduk, SL009117 issued to James Sansom, SL009109 issued to Kellie McMaster and SL009007 issued to Lewis Trotter.

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EXECUTIVE SUMMARY

ENV.Australia Pty Ltd was commissioned by Strategen in September 2010 to undertake a Level Two flora and vegetation assessment of the proposed WestNet Rail Upgrade from Narngulu to Tilley (Morawa). The proposed WestNet Rail (WNR) upgrade survey area is 1,081 hectares (ha) and extends approximately 190 kilometres (km) from Narngulu to Mullewa and Mullewa to Tilley (approximately 2 km north of Morawa), extending 30 metres (m) either side of the existing rail infrastructure.

The purpose of the assessment is to provide supporting documentation for an application for a Native Vegetation Clearing permit under the *Environment Protection Act 1986 (WA)*.

Three species gazetted as Declared Rare Flora pursuant to the *Wildlife Conservation Act 1950 (WA)*, including one species listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* - *Caladenia wanosa* (Vulnerable, Rare), *Grevillea bracteosa* subsp. *howatharra* (Rare) and *Grevillea phanerophlebia* (Rare), were recorded within the survey area.

Twenty-seven Priority Flora as listed by the Department of Environment and Conservation were recorded within the survey area.

Fifty-two introduced species were recorded within the survey area, forty-seven of which are environmental weeds as defined by the Environmental Weed Strategy for Western Australia (Department of Conservation and Land Management 1999). Seven of the introduced species recorded within the survey area have a high rating under the Environmental Weed Strategy for Western Australia: **Acetosa vesicaria*, **Brassica tournefortii*, **Bromus diandrus*, **Ehrharta calycina*, **Eragrostis curvula*, **Lupinus cosentinii* and **Lycium ferocissimum*. The most commonly recorded introduced species within the survey area were **Arctotheca calendula*, **Ehrharta longiflora* and **Monoculus monstrosus*.

One introduced species listed as a Declared Plant under the *Agriculture and Related Resources Protection Act 1976 (WA)*, **Echium plantagineum* (Priority 1), was recorded within the survey area.

Eighty-nine vegetation associations were described in the survey area. No vegetation associations recorded within the survey area are listed as Threatened Ecological Communities under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*; as Environmentally Sensitive Areas under the *Environmental Protection Act 1986 (WA)*; or as Priority Ecological Communities by the Department of Environment and Conservation.

Fifty-two vegetation associations are considered to be of conservation significance based on the presence of Declared Rare and Priority Flora.

Five vegetation associations corresponding with two Beard (1975) vegetation associations' a23Lc and e6MreaSi are classified as 'Endangered' as defined by the Department of Natural Resources and Environment (2002).

Vegetation condition ranged from Completely Degraded to Excellent. Forty one hectares of vegetation was categorised as Excellent, 256 hectares as Very Good, 218 hectares as Good, 201 hectares as Degraded and 364 hectares as Completely Degraded. Disturbances to vegetation within the survey area include clearing, tracks and introduced species.

The survey area comprises remnant vegetation varying from Completely Degraded to Excellent in condition. This narrow strip of vegetation acts as a corridor providing connectivity to nature reserves, conserving remnant vegetation and facilitating genetic diversity of wildlife populations located within the Leda (Canna), Forty Mile and Wilroy Nature Reserves (Saunders *et. al* 1995). The rail corridor between Mullewa and Morawa, which constitutes approximately half of the survey area, is considered to be one of the most important wildlife corridors identified in the Avon Wheatbelt region (Breckwoldt 1990).

1 INTRODUCTION

1.1 OBJECTIVES

ENV.Australia Pty Ltd (ENV) was commissioned by Strategen in September 2010 to undertake a Level Two flora and vegetation assessment of the rail corridor Narngulu to Tilley (approximately 2 km north of Morawa) ('the survey area'). WestNet Rail Pty Ltd (WNR) proposes to upgrade the existing track to a dual gauge 26 tonne axle load line.

The purpose of the assessment is to provide supporting documentation for an application for a Native Vegetation Clearing Permit under the *Environmental Protection Act 1986* (WA).

The objectives of the flora and vegetation assessment were to:

- conduct a comprehensive database review to collate historical knowledge relevant to the survey area ;
- provide an inventory of flora and vegetation associations occurring in the survey area;
- opportunistically collect flora targeting Threatened Flora, Declared Rare Flora, Priority Flora, Declared plants and introduced species;
- characterise and describe vegetation associations present within the survey area (vegetation association mapping); and
- undertake targeted surveys for Threatened and Priority Ecological Communities.

1.2 LOCATION

The proposed WNR upgrade survey area is 1,081 hectares (ha) and extends approximately 190 kilometres (km) from Narngulu to Mullewa and Mullewa to Tilley (approximately 2 km north of Morawa) extending 30 metres (m) either side of the existing rail infrastructure (Figure 1).

1.3 ENVIRONMENTAL ATTRIBUTES

1.3.1 Climate

The survey area is located in the Midwest region of Western Australia and due to the length of the survey area extending 190 km from the west coast at Geraldton inland to Morawa, the climate varies throughout the extent. The nearest accessible climate data for the survey area is available from Geraldton Airport, Mullewa townsite and Morawa Airport weather stations.

The Geraldton and Mullewa areas experience a Mediterranean to semi-desert climate, with a hot summer from December to March and a mild winter from May to August. The Morawa area experiences a warm-Mediterranean to semi-arid climate, with a hot summer from November to March and a mild winter from May to August.

The Geraldton and Mullewa areas experience a wide temperature range, with an average annual maximum daytime temperature of 25.8°C (1941-2010) at Geraldton Airport and 27.8°C (1896-2010) at the Mullewa townsite. In summer, maximum daytime temperatures may reach 47.7°C and 47.3°C at Geraldton Airport and the Mullewa townsite respectively. In winter minimum night time temperatures may fall to -0.4°C and -1.4°C at Geraldton Airport and the Mullewa townsite respectively (BoM 2010). The Morawa area experiences a wide temperature range, with an average annual maximum daytime temperature of 28°C (1997-2010) at Morawa Airport. In summer, maximum daytime temperatures may reach 47.2°C, whilst in winter minimum night time temperatures may fall to -1.9°C (BoM 2010) at Morawa Airport.

The Geraldton and Mullewa areas experience an average annual rainfall of 446.7 mm (1941-2010) at Geraldton Airport and 336.7 mm (1925-2010) at the Mullewa townsite, whilst the Morawa area experiences an average annual rainfall of 332.4 mm (1925-2010) at Morawa Airport (BoM 2010). The majority of rainfall occurs during the winter month's at all three weather stations (Figure 2).

For the three months (June to August 2010) preceding the survey, Geraldton Airport, Mullewa townsite, and Morawa Airport received 191 mm, 151.6 mm and 118.8 mm of rainfall respectively, compared with the long term averages of 256.7 mm, 167.1 mm and 112.3 mm respectively for the same period (BoM 2010). Rainfall for the year to date (September 2009 to August 2010) at Geraldton Airport, Mullewa townsite and Morawa Airport was 349 mm, 286.2 mm and 263 mm respectively, whilst the long-term average for the same period was 445.8 mm, 333.9 mm and 277.9 mm respectively (BoM 2010).

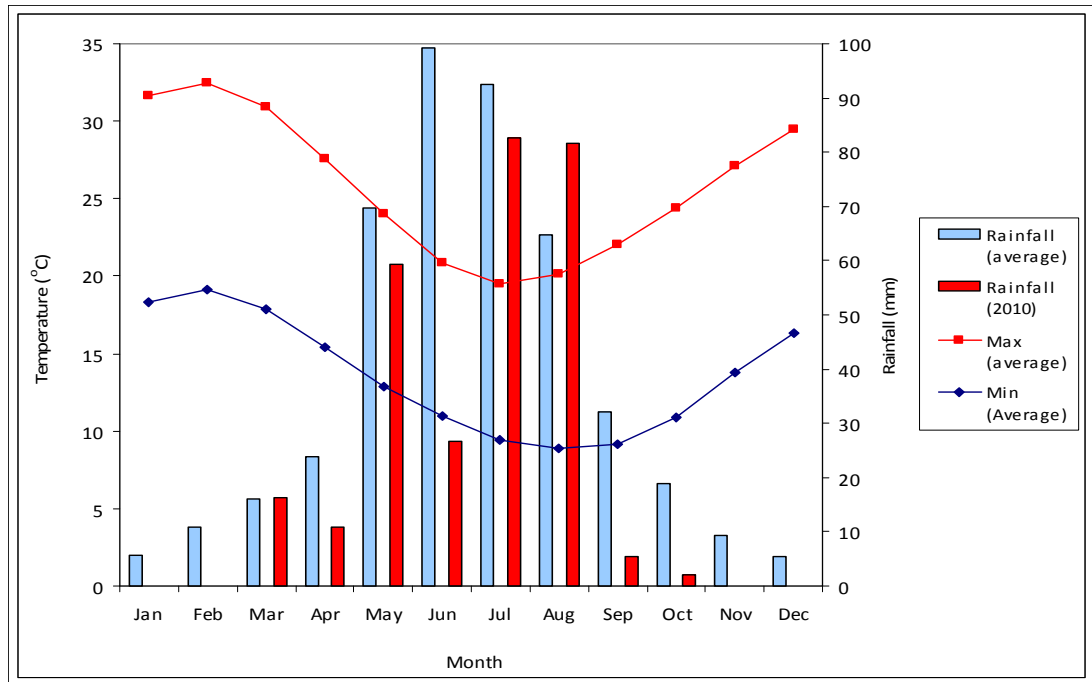


Figure 2A Geraldton Airport Average Monthly Rainfall (1942-2010) compared to Monthly Rainfall for 2010 (year to date) as well as Average (1942-2010) and 2010 (year to date) Maximum and Minimum Temperatures (BoM 2010)

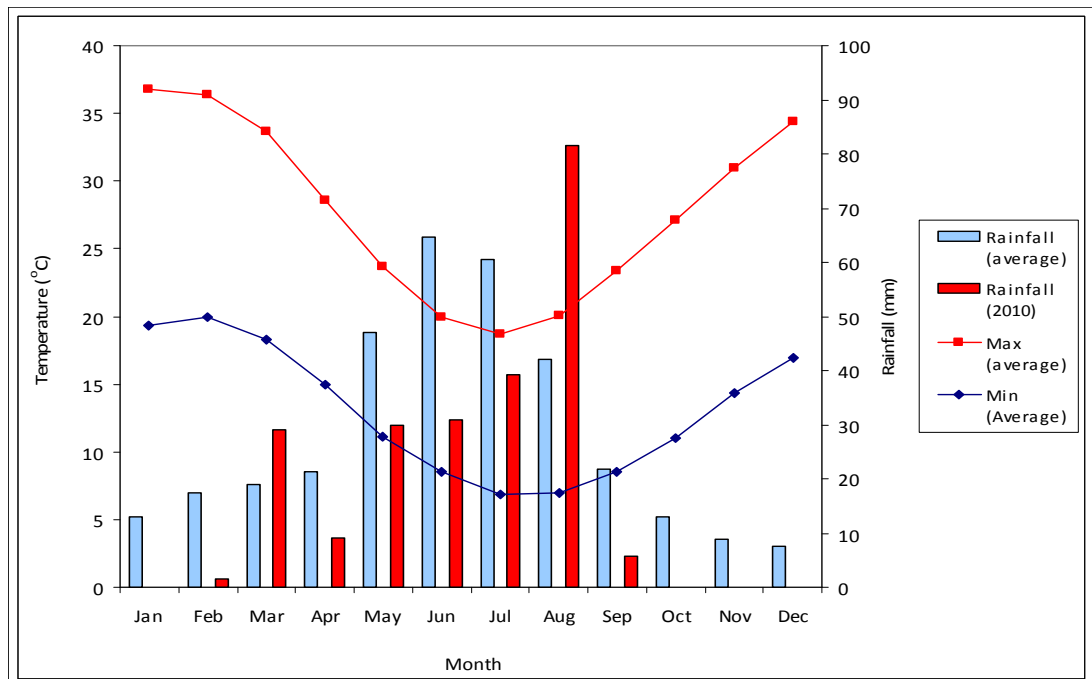


Figure 2B Mullewa Townsite Average Monthly Rainfall (1942-2010) compared to Monthly Rainfall for 2010 (year to date) as well as Average (1942-2010) and 2010 (year to date) Maximum and Minimum Temperatures (BoM 2010)

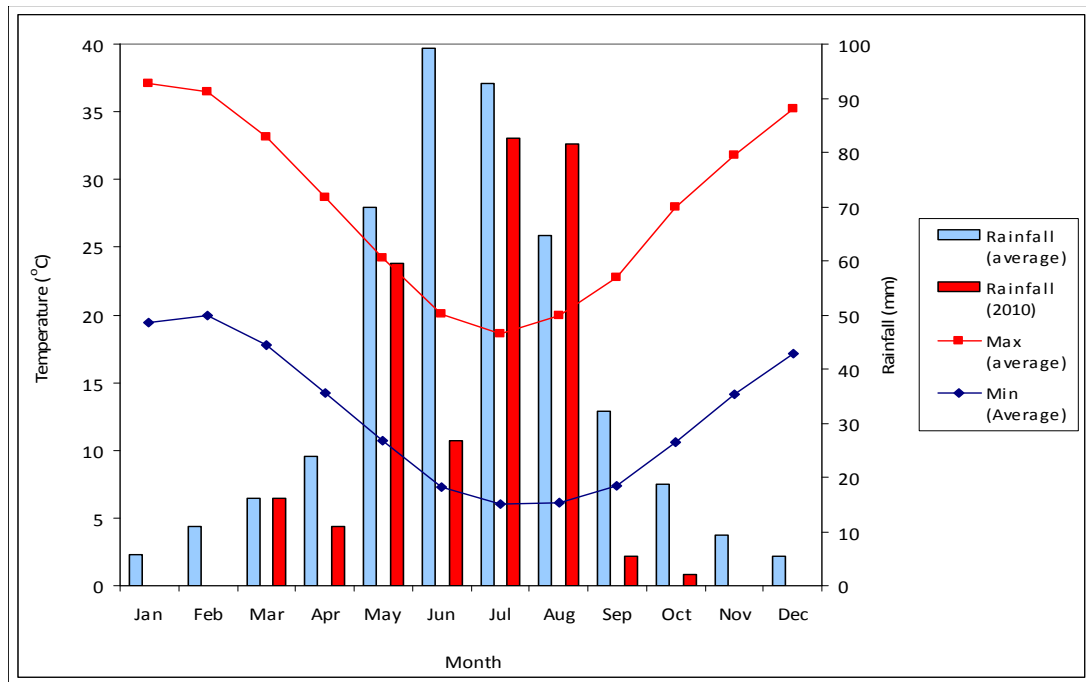


Figure 2C Morawa Airport Average Monthly Rainfall (1942-2010) compared to Monthly Rainfall for 2010 (year to date) as well as Average (1942-2010) and 2010 (year to date) Maximum and Minimum Temperatures (BoM 2010)

1.3.2 Interim Biogeographic Regionalisation for Australia

The Interim Biogeographic Regionalisation for Australia (IBRA) divides Australia into 85 bioregions based on major biological and geographical/geological attributes (Thackway and Cresswell 1995). These bioregions are subdivided into 403 subregions, as part of a refinement of the IBRA framework (Department of Sustainability, Environment, Water, Population and Communities [SEWPAC] 2010).

The survey area is located within two bioregions, the Geraldton Sandplain and Avon Wheatbelt. Approximately 480 ha of the survey area is located in the Geraldton Hills subregion (GS2) of the Geraldton Sandplain bioregion, whilst approximately 600 ha of is located within the Ancient Drainage (AW1) subregion of the Avon Wheatbelt bioregion (Thackway and Cresswell 1995).

The Geraldton Sandplains bioregion is characterized by undulating lateritic sandplains and red sandy earth soils inland and white sand on the coast. Phanerozoic sediments underlay the sandplains (Desmond and Chant 2001a).

The Geraldton Hills subregion is characterised by sand heaths with emergent *Banksia* and *Actinostrobus*; *Eucalyptus loxophleba* woodlands on alluvial plains; proteaceous heath and *Acacia* scrubs on limestone; and low closed forest of *Acacia rostellifera* on alluvial plains (Desmond and Chant 2001b).

The Avon Wheatbelt bioregion is characterised as a gently undulating landscape with low relief, residual lateritic uplands and yellow sandplains. Granite outcropping occurs in areas with shallow gravelly soils over ironstone on hill summits and slopes (Beecham 2001).

The Ancient Drainage subregion of the Avon Wheatbelt is characterised as an ancient undulating peneplain with proteaceous scrub heath mixed *Eucalyptus* spp. and *Allocasuarina huegeliana* woodlands on alluvial and eluvial soils.

According to Myers *et. al* (2000), a 'biodiversity hotspot' is any area where exceptional concentrations of endemic flora and fauna species are undergoing exceptional loss of habitat. Twenty-five biodiversity hotspots are recognized globally, comprising up to 44% of all known vascular plant species (Myers *et. al* 2000). Of the 25 hotspots, the south-west Australia hotspot, which includes the Geraldton Sandplain and Avon Wheatbelt bioregions, comprises 5,469 species of flora and 1.4% of the global total of endemic flora (Myers *et. al* 2000).

1.3.3 Vegetation

Mapping of the vegetation of Western Australia was completed on a broad scale (1:250,000) by Beard (1975). The survey area is situated in the Northern Sandplains Botanical Subdistrict and Wheatbelt Botanical Subdistrict, which forms part of the Irwin Botanical District and Avon Botanical District respectively. The Irwin Botanical District and Avon Botanical District form part of the Southwest Botanical Province of Western Australia (Beard 1975).

Shepherd *et al.* (2001) re-assessed the mapping of Beard (1975) and updated vegetation boundaries to account for clearing in the intensive land use zone resulting in the division of some larger vegetation units into smaller units, as indicated in Table 1. Beard's (1975) vegetation mapping across the study area is shown in Figure 3.

Table 1: Vegetation Associations within the Narngulu to Tilley Survey Area as mapped by Beard (1975) and Shepherd *et al.* (2001)

Beard Code (1975)	Shepherd Code (2001)	Vegetation Description	Extent of Pre-European Vegetation (ha)	Current Extent (ha)	Proportion of Vegetation Remaining (%)	Extent of Vegetation Within Survey Area (Ha)
a23Lc	371	Low forest; <i>Acacia rostellifera</i>	37,651	3,703	9.8	57
abSi	359	Shrublands; <i>Acacia</i> & <i>Banksia</i> scrub	51,008	10,762	21.1	3
acmSc	1413	Shrublands; <i>Acacia</i> , <i>Casuarina</i> & <i>Melaleuca</i> thicket	2,296,506	1E+06	60.6	42
acSc	36	Shrublands; thicket, <i>Acacia</i> - <i>Casuarina</i> alliance	429,445	177,262	41.3	11
c3Sc	551	Shrublands; <i>Allocasuarina campestris</i> thicket	422,337	102,167	24.2	23
e6,8Mi	142	Medium woodland; York Gum & Salmon Gum	1,134,385	281,570	24.8	46
e6c5Mr a9,19Si	687	Shrublands; Bowgada & Jam scrub with scattered <i>Allocasuarina huegeliana</i> & York Gum	60,397	10,556	17.5	94
e6Mr a19Si	35	Shrublands; Jam scrub with scattered York Gum	213,685	21,972	10.3	75
e6Mr a19Si/c3Sc	684	Mosaic: Shrublands; Shrublands; Jam scrub with scattered York Gum in the valleys / <i>Allocasuarina campestris</i> thicket	145,457	30,397	20.9	199
e6Mr eaSi	353	Shrublands; Mallee & <i>Acacia</i> scrub with scattered York Gum	103,631	4,656	4.5	31
k1,3Ci	325	Succulent steppe; Saltbush & Samphire	71,884	61,602	85.7	15

Beard Code (1975)	Shepherd Code (2001)	Vegetation Description	Extent of Pre-European Vegetation (ha)	Current Extent (ha)	Proportion of Vegetation Remaining (%)	Extent of Vegetation Within Survey Area (Ha)
k3Ci	676	Succulent steppe; Samphire	2,110,508	2E+06	98.9	69
mhSc	675	Shrublands; mixed thicket (<i>Melaleuca</i> & <i>Hakea</i>)	59,708	12,985	21.7	49
x2SZc	408	Shrublands; scrub-heath on coastal association, yellow sandplain	382,507	154,708	40.4	18
x3SZc	380	Shrublands; scrub-heath on sandplain	607,325	317,763	52.3	46
x3SZc/acSc	372	Mosaic: Shrublands; scrub-heath on deep sandy flats / Shrublands; thicket, <i>Acacia</i> - <i>Casuarina</i> alliance	93,635	28,141	30.1	64
x4SZc	379	Shrublands; scrub-heath on lateritic sandplain in the central Geraldton Sandplain Region	633,325	128,007	20.2	74

1.4 PREVIOUS BIOLOGICAL STUDIES

The flora of the Geraldton Sandplains and Avon Wheatbelt bioregions is considered to contain a high proportion of rare and endemic species. Studies most relevant to the current survey include:

- *Koolanooka/Blue Hills Remnant Direct Shipping Iron Ore (DSO) Mining Project Scoping Document* (ecologia 2007);
- *Avon Natural Resource Management Strategy* (Avon Catchment Council 2005);
- *Declared Rare and Poorly Known Flora in the Geraldton District* (CALM 2001); and
- *Vegetation Assessment and Rare Flora Search between Perenjori and Mt Gibson* (Paul Armstrong and Associates 2004).

2 METHODOLOGY

2.1 BACKGROUND TO THE PROTECTION OF FLORA AND VEGETATION

Flora is protected formally and informally by various legislative and non-legislative measures, which are summarised below:

Legislative Protection

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);*
- *Wildlife Conservation Act 1950 (WC Act);* and
- *Environmental Protection Act 1986 (EP Act).*

Non-Legislative Protection

- Western Australian DEC Priority lists for flora and vegetation; and
- Recognition of locally significant populations by the DEC.

A short description of these Acts is given below. Definitions of the species conservation codes and ecological communities are provided in Appendix A and Appendix B respectively.

EPBC Act

The Commonwealth *EPBC Act* aims to protect matters of national environmental significance. Under the *EPBC Act*, the Commonwealth SEWPAC 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). This includes flora that fit one of the categories in Appendix A or communities that fit one of the categories in Appendix B.

Projects likely to cause a significant impact on matters of national environmental significance should be referred to SEWPAC for assessment under the *EPBC Act*.

WC Act

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

Flora is given Declared Rare Flora 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.

EP Act

Declared Rare Flora (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 Western Australia *EP Act* and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Exemptions for clearing of native vegetation do not apply in ESAs, and a permit is required.

DEC Priority Lists

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

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

Once listed, a community is a PEC, but only when endorsed by the Western Australian Minister of Environment does it become a TEC, and thereby protected as an ESA under *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (see Appendix B).

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 as they represent an extension of the range to the previously-known distribution or are newly discovered taxa and 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, relict populations of such species assume local importance for the DEC. It is not uncommon for the DEC to make comment on these species of interest.

2.1.1 Introduced Species and Declared Plants

The Environmental Weed Strategy for Western Australia (Department of Conservation and Land Management [CALM] 1999) contains criteria for the assessment and ranking of weeds in terms of their environmental impact on biodiversity (see Appendix C). 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' (CALM 1999).

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-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] 2008).

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).

2.2.1 Desktop Survey

A desktop survey was undertaken to gather background information on the survey areas and the flora and vegetation present. This involved a search of the following sources:

- DEC combined biological database *NatureMap* (DEC 2010a);
- DEC Threatened and Priority Flora database (DEC 2010b);
- DEC Threatened and Priority Ecological Communities database (DEC 2010c); and
- previous flora surveys (refer to section 1.5).

A request for a database search was submitted to the DEC for the survey area from Narngulu to Tilley to ascertain whether any Declared Rare Flora, Priority Flora, Threatened or Priority Ecological Communities had been previously recorded in the survey area and surrounds. The DEC considered a search area 1 km either side of the centre of the survey area was appropriate.

In addition, a literature review was conducted, together with a review of records of flora for the survey area. These sources were used to compile a list of expected Declared Rare or Priority species, and Threatened or Priority Ecological Communities that may occur on the landforms in the survey area.

2.2.2 Field Survey

The survey was undertaken during 16-22 September 2010 with forty-two person-days invested in the flora and vegetation assessment of the survey area.

The survey area was accessed via tracks along both sides of the entire length of the rail alignment. The flora diversity, vegetation composition and structure was recorded and vegetation condition assessed utilising 20 x 20 m unpegged quadrats, relevés and opportunistic collections made during wandering traverses. Wandering traverses were undertaken throughout most of the remnant vegetation along both sides of the rail alignment.

A total of 92 unpegged quadrats and 27 relevés were recorded. Locations of quadrats and relevés were selected during traverses of the study area and were selected to be representative of the vegetation. For areas where a 20 x 20 m quadrat was inappropriate, suitable quadrat dimensions were used, whilst maintaining the same total search area. Where vegetation was observed to be significantly degraded, or where only a minor variation in vegetation was observed (such as a change in plant density, without a change in species composition), a relevé was used to record an informal assessment of the vegetation at such sites.

Data was recorded using standardised field sheets. The information noted at each site included landscape features, soils, bareground, and disturbance levels. Details of height and percentage cover were recorded for each species present. This enabled accurate vegetation mapping to be undertaken, and provided detail of the species present. Opportunistic collections focused primarily on the location of additional taxa not recorded in the quadrats, flora not well known or not currently described, introduced species, and in particular, Declared Rare and Priority Flora.

2.2.3 Taxonomic identification

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

The species list for the survey areas was checked against FloraBase (WAH 2010) to determine whether any of the species are listed as DRF, Priority or introduced species. Declared Rare and Priority flora were also checked against the *EPBC Act* listing of threatened species to determine whether any are federally listed.

2.2.4 Vegetation Association Definition, Mapping and Statistical Analysis

Vegetation associations were described based on their structure and species composition, as defined by quadrat and relevé data, and field observations.

Vegetation mapping was undertaken in the field by delineation of vegetation boundaries on aerial photographs reproduced at 1:10,000, and marking vegetation boundaries with a handheld GPS accurate to approximately 5 m (Garmin and Magellan). Mapping of vegetation associations was finalised in the office following completion of the vegetation analysis utilising GIS software (OziExplorer and ARCGIS 9.3).

Multivariate analysis was undertaken with quadrat data from the survey area using presence-absence of species. Quadrat data was transformed to improve normality, and a Bray-Curtis similarity matrix was created. A dendrogram was then plotted, using hierarchical agglomerative cluster analysis using *Primer-E* version 6.1.5 (2006).

The vegetation associations were digitised and produced as electronic mapping data and ESRI shapefiles were created using ARCGIS 9.3. Representation, reproduction and interrogation of the mapping data at a scale other than that at which the information was captured could produce distortions.

Vegetation descriptions from quadrats and relevés were used to describe vegetation associations within the survey area. Vegetation associations were named and categorised in two levels which have been referred to as Broad Vegetation Formations and Vegetation Associations (Cofinas and Creighton 2001), these correspond to the National Vegetation Information System (NVIS) Level III (broad floristic formation) and Level VI (sub-association) respectively.

Once the vegetation associations were determined, they were checked against the listing of State and Federal TECs and State PECs. The vegetation associations were also checked against regional databases, such as Beard (1975), Shepherd *et al.* (2001) and the Comprehensive Adequate and Representative (CAR) Reserve Analysis (DAFWA 2007), to determine their regional representation.

2.2.5 Vegetation Condition Mapping

Quadrat condition data, combined with observations from field traverses of the survey area was interpreted and vegetation condition boundaries were captured at a scale of 1:10,000. The vegetation condition mapping was then digitised and produced as electronic mapping data and ESRI shape files were created using ARCGIS 9.3. Vegetation condition was mapped as per the Bush Forever condition scale presented in Appendix D.

3 RESULTS

3.1 VARIABLES AND CONSTRAINTS

There are always variables associated with individual surveys and it is often difficult to predict the extent to which they influence survey outcomes. Table 2 outlines the variables identified during the survey of the project area.

Table 2: Variables Associated with the Flora and Vegetation Survey

Variable	Impact on Survey Outcomes
Access Problems	All areas were accessible and adequately surveyed.
Experience levels	<p>The biologists who conducted the survey were practitioners suitably qualified in their respective fields:</p> <ul style="list-style-type: none"> • Project Manager: Dr Kellie McMaster (Senior Ecologist); • Field Staff: Ciaran Sgherza (Botanist), Emma Carroll (Senior Botanist), Kellie McMaster, Hayden Ajduk (Botanist), James Sansom (Botanist) and Lewis Trotter (Botanist); • Taxonomy: Peter Jobson (Taxonomist); and • Data Interpretation and Reporting: Kellie McMaster and Lewis Trotter.
Timing ¹ , weather, season.	<p>Flora composition changes with time, particularly over the seasons and with seasonal conditions. A large proportion of flora associated with the regions comprising the survey area consists of annuals and ephemerals, and these have both specific growing periods and a requirement for adequate and timely rainfall. In addition, some plants last for a markedly brief time.</p> <p>The survey was undertaken in one trip, from the 16 – 22 September 2010. For the three months (June – August) preceding the survey, the</p>

EPA Guidance Statement No. 51 (2004) stipulates that flora and vegetation surveys should be undertaken following the season that contributes the greatest rainfall in the region. In the Northern Province, this is after summer. In the Eremaean Province, rainfall is sporadic, and in the South-west Province the main rain is in winter, requiring surveys to be undertaken in spring. 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
	<p>rainfall recorded was below average at the Geraldton Airport, Morawa Airport and Mullewa townsite.</p> <p>Rainfall for the year to date was below average across the survey area.</p>
Scope: Life forms	<p>Many perennial and annual species included identifiable parts (<i>i.e.</i> flowers and fruits) allowing for adequate identification.</p>
Sources of information	<p>Historically, the Geraldton Sandplains and Avon Wheatbelt bioregions have been extensively cleared for agriculture. As a result, few published flora surveys have been undertaken in the area. Those most relevant to the current study are listed in Section 1.3.</p>
Completeness	<p>The field survey was conducted during the flowering season (spring) for the Mid-West region, resulting in an average species richness of 28.8 taxa per quadrat (± 8.6) from a total of 92 quadrats. Completion of the current survey described a total of 90 vegetation associations from 34 broad floristic communities; with an average of one scored quadrat per vegetation association (17 vegetation associations comprised 2 or more quadrats).</p> <p>The survey area was traversed by vehicle and on foot. Quadrats were recorded based on changes in vegetation composition. Sections of the survey area where Declared Rare and Priority Flora were recorded were additionally traversed on foot and extended until the population was no longer recorded. The vegetation associations containing Declared Rare and Priority Flora were noted and traversed if occurring elsewhere within the survey area.</p>

3.2 FLORA

3.2.1 Potentially Occurring Flora of Conservation Significance

A total of 139 taxa in the Geraldton Sandplains and Avon Wheatbelt bioregions are listed as Threatened under the *EPBC Act*. Furthermore, 75 taxa in the Geraldton Sandplains bioregion and 136 taxa in the Avon Wheatbelt bioregion are gazetted as Declared Rare Flora under the *WC Act*.

There are a total of 432 Priority Flora known from the Geraldton Sandplains bioregion and 532 Priority Flora from the Avon Wheatbelt bioregion (WAH 2010).

A search of DEC databases targeting the Narngulu to Tilley survey area with a 2 km search buffer (1 km either side of the rail line) identified 16 Declared Rare Flora and 89 Priority Flora (results of the search are provided in Appendix A). Twenty two of the species from the DEC search were considered 'Likely' to occur, while a further 36 were considered 'Possible' to occur within the survey area (Table 3). Fourteen of the DEC database records are located from within the survey area.

Table 3 Likelihood of Priority Flora occurring within the Narngulu to Tilley Survey Area based on the DEC Database Search and Literature Review

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Caladenia elegans</i>	R	Perennial Herb	Yes	Recorded on clayey loam. Winter-wet clay flats.	Yes	Unspecified	Within 25 km	Possible
<i>Caladenia hoffmanii</i>	R	Perennial Herb	Yes	Recorded on rocky outcrops and hillsides, ridges, swamps and gullies.	Yes	Unspecified	Within 25 km	Unlikely
<i>Caladenia wanosa</i>	R	Perennial Herb	Yes	Recorded on sand.	Yes	1	Within Survey Area	Recorded
<i>Chorizema humile</i>	R	Perennial Shrub	Yes	Recorded on sandy clay or loam. Plains.	Yes	1	0.21 km	Likely
<i>Commersonia adenothalia</i>	R	Perennial Shrub	Yes	Recorded on orange-brown sand, gravel and laterite. Disturbed road verges.	Yes	1	1.3 km	Possible
<i>Drakaea concolor</i>	R	Perennial Herb	Yes	Occurs on sand.	Yes	6	0.25 km	Likely
<i>Eremophila viscida</i>	R	Perennial Shrub	Yes	Recorded on granitic soils, sandy loam. Stony gullies, sandplains.	Yes	2	1.1 km	Possible
<i>Eucalyptus beardiana</i>	R	Perennial Tree	Yes	Recorded on red or yellow sand. Sand dunes and ridges.	Yes	2	10.6 km	Possible
<i>Eucalyptus synandra</i>	R	Perennial Tree	Yes	Recorded on sandy and lateritic soils.	Yes	2	2.08 km	Possible
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	R	Perennial Shrub	Yes	Clay loams over laterite in heaths with other species of <i>Grevillea</i> , <i>Hakea</i> and <i>Banksia</i> .	Yes	10	Within Survey Area	Recorded
<i>Grevillea phanerophlebia</i>	R	Perennial Shrub	Yes	Recorded on grey, white and brown sand over laterite.	Yes	3	0.8 km	Recorded
<i>Gyrostemon reticulatus</i>	R	Perennial Shrub	Yes	Brown or yellow loamy sand.	Yes	2	0.75 km	Unlikely

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Hypocalymma longifolium</i>	R	Perennial Shrub	Yes	Recorded on grey sand or clay, sandstone. Rocky breakaways, swampland.	Yes	Unspecified	Within 25 km	Unlikely
<i>Leucopogon marginatus</i>	R	Perennial Shrub	Yes	Recorded on yellow and gravelly lateritic sand. Undulating plains.	Yes	1	1.5 km	Possible
<i>Tecticornia bulbosa</i>	R	Perennial Shrub	Yes	Recorded in saline sandy clay or red/brown loam.	Yes	2	8.92 km	Possible
<i>Wurmbea tubulosa</i>	R	Perennial Herb	Yes	Recorded on clay, loam. River banks, seasonally-wet places.	Yes	Unspecified	Within 25 km	Possible
<i>Acacia ampliata</i>	P1	Perennial Shrub	Yes	Recorded on red/orange sand, sandy loam, loam. Sandplains, hillsides.	Yes	2	5.91 km	Possible
<i>Acacia lineolata</i> subsp. <i>multilineata</i>	P1	Perennial Shrub	Yes	Recorded on yellow sand, rocky clay. Sandplains. Swamps.	Yes	Unspecified	Within 25 km	Unlikely
<i>Acacia pterocaulon</i>	P1	Perennial Shrub	Yes	Recorded on rocky clay loam, sandy clay. Rocky hillslopes.	Yes	Unspecified	Within 25 km	Unlikely
<i>Baeckea decipiens</i>	P1	Perennial Shrub	Yes	Recorded on yellow sand.	Yes	8	Within Survey Area	Recorded
<i>Baeckea staminosa</i>	P1	Perennial Shrub	Yes	Recorded on white sands. Wetlands.	Yes	2	2.51 km	Unlikely
<i>Chamelaucium</i> sp. <i>Canna</i> (G. Keighery s.n. PERTH 02236435)	P1	Perennial Shrub	Yes	Recorded on rocky loamy clay and breakaway country.	Yes	1	1.52 km	Unlikely
<i>Dampiera scaevolina</i>	P1	Perennial Herb or Shrub	Yes	Recorded on sandy & gravelly soils.	Yes	2	0.75 km	Likely
<i>Enekbatus dualis</i>	P1	Perennial Shrub	Yes	Recorded on orange-brown silty sand, brown clayey sand and sometimes granite.	Yes	1	1 km	Likely

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Enekbatus planifolius</i>	P1	Perennial Shrub	Yes	Recorded on orange-brown fine silty sand. On gentle slopes.	Yes	7	0.13 km	Likely
<i>Harperia ferruginipes</i>	P1	Perennial Herb	Yes	Recorded on red sandy loam.	Yes	1	2.91 km	Possible
<i>Lepidobolus basiflorus</i>	P1	Perennial Herb	Yes	Recorded on sand & sandy loam. Dry heath.	Yes	1	4.45 km	Possible
<i>Leptospermum exsertum</i>	P1	Perennial Shrub	Yes	Recorded on sandy soils. Sandplains.	Yes	1	0.03 km	Likely
<i>Malleostemon</i> sp. Mullewa (P. Winson B7365)	P1	Perennial Shrub	Yes	Recorded on sandy clay. Hillslopes, flats.	Yes	Unspecified	Within 25 km	Possible
<i>Mirbelia ternata</i>	P1	Perennial Shrub	Yes	Recorded on red/brown sand, lateritic gravelly soils. Undulating plains.	Yes	2	9.64 km	Possible
<i>Ricinocarpos oliganthus</i>	P1	Perennial Shrub	Yes	Recorded on gravelly, red-brown clay loam.	Yes	3	0.04 km	Likely
<i>Scholtzia</i> sp. Binnu (M.E. Trudgen 2218)	P1	Perennial Shrub	Yes	Recorded on yellow sand. Sand dune.	Yes	Unspecified	Within 25 km	Possible
<i>Scholtzia</i> sp. Kojarena (A.M. Ashby 1904)	P1	Perennial Shrub	Yes	Unspecified.	Yes	1	0.22 km	Recorded
<i>Stylidium pendulum</i>	P1	Perennial Herb	Yes	Recorded on clayey sand or sandy loam, granite. Upper slopes, often near rock outcrops. Shrubland or open Mallee woodland.	Yes	4	Within Survey Area	Likely
<i>Stylidium wilroyense</i>	P1	Perennial Herb	Yes	Recorded on sand or clayey sand. Plains and gentle slopes. <i>Acacia</i> , <i>Allocasuarina</i> Shrubland.	Yes	3	Within Survey Area	Likely
<i>Stylidium xanthopis</i>	P1	Perennial Herb	Yes	Recorded in pockets of damp soils. Outcrops.	Yes	2	1.65 km	Unlikely

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Tricoryne</i> sp. Geraldton (G.J. Keighery 10461)	P1	Perennial Herb	Yes	Recorded on white or yellow sand. Plains, crests of dunes.	Yes	2	3.95 km	Possible
<i>Acacia megacephala</i>	P2	Perennial Shrub	Yes	Recorded on white/yellow sand. Sandplains.	Yes	18	Within Survey Area	Recorded
<i>Anthrotroche myoporoides</i>	P2	Perennial Shrub	Yes	Recorded on yellow or red sand. Sandplains.	Yes	Unspecified	Within 25 km	Possible
<i>Baeckea</i> sp. Yuna (M.E. Trudgen 2224)	P2	Perennial Shrub	Yes	Recorded on sand, sandy loam, sandstone. Breakaways.	Yes	1	5.43 km	Possible
<i>Calectasia browneana</i>	P2	Perennial Herb	Yes	Recorded on white-grey sand, laterite.	Yes	1	0.78 km	Likely
<i>Cheyniana rhodella</i>	P2	Perennial Herb	Yes	Unspecified.	Yes	2	0.34 km	Possible
<i>Chthonocephalus muellerianus</i>	P2	Annual Herb	Yes	Recorded on red sandy soils. Sandplains.	Yes	1	6.50 km	Possible
<i>Comesperma griffinii</i>	P2	Annual or Perennial Herb	Yes	Recorded on yellow or grey sand. Plains.	Yes	1	6.14 km	Possible
<i>Comesperma rhadinocarpum</i>	P2	Perennial Herb	Yes	Recorded on sandy soils.	Yes	Unspecified	Within 25 km	Possible
<i>Dampiera krauseana</i>	P2	Perennial shrub	Yes	Recorded on sand, gravel.	Yes	2	2.05 km	Recorded
<i>Darwinia</i> sp. Canna (R. Davis 11241)	P2	Perennial shrub	Yes	Recorded on brown sandy loam. Granite rises.	Yes	5	Within Survey Area	Likely
<i>Dicrastylis incana</i>	P2	Perennial shrub	Yes	Recorded on yellow sand. Low, open woodlands.	Yes	2	0.20 km	Likely
<i>Eremaea acutifolia</i>	P2	Perennial shrub	Yes	Recorded on grey or yellow sand. Sandplains.	Yes	2	Within Survey Area	Recorded

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Petrophile pilostyla</i> subsp. <i>syntoma</i>	P2	Perennial shrub	Yes	Recorded on yellow sand. Crests of sand dunes.	Yes	3	7.88 km	Recorded
<i>Prostanthera scutata</i>	P2	Perennial shrub	Yes	Recorded on gravelly sand. Undulating sandplains	Yes	1	<0.01 km	Likely
<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)	P2	Perennial Shrub	Yes	Breakaway scree slopes.	Yes	4	Within Survey Area	Recorded
<i>Scholtzia</i> sp. Eradu (R.D. Royce 8016)	P2	Perennial shrub	Yes	Recorded on yellow sand. Flats.	Yes	Unspecified	Within 25 km	Possible
<i>Stenanthemum poicilum</i>	P2	Perennial shrub	Yes	Recorded on red clay or sandy clay, loam.	Yes	2	<0.01 km	Recorded
<i>Stylidium wilroyense</i>	P2	Perennial Herb	Yes	Recorded on sand or clay.	Yes	7	Within Survey Area	Recorded
<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)	P2	Perennial shrub	Yes	Recorded in yellow sand.	Yes	4	4.21 km	Recorded
<i>Verticordia muelleriana</i> subsp. <i>minor</i>	P2	Perennial shrub	Yes	Recorded on white/grey or yellow sand over gravel.	Yes	8	0.60 km	Recorded
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	P3	Perennial shrub	Yes	Recorded on yellow or red sand, gravelly soils. Sandplains.	Yes	3	1.36 km	Recorded
<i>Angianthus micropodioides</i>	P3	Annual Herb	Yes	Recorded on saline sandy soils. River edges, saline depressions and claypans.	Yes	Unspecified	Within 25 km	Unlikely
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	P3	Perennial Shrub	Yes	Recorded on yellow/brown or white sand. Undulating plains, hill slopes.	Yes	6	Within Survey Area	Recorded

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Beyeria gardneri</i>	P3	Perennial Shrub	Yes	Recorded on yellow sand.	Yes	1	7.34 km	Possible
<i>Calytrix ecalycata</i> subsp. <i>ecalycata</i>	P3	Perennial Shrub	Yes	Recorded on yellow or white sand, sandy gravel, clay loam, granite, sandstone. Uplands, valley flats, ridges, hills, road verges.	Yes	Unspecified	Within 25 km	Possible
<i>Cryptandra nola</i>	P3	Perennial Shrub	Yes	Recorded on sandy soils over granite, laterite. Along drainage lines, breakaways, hillsides.	Yes	6	0.83 km	Recorded
<i>Cyanicula fragrans</i>	P3	Perennial Herb	Yes	Flat granite outcrops.	Yes	8	Within Survey Area	Recorded
<i>Darwinia</i> sp. Morawa (C.A. Gardner 2662)	P3	Perennial Shrub	Yes	Recorded on clay over granite, yellow/brown clayey sand.	Yes	1	0.92 km	Likely
<i>Enekbatus longistylis</i>	P3	Perennial Shrub	Yes	Recorded on yellow sand. Sandplains.	Yes	1	<0.01 km	Likely
<i>Gastrolobium propinquum</i>	P3	Perennial Shrub	Yes	Recorded on clay, clay-loam or sandy clay soils, granite, shale. Hills, flats, drainage lines, winter-wet areas.	Yes	Unspecified	Within 25 km	Possible
<i>Geleznovia verrucosa</i> subsp. <i>kalbarri</i>	P3	Perennial Shrub	Yes	Recorded on white/orange-brown sand, gravel, laterite, sandstone, limestone.	Yes	Unspecified	Within 25 km	Unlikely
<i>Gnephosis cassiniana</i>	P3	Annual Herb	Yes	Recorded on sand, clay loam. Saline depressions, low wet areas.	Yes	1	0.31 km	Possible
<i>Gompholobium cinereum</i>	P3	Perennial Shrub	Yes	Recorded on yellow sand, clayey sand, laterite. Well-drained open sites, slopes, plains, roadsides.	Yes	6	Within Survey Area	Recorded

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Grevillea asparagoides</i>	P3	Perennial Shrub	Yes	Gravelly white or yellow sand.	Yes	Unspecified	Within Survey Area	Recorded
<i>Grevillea candicans</i>	P3	Perennial Shrub	Yes	Recorded on deep yellow sand. Sandplains.	Yes	1	3.33 km	Possible
<i>Grevillea eriobotrya</i>	P3	Perennial Shrub	Yes	Recorded on yellow sand, sandy clay.	Yes	1	10.52 km	Unlikely
<i>Grevillea granulosa</i>	P3	Perennial Shrub	Yes	Recorded on amongst medium trees, or low trees, or low (sclerophyll) Shrubland; in gravelly soil, or loam; occupying water logged margin of salt lake.	Yes	8	Within Survey Area	Recorded
<i>Grevillea leptopoda</i>	P3	Perennial Shrub	Yes	Recorded on loam & lateritic gravel, sand, clay.	Yes	2	0.34 km	Likely
<i>Grevillea tenuiloba</i>	P3	Perennial Shrub	Yes	Recorded on sand, clayey loam. Granite outcrops.	Yes	10	Within Survey Area	Recorded
<i>Grevillea triloba</i>	P3	Perennial Shrub	Yes	Recorded on sandy loam on sandstone or limestone, lateritic soils.	Yes	1	2.49 km	Possible
<i>Hemigenia saligna</i>	P3	Perennial Shrub	Yes	Recorded on lateritic and sandy soils.	Yes	Unspecified	Within 25 km	Possible
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	P3	Perennial Shrub	Yes	Recorded on sand, sandy loam, granite.	Yes	4	<0.01 km	Recorded
<i>Malleostemon</i> sp. Erangy Springs (M.E. Trudgen 12030)	P3	Perennial Shrub	Yes	Recorded on grey sand. Undulating plains.	Yes	6	4.24 km	Possible
<i>Melaleuca barlowii</i>	P3	Perennial Shrub	Yes	Recorded on yellow-brown sand or red-brown clay loam.	Yes	2	0.50 km	Recorded

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Microcorys tenuifolia</i>	P3	Perennial Shrub	Yes	Recorded on red-brown sand, lateritic gravelly soils.	Yes	Unspecified	Within 25 km	Recorded
<i>Persoonia pentasticha</i>	P3	Perennial Shrub	Yes	Recorded on sand, loam. Base of granite outcrops.	Yes	1	0.07 km	Likely
<i>Psammomoya implexa</i>	P3	Perennial Shrub	Yes	Recorded on stony rises.	Yes	2	1.75 km	Unlikely
<i>Scaevola globosa</i>	P3	Perennial Shrub	Yes	Recorded on sandy soils.	Yes	1	0.34 km	Likely
<i>Scholtzia</i> sp. Geraldton (F. Lullfitz L 3216)	P3	Perennial Shrub	Yes	Recorded on yellow sand. Flats.	Yes	4	4.47 km	Possible
<i>Tecticornia fimbriata</i>	P3	Perennial Shrub	Yes	Recorded in clay, loam. Margins of salt & gypsum lakes	Yes	Unspecified	Within 25 km	Unlikely
<i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016)	P3	Perennial Herb	Yes	Recorded on yellow sand.	Yes	Unspecified	Within Survey Area	Recorded
<i>Tricoryne</i> sp. Morawa (G.J. Keighery & N. Gibson 6759)	P3	Annual Herb	Yes	Recorded on red-brown sand, red clayey loam, greenstone gravels, gritty soils, granite. Valley and hill slopes, hill summits.	Yes	1	Within Survey Area	Likely
<i>Triglochin protuberans</i>	P3	Annual Herb	Yes	Recorded on red loam, grey mud over clay. Winter-wet sites, claypans, near salt lakes.	Yes	2	2.02 km	Unlikely
<i>Urodon capitatus</i>	P3	Perennial Shrub	Yes	Recorded on sandy gravelly soils. Plains.	Yes	1	0.35 km	Likely
<i>Verticordia chrysostachys</i> var. <i>pallida</i>	P3	Perennial Shrub	Yes	Recorded on yellow sand. Sandplains, sand dunes.	Yes	4	0.62 km	Recorded
<i>Verticordia densiflora</i> var. <i>roseostella</i>	P3	Perennial Shrub	Yes	Recorded on sandy gravelly soils.	Yes	5	0.04 km	Likely

Priority Taxa	Conservation Status	Annual / Perennial	Suitable Conditions	Habitat Preference (WAH 2010)	Suitable Habitat Present	Number of Records ¹	Closest Record to Survey Area ²	Likelihood of Occurrence
<i>Verticordia fragrans</i>	P3	Perennial Shrub	Yes	Recorded on white, grey or yellow sand, clay loam. Low-lying areas, sandplains.	Yes	1	1.15 km	Possible
<i>Acacia guinetii</i>	P4	Perennial Shrub	Yes	Recorded on rocky loam, lateritic gravelly soils. Stony hills.	Yes	1	0.47 km	Possible
<i>Banksia benthamiana</i>	P4	Perennial Shrub	Yes	Recorded on sandy loam, clay-loam, yellow sand, gravel.	Yes	1	<0.01 km	Recorded
<i>Banksia elegans</i>	P4	Perennial Shrub	Yes	Recorded on yellow, white or red sand. Sandplains, low consolidated dunes.	Yes	1	1.36 km	Possible
<i>Banksia scabrella</i>	P4	Perennial Shrub	Yes	Recorded on yellow sand.	Yes	Unspecified	Within Survey Area	Recorded
<i>Diuris recurva</i>	P4	Perennial Herb	Yes	Recorded on loam. Winter-wet Marshes	Yes	Unspecified	Within 25 km	Unlikely
<i>Eucalyptus ebbanoensis</i> subsp. <i>photina</i>	P4	Perennial Mallee	Yes	Recorded on sandy clay, red sand. Lateritic breakaways, sandplains.	Yes	3	0.81 km	Likely
<i>Jacksonia velutina</i>	P4	Perennial Shrub	Yes	Recorded on yellow sand. Sandplains & sand hills.	Yes	2	1.23 km	Recorded
<i>Verticordia capillaris</i>	P4	Perennial Shrub	Yes	Recorded on yellow sand, sandy loam, sandy clay. Sandplains.	Yes	1	8.45 km	Recorded
<i>Verticordia comosa</i>	P4	Perennial Shrub	Yes	Recorded in yellow or grey sand.	Yes	Unspecified	Within 25 km	Possible
<i>Verticordia penicillaris</i>	P4	Perennial Shrub	Yes	Recorded on shallow gritty soils. Granite outcrops.	Yes	2	1.77 km	Unlikely
<i>Verticordia polytricha</i>	P4	Perennial Shrub	Yes	Recorded on sand, gravelly clay. Sandstone outcrops.	Yes	Unspecified	Within 25 km	Possible

1. Number of DEC records from Database Search area (DEC 2010c) and NatureMap (DEC 2010d).

2. Closest Record from Database Search Area (DEC 2010c) and NatureMap (DEC 2010d).

3.2.2 Recorded Flora

A total of 554 taxa (including species, subspecies and varieties) were recorded from the survey area during the current survey. These 554 taxa comprised 246 genera and 72 families. The average plant species richness was 28.8 taxa per quadrat \pm 8.6 from a total of 92 sites. Appendix E contains an inventory of flora recorded during the survey and Appendix F depicts a matrix of species by site.

The plant families most frequently recorded from the survey were Myrtaceae (85 taxa), Fabaceae (74 taxa) and Proteaceae (50 taxa). The most frequently recorded genera were *Acacia* (45 taxa), *Grevillea* (20 taxa) and *Melaleuca* (17 taxa).

3.2.3 Flora of Conservation Significance

Three species gazetted as Declared Rare Flora (DRF) under the *Wildlife Conservation Act 1950* (WA), including one species listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) - *Caladenia wanosa* (Vulnerable, Rare), *Grevillea bracteosa* subsp. *howatharra* (Rare) and *Grevillea phanerophlebia* (Rare), were recorded within the survey area.

Twenty-seven species listed as Priority Flora by the DEC (WAH 2010) were recorded from the survey area (Table 4). This included two Priority One, eight Priority Two, fourteen Priority Three and four Priority Four species. The locations of the Priority Flora are presented in Appendix G and Figure 4.

Table 4: Declared Rare and Priority Flora Recorded within the Narngulu to Tilley Survey Area

Taxa	Conservation Status	DEC record from Survey Area	ENV 2010 record
<i>Caladenia wanosa</i>	V, R		X
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	R	X	X
<i>Grevillea phanerophlebia</i>	R		X
<i>Baeckea decipiens</i>	P1		X
<i>Leptospermum exsertum</i>	P1	X	
<i>Scholtzia</i> sp. <i>Kojarena</i> (A.M. Ashby 1904)	P1		X
<i>Stylidium pendulum</i>	P1	X	
<i>Acacia megacephala</i>	P2	X	X
<i>Dampiera krauseana</i>	P2		X
<i>Darwinia</i> sp. <i>Canna</i> (R. Davis 11241)	P2	X	
<i>Eremaea acutifolia</i>	P2	X	X
<i>Petrophile pilostyla</i> subsp. <i>syntoma</i>	P2		X
<i>Prostanthera scutata</i>	P2	X	
<i>Scholtzia</i> sp. <i>East Yuna</i> (A.C. Burns 6)	P2		X
<i>Stenanthemum poicilum</i>	P2	X	X
<i>Stylidium wilroyense</i>	P2	X	
<i>Thryptomene</i> sp. <i>East Yuna</i> (J.W. Green 4639)	P2		X
<i>Verticordia muelleriana</i> subsp. <i>minor</i>	P2		X
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	P3		X

Taxa	Conservation Status	DEC record from Survey Area	ENV 2010 record
<i>Cyanicula fragrans</i>	P3		X
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	P3	X	X
<i>Cryptandra nola</i>	P3		X
<i>Gompholobium cinereum</i>	P3	X	X
<i>Grevillea asparagoides</i>	P3		X
<i>Grevillea granulosa</i>	P3	X	X
<i>Grevillea tenuiloba</i>	P3	X	X
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	P3	X	X
<i>Melaleuca barlowii</i>	P3		X
<i>Microcorys tenuifolia</i>	P3		X
<i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016)	P3		X
<i>Verticordia chrysostachys</i> var. <i>pallida</i>	P3		X
<i>Banksia benthamiana</i>	P4		X
<i>Banksia scabrella</i>	P4		X
<i>Jacksonia velutina</i>	P4		X
<i>Verticordia capillaris</i>	P4		X

***Caladenia wanosa* (R)**

Caladenia wanosa is a tuberous, perennial herb to 0.2 m with cream to red flowers (Plate 1). It has erect linear leaves with hairs mostly on the lower surface (Brown *et al.* 1998). It occurs on sand, sandstone outcrops and top edges of gorges and usually occurs as scattered individuals (Brown *et al.* 1998). *Caladenia wanosa* is listed as Vulnerable under the *EPBC Act* (1999) and is gazetted as Declared Rare Flora under the *WC Act* (1950)

Currently there are 16 known populations; 11 occur near Kalbarri; three south of Mullewa; one near Eradu; and one in East Yuna Nature Reserve (Brown *et al.* 1998). It is known from nine records from the Western Australian Herbarium (WAH 2010). One individual of *Caladenia wanosa* was recorded within the survey area in vegetation association AIT-Em. The location of *Caladenia wanosa* is presented in Appendix G and Figure 4.



Plate 1 *Caladenia wanosa* (WAH 2010)

***Grevillea bracteosa* subsp. *howatharra* (R)**

Grevillea bracteosa subsp. *howatharra* is Declared Rare pursuant to the *WC Act*. It is a shrub to 1.5 m with narrow, linear leaves and pale pink to purple flowers (WAH 2010) (Plate 2). Globular inflorescences are on leafless branchlets above the leaves (WAH 2010). It occurs on clay loams over laterite (WAH 2010).

Grevillea bracteosa subsp. *howatharra* is known from five records from the Western Australian Herbarium (WAH 2010). Nine individuals of *Grevillea bracteosa* subsp. *howatharra* were recorded within the survey area in vegetation associations DAAIS and DT-Ab. The locations of *Grevillea bracteosa* subsp. *howatharra* are presented in Appendix G and Figure 4.

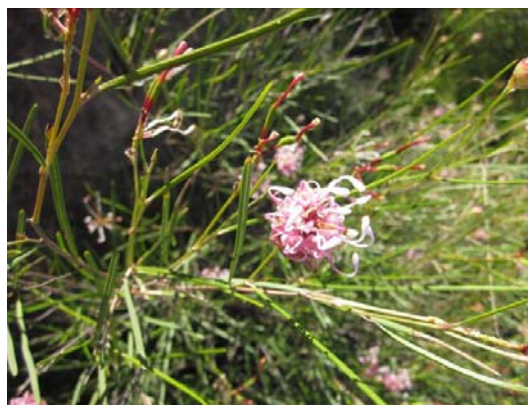


Plate 2 *Grevillea bracteosa* subsp. *howatharra*

***Grevillea phanerophlebia* (R)**

Grevillea phanerophlebia is Declared Rare pursuant to the *WC Act*. It is a shrub to 1.5 m with branchlets of sparse to moderately dense indumentum of ascending to appressed hairs and white flowers (WAH 2010) (Plate 3). It is known to occur on sand (WAH 2010).

Grevillea phanerophlebia is known from 40 records from the Western Australian Herbarium (WAH 2010). One individual of *Grevillea phanerophlebia* was recorded within the survey area in vegetation association AMeT-Gg. The location of *Grevillea phanerophlebia* is presented in Appendix G and Figure 4.



Plate 3 *Grevillea phanerophlebia* (WAH 2010)

***Baeckea decipiens* (Priority 1)**

Baeckea decipiens is a shrub to 0.3 m with pink to white flowers. It occurs on yellow sand (WAH 2010) (Plate 4).

Baeckea decipiens is known from eight records from the Western Australian Herbarium (WAH 2010). Two individuals of *Baeckea decipiens* were recorded within the survey area in vegetation association AAIT-MnPt. The locations of *Baeckea decipiens* are presented in Appendix G and Figure 4.



Plate 4 *Baeckea decipiens*

***Scholtzia* sp. Kojarena (A.M. Ashby 1904) (Priority 1)**

Scholtzia sp. Kojarena (A.M. Ashby 1904) is known from two records from the Western Australian Herbarium (WAH 2010) (Plate 5). One individual of *Scholtzia* sp. Kojarena (A.M. Ashby 1904) was recorded within the survey area in vegetation association I. The location of *Scholtzia* sp. Kojarena (A.M. Ashby 1904) is presented in Appendix G and Figure 4.

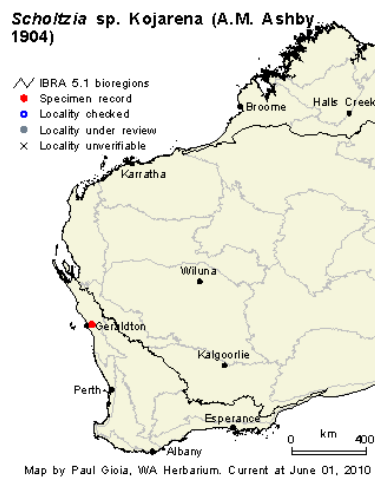


Plate 5 *Scholtzia* sp. Kojarena (A.M. Ashby 1904) (WAH 2010)

***Acacia megacephala* (Priority 2)**

Acacia megacephala is an erect, often spindly, spinose shrub to 2 m with yellow flowers (WAH 2010). It occurs on white and yellow sand and sandplains (WAH 2010) (Plate 6).

Acacia megacephala is known from 32 records from the Western Australian Herbarium (WAH 2010). Eight individuals of *Acacia megacephala* were recorded within the survey area in vegetation associations I, AT-AxAb, DAdAT-EI, DT-Rd and ET-EILc (D). The locations of *Acacia megacephala* are presented in Appendix G and Figure 4.



Plate 6 *Acacia megacephala* (WAH 2010)

***Dampiera krauseana* (Priority 2)**

Dampiera krauseana is an erect shrub to 0.6 m with blue to violet flowers. It is known to occur on sand and gravel (WAH 2010) (Plate 7).

Dampiera krauseana is known from 15 records from the Western Australian Herbarium (WAH 2010). One individual of *Dampiera krauseana* was recorded within the survey area in vegetation association CELF-Rd. The location of *Dampiera krauseana* is presented in Appendix G and Figure 4.



Plate 7 *Dampiera krauseana*

***Eremaea acutifolia* (Priority 2)**

Eremaea acutifolia is a spreading, dense shrub to 1 m with orange to pink flowers (WAH 2010). It occurs on yellow sand and sandplains (WAH 2010) (Plate 8).

Eremaea acutifolia is known from 22 records from the Western Australian Herbarium (WAH 2010). Four individuals of *Eremaea acutifolia* were recorded within the survey area in vegetation associations BNLW-XpEc and AT-AbArApEl(D). The locations of *Eremaea acutifolia* are presented in Appendix G and Figure 4.



Plate 8 *Eremaea acutifolia* (WAH 2010)

***Petrophile pilostyla* subsp. *syntoma* (Priority 2)**

Petrophile pilostyla subsp. *syntoma* is a shrub to 1 m with yellow or cream flowers (WAH 2010). It is known to occur on the crests of yellow sand dunes (WAH 2010) (Plate 9).

It is known from five records from the Western Australian Herbarium (WAH 2010). One individual of *Petrophile pilostyla* subsp. *syntoma* was recorded within the survey area in vegetation association XW-AcAb. The location of *Petrophile pilostyla* subsp. *syntoma* is presented in Appendix G and Figure 4.



Plate 9 *Petrophile pilostyla* subsp. *syntoma*

***Scholtzia* sp. East Yuna (A.C. Burns 6) (Priority 2)**

Scholtzia sp. East Yuna (A.C. Burns 6) is a compact shrub to 2 m, known to occur on clay and breakaway scree (WAH 2010) (Plate 10).

Scholtzia sp. East Yuna (A.C. Burns 6) is known from four records from the Western Australian Herbarium (WAH 2010). One individual of *Scholtzia* sp. East Yuna (A.C. Burns 6) was recorded within the survey area in vegetation association I. The location of *Scholtzia* sp. East Yuna (A.C. Burns 6) is presented in Appendix G and Figure 4.

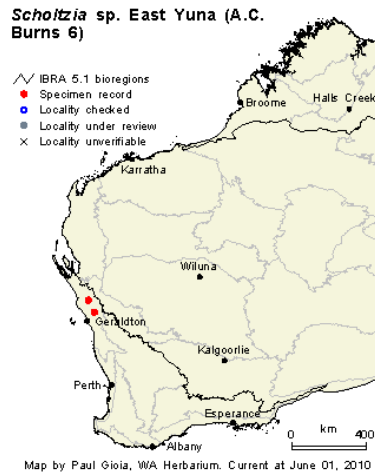


Plate 10 *Scholtzia* sp. East Yuna (A.C. Burns 6) (WAH 2010)

***Stenanthemum poicilum* (Priority 2)**

Stenanthemum poicilum is an erect or decumbent shrub to 0.5 m with white flowers (WAH 2010). It is known to occur on red clay or sandy clay, loam (WAH 2010) (Plate 11).

Stenanthemum poicilum is known from 18 records from the Western Australian Herbarium (WAH 2010). One individual of *Stenanthemum poicilum* was recorded within the survey area in vegetation association AT-AIMa. The location of *Stenanthemum poicilum* is presented in Appendix G and Figure 4.



Plate 11 *Stenanthemum poicilum*

***Thryptomene* sp. East Yuna (J.W. Green 4639) (Priority 2)**

Thryptomene sp. East Yuna (J.W. Green 4639) is a shrub to 1 m with white to pink flowers (WAH 2010). It is known to occur on yellow sand (WAH 2010) (Plate 12).

Thryptomene sp. East Yuna (J.W. Green 4639) is known from 17 records from the Western Australian Herbarium (WAH 2010). One individuals of *Thryptomene* sp. East Yuna (J.W. Green 4639) was recorded within the survey area in vegetation association AIMS-Ae. The location of *Thryptomene* sp. East Yuna (J.W. Green 4639) is presented in Appendix G and Figure 4.

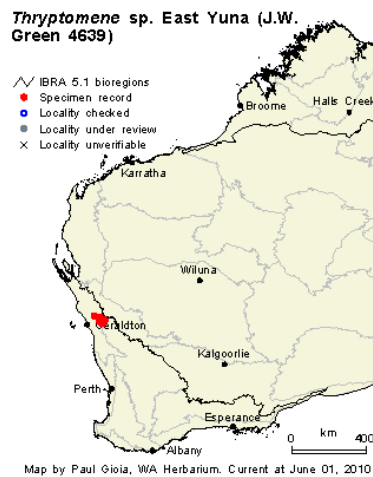


Plate 12 *Thryptomene* sp. East Yuna (J.W. Green 4639) (WAH 2010)

***Verticordia muelleriana* subsp. *minor* (Priority 2)**

Verticordia muelleriana subsp. *minor* is a shrub to 2 m with pink, red or brown flowers (WAH 2010). It is known to occur on white, grey or yellow sand over gravel (WAH 2010) (Plate 13).

Verticordia muelleriana subsp. *minor* is known from nine records from the Western Australian Herbarium (WAH 2010). Two individuals of *Verticordia muelleriana* subsp. *minor* were recorded within the survey area in vegetation associations AAIT-Mvv and XW-AcAb. The locations of *Verticordia muelleriana* subsp. *minor* are presented in Appendix G and Figure 4.



Plate 13 *Verticordia muelleriana* subsp. *minor* (WAH 2010)

***Acacia leptospermoides* subsp. *psammophila* (Priority 3)**

Acacia leptospermoides subsp. *psammophila* is a spreading shrub to 1.5 m high with yellow flowers (WAH 2010) (Plate 14). It is known to occur on yellow or red sand, gravelly soils and sandplains (WAH 2010).

Acacia leptospermoides subsp. *psammophila* is known from 35 records from the Western Australian Herbarium (WAH 2010). One individual of *Acacia leptospermoides* subsp. *psammophila* was recorded within the survey area in vegetation association AMyS-Ghh. The location of *Acacia leptospermoides* subsp. *psammophila* is presented in Appendix G and Figure 4.



Plate 14 *Acacia leptospermoides* subsp. *psammophila* (WAH 2010)

***Baeckea* sp. Walkaway (A.S. George 11249) (Priority 3)**

Baeckea sp. Walkaway (A.S. George 11249) is a dense, multi-stemmed shrub to 2 m (WAH 2010). It occurs on yellow, brown or white sand and undulating plains and hillslopes (WAH 2010) (Plate 15).

Baeckea sp. Walkaway (A.S. George 11249) is known from 34 records from the Western Australian Herbarium (WAH 2010). One individual of *Baeckea* sp. Walkaway (A.S. George 11249) was recorded within the survey area in vegetation association AS-EICd (D). The location of *Baeckea* sp. Walkaway (A.S. George 11249) is presented in Appendix G and Figure 4.



Plate 15 *Baeckea* sp. Walkaway (A.S. George 11249) (WAH 2010)

***Cryptandra nola* (Priority 3)**

Cryptandra nola is an erect or spreading, spinescent shrub to 1 m with white flowers (WAH 2010) (Plate 16). It occurs on sandy soils over granite and laterite along drainage lines, breakaways and hillsides (WAH 2010).

Cryptandra nola is known from 20 records from the Western Australian Herbarium (WAH 2010). One individual of *Cryptandra nola* was recorded within the survey area in vegetation association AAIT-MnPt. The location of *Cryptandra nola* is presented in Appendix G and Figure 4.



Plate 16 *Cryptandra nola*

***Cyanicula fragrans* (Priority 3)**

Cyanicula fragrans is a tuberous perennial herb to 0.1 m with blue flowers (WAH 2010). It occurs on red loam and flat granite outcrops (WAH 2010) (Plate 17).

It is known from eight records from the Western Australian Herbarium (WAH 2010). One individual of *Cyanicula fragrans* was recorded within the survey area in vegetation association AT-PoCd. The location of *Cyanicula fragrans* is presented in Appendix G and Figure 4.



Plate 17 *Cyanicula fragrans* (WAH 2010)

***Gompholobium cinereum* (Priority 3)**

Gompholobium cinereum is a shrub to 0.3 m with pink to purple flowers (WAH 2010) (Plate 18). It occurs on yellow clayey sand, brown loam, sandy gravel, laterite, slopes, plains and roadsides (WAH 2010).

Gompholobium cinereum is known from 16 records from the Western Australian Herbarium (WAH 2010). One individual of *Gompholobium cinereum* was recorded within the survey area in vegetation association AT-Ac. The location of *Gompholobium cinereum* is presented in Appendix G and Figure 4.

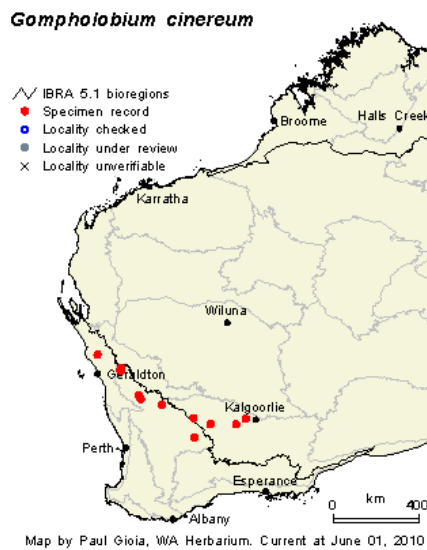


Plate 18 *Gompholobium cinereum* (WAH 2010)

***Grevillea asparagoides* (Priority 3)**

Grevillea asparagoides is a dense prickly shrub to 2 m with red flowers (WAH 2010). It is known to occur on gravelly loam, white or yellow sand (WAH 2010) (Plate 19).

Grevillea asparagoides is known from 31 records from the Western Australian Herbarium (WAH 2010). One individual of *Grevillea asparagoides* was recorded within the survey area in vegetation association COW-Xa. The location of *Grevillea asparagoides* is presented in Appendix G and Figure 4.



Plate 19 *Grevillea asparagoides* (WAH 2010)

***Grevillea granulosa* (Priority 3)**

Grevillea granulosa is a compact shrub to 4 m (WAH 2010). It occurs on gravelly sand, loam, clay and sandplains (WAH 2010) (Plate 20).

Grevillea granulosa is known from 43 records from the Western Australian Herbarium (WAH 2010). Thirty-eight individuals of *Grevillea granulosa* were recorded within the survey area in 17 vegetation associations; AGS-Ae, ET-MvVAr1, AMeT-Gof, AAIT-MvV, I-CD, MeS-Ac, AMeT-Gg, I, ET-AaAr1, AAIT-MaMc, ET-MuAsAa, AAIT-MnPt, AMeS-AcAa, AAIT-Mt, XW-AcAb, AT-ALMa and AT-Ac. The locations of *Grevillea granulosa* are presented in Appendix G and Figure 4.



Plate 20 *Grevillea granulosa* (WAH 2010)

***Grevillea tenuiloba* (Priority 3)**

Grevillea tenuiloba is a low spreading shrub to 0.6 m (WAH 2010) (Plate 21). This species flowers orange to brown and is known to occur on sand, clay loam and granite outcrops (WAH 2010).

Grevillea tenuiloba is known from 24 records from the Western Australian Herbarium (WAH 2010). Ten individuals of *Grevillea tenuiloba* were recorded within the survey area in five vegetation associations; AMeT-Gof, AMeS-DdBs, AAIT-MvvMI, MaT-Cp and ET-MuAsAa. The locations of *Grevillea tenuiloba* are presented in Appendix G and Figure 4.



Plate 21 *Grevillea tenuiloba* (WAH 2010)

***Hibbertia glomerosa* var. *bistrata* (Priority 3)**

Hibbertia glomerosa var. *bistrata* is a shrub to 0.6 m with yellow flowers (WAH 2010) (Plate 22). *Hibbertia glomerosa* var. *bistrata* differs from *Hibbertia glomerosa* var. *glomerosa* in having short curled hairs on its leaves and bracts (WAH 2010). It is known to occur on sand, sandy loam and granite (WAH 2010).

Hibbertia glomerosa var. *bistrata* is known from eight records from the Western Australian Herbarium (WAH 2010). Six individuals of *Hibbertia glomerosa* var. *bistrata* were recorded within the survey area in vegetation associations AT-AIMa and AT-Ac. The locations of *Hibbertia glomerosa* var. *bistrata* are presented in Appendix G and Figure 4.



Plate 22 *Hibbertia glomerosa* var. *bistrata*

***Melaleuca barlowii* (Priority 3)**

Melaleuca barlowii is a shrub to 1.8 m (WAH 2010) (Plate 23). It is known to occur on yellow-brown sand or red-brown clay loam, roadside reserves and shrubland (WAH 2010).

Melaleuca barlowii is known from 23 records from the Western Australian Herbarium (WAH 2010). Four individuals of *Melaleuca barlowii* were recorded within the survey area in vegetation association AT-ALMa. The locations of *Melaleuca barlowii* are presented in Appendix G and Figure 4.



Plate 23 *Melaleuca barlowii*

***Microcorys tenuifolia* (Priority 3)**

Microcorys tenuifolia is a shrub to 1.8 m with white, blue or purple flowers (WAH 2010) (Plate 24). It is known to occur on red and brown sand, lateritic gravelly soils and undulating plains (WAH 2010).

Microcorys tenuifolia is known from 59 records from the Western Australian Herbarium (WAH 2010). One individual of *Microcorys tenuifolia* was recorded within the survey area in vegetation association ET-AaAa. The location of *Microcorys tenuifolia* is presented in Appendix G and Figure 4.



Plate 24 *Microcorys tenuifolia* (WAH 2010)

***Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) (Priority 3)**

Thryptomene sp. Wandana (M.E. Trudgen MET 22016) is known from 16 records from the Western Australian Herbarium (WAH 2010) (Plate 25). One individual of *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) was recorded within the survey area in vegetation association AMyS-Ghh. The location of *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) is presented in Appendix G and Figure 4.

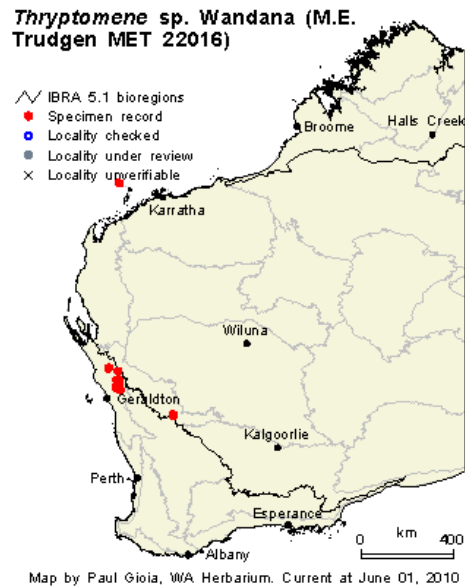


Plate 25 *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016) (WAH 2010)

***Verticordia chrysostachys* var. *pallida* (Priority 3)**

Verticordia chrysostachys var. *pallida* is an erect to spreading shrub to 2 m high with yellow to cream flowers (WAH 2010) (Plate 26). It occurs on yellow sandplains and sand dunes (WAH 2010).

Verticordia chrysostachys var. *pallida* is known from 42 records from the Western Australian Herbarium (WAH 2010). Three individuals of *Verticordia chrysostachys* var. *pallida* were recorded within the survey area in vegetation associations AMeT-Gof, AT-ALMa and AS-TsMb. The locations of *Verticordia chrysostachys* var. *pallida* are presented in Appendix G and Figure 4.



Plate 26 *Verticordia chrysostachys* var. *pallida* (WAH 2010)

***Banksia benthamiana* (Priority 4)**

Banksia benthamiana is a non-lignotuberous shrub to 4 m with yellow, orange and brown flowers (WAH 2010) (Plate 27). It occurs on sandy loam, clay-loam, yellow sand and gravel (WAH 2010).

Banksia benthamiana is known from 37 records from the Western Australian Herbarium (WAH 2010). One individual of *Banksia benthamiana* was recorded within the survey area in vegetation association AT-AIMa. The location of *Banksia benthamiana* is presented in Appendix G and Figure 4.



Plate 27 *Banksia benthamiana* (WAH 2010)

***Banksia scabrella* (Priority 4)**

Banksia scabrella is a much-branched, lingo-tuberous shrub to 2 m with yellow, cream and purple flowers (WAH 2010) (Plate 28). It is known to occur on white, grey or yellow sand, sometimes with lateritic gravel, sandplains and lateritic ridges (WAH 2010).

Banksia scabrella is known from 47 records from the Western Australian Herbarium (WAH 2010). One individual of *Banksia scabrella* was recorded within the survey area in vegetation association AH-Css. The locations of *Banksia scabrella* is presented in Appendix G and Figure 4.



Plate 28 *Banksia scabrella* (WAH 2010)

***Jacksonia velutina* (Priority 4)**

Jacksonia velutina is an erect broom-like shrub to 1.5 m with yellow, orange and red flowers (WAH 2010) (Plate 27). It is known to occur on yellow sandplains and hills (WAH 2010).

Jacksonia velutina is known from 44 records from the Western Australian Herbarium (WAH 2010). Two individuals of *Jacksonia velutina* were recorded within the survey area in vegetation association COW-Xa. The locations of *Jacksonia velutina* are presented in Appendix G and Figure 4.



Plate 29 *Jacksonia velutina* (WAH 2010)

***Verticordia capillaris* (Priority 4)**

Verticordia capillaris is a corymbose shrub to 1.5 m with cream to white flowers (WAH 2010) (Plate 28). It grows on yellow sand, sandy loam, sandy clay and sandplains (WAH 2010).

Verticordia capillaris is known from 12 records from the Western Australian Herbarium (WAH 2010). Three individuals of *Verticordia capillaris* were recorded within the survey area in vegetation associations AMeT-Gof, AT-AIMa and AS-TsMb. The locations of *Verticordia capillaris* are presented in Appendix G and Figure 4.

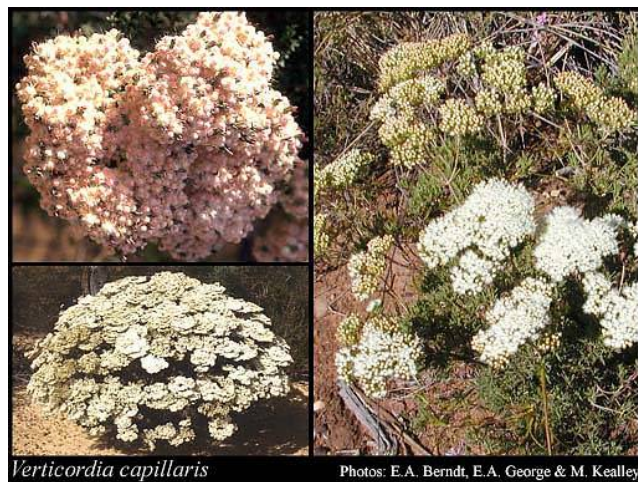


Plate 30 *Verticordia capillaris* (WAH 2010)

3.2.4 Species of Interest

Range extensions were recorded for two species during the flora and vegetation survey, namely *Jacksonia ramulosa* and *Schoenus pedicellatus*. Additionally, one species considered to be of taxonomic interest was recorded, *Eucalyptus* aff. *ewartiana*. These species are described below and their locations listed in Table 5.

Table 5 Location of Species of Interest recorded within the Narngulu to Tilley Survey Area

Taxa	Reason for Interest	Easting	Northing
<i>Eucalyptus aff. ewartiana</i>	Taxonomic Interest	387985	6803996
<i>Jacksonia ramulosa</i>	Range Extension	309957	6824699
	Range Extension	310942	6824970
	Range Extension	307504	6823512
	Range Extension	302685	6821509
	Range Extension	297401	6821922
	Range Extension	280513	6813571
<i>Schoenus pedicellatus</i>	Range Extension	328420	6827277
	Range Extension	324557	6826000
	Range Extension	318266	6825416
	Range Extension	313154	6822805
	Range Extension	306523	6822489
	Range Extension	302685	6821509
	Range Extension	293469	6822245

***Jacksonia ramulosa* (Range Extension)**

Jacksonia ramulosa is an erect open to compact shrub 0.6 m with orange flowers (WAH 2010) (Plate 31). It occurs on white, grey, yellow or lateritic sand (WAH 2010).

Jacksonia ramulosa is known from 35 records from the Western Australian Herbarium (WAH 2010). Six individuals of *Jacksonia ramulosa* were recorded within the survey area. The locations of *Jacksonia ramulosa* are presented in Table 5. This species generally occurs further to the south and west, from Coorow, south to Kojanup and east almost to Norseman. However, one record occurs in the extreme north west of this species distribution and is approximately 135 km NW of the locations recorded in this survey. The nearest previously recorded location towards the south west from the study area is approximately 145 km.



Plate 31 *Jacksonia ramulosa*

***Schoenus pedicellatus* (Range Extension)**

Schoenus pedicellatus is a tufted perennial herb to 0.75 m with brown flowers (WAH 2010) (Plate 32). It occurs on white, grey, yellow or lateritic sand (WAH 2010).

Schoenus pedicellatus is known from 14 records from the Western Australian Herbarium (WAH 2010). The species is known to occur from Eneabba to just south of the Perth metropolitan area. Six individuals of *Schoenus pedicellatus* were recorded within the survey area. The locations of *Schoenus pedicellatus* are presented in Table 5. These represent a range extension of approximately 115 km to the north of its known distribution.



Plate 32 *Schoenus pedicellatus* (WAH 2010)

***Eucalyptus* aff. *ewartiana* (Taxonomic Interest)**

Taxonomic identification by specialists at the WAH proved difficult in that the specimen of *Eucalyptus* aff. *ewartiana* collected from the survey area could not be identified to any known *Eucalyptus* species, and may constitute a new taxon.

Eucalyptus aff. *ewartiana* is a tree to 4 m (Plate 33). It has fruits similar to that of *Eucalyptus leptopoda* subsp. *arctata*, but with shorter pedicels. *Eucalyptus leptopoda* subsp. *arctata* pedicels range from 0.2 cm long, whilst the pedicels of *Eucalyptus* aff. *ewartiana* are 0.1 cm and rarely to 0.2 cm (WAH 2010).

In addition, *Eucalyptus* aff. *ewartiana* has rough bark rather than the minniritchi bark common with *Eucalyptus leptopoda* subsp. *arctata*. Furthermore, Leda (Canna) Nature

Reserve is known for its unique species and therefore warrants further taxonomic investigation.

One individual of *Eucalyptus* aff. *ewartiana* was recorded within the survey area. The location of *Eucalyptus* aff. *ewartiana* is presented in Table 5.



Plate 33 *Eucalyptus* aff. *ewartiana*

3.2.5 Introduced Flora

Fifty-two introduced species were recorded in the survey area, 47 of these are environmental weeds as defined by the Environmental Weed Strategy for Western Australia (CALM 1999). Introduced species recorded within the survey area are listed in Table 6.

Table 6 Introduced Flora as listed by the Environmental Weed Strategy (CALM 1999) for Western Australia recorded within the Narngulu to Tilley Survey Area

Taxon	Common Name	Criteria			
		Rating	Distribution	Invasiveness	Impacts
<i>*Anagallis arvensis</i>	N/A	Moderate	Yes	Yes	N/A
<i>*Arctotheca calendula</i>	Cape Weed	Moderate	Yes	Yes	N/A
<i>*Arundo donax</i>	Giant Reed	TBA	N/A	N/A	N/A
<i>*Avena barbata</i>	Bearded Oat	Moderate	Yes	Yes	N/A
<i>*Brassica napus</i>	N/A	Low	N/A	N/A	N/A
<i>*Brassica tournefortii</i>	Mediterranean Turnip	High	Yes	Yes	Yes
<i>*Briza maxima</i>	Blowfly Grass	Moderate	Yes	Yes	N/A
<i>*Bromus diandrus</i>	Great Brome	High	Yes	Yes	Yes
<i>*Bromus rubens</i>	Red Brome	Moderate	Yes	Yes	N/A
<i>*Cotula bipinnata</i>	Ferny Cotula	Low	N/A	N/A	N/A
<i>*Cuscuta epithymum</i>	Dodder	Moderate	Yes	Yes	N/A
<i>*Corymbia citriodora</i>	N/A	N/A	N/A	N/A	N/A
<i>*Echium plantagineum</i>	Paterson's Curse	TBA	Yes	N/A	Yes
<i>*Ehrharta calycina</i>	Veld Grass	High	Yes	Yes	Yes
<i>*Ehrharta longiflora</i>	Annual Veld Grass	Moderate	Yes	Yes	Yes
<i>*Eragrostis curvula</i>	African Love Grass	High	Yes	Yes	Yes
<i>*Fumaria capreolata</i>	N/A	Mild	N/A	N/A	Yes
<i>*Gorteria personata</i>	N/A	Low	N/A	N/A	N/A
<i>*Hordeum leporinum</i>	Barley Grass	Moderate	Yes	Yes	N/A
<i>*Hypochaeris glabra</i>	Smooth Cats Ear	Moderate	Yes	Yes	N/A
<i>*Lamarckia aurea</i>	N/A	Moderate	Yes	Yes	N/A
<i>*Limonium lobatum</i>	N/A	Low	N/A	N/A	N/A
<i>*Limonium sinuatum</i>	N/A	Low	N/A	N/A	N/A
<i>*Lolium perenne</i>	Perennial Rye Grass	Low	N/A	N/A	N/A
<i>*Lolium perenne x rigidum</i>	N/A	TBA	N/A	N/A	N/A
<i>*Lupinus cosentinii</i>	Sand Plain Lupin	High	Yes	Yes	Yes
<i>*Lycium ferocissimum</i>	African Box-thorn	High	Yes	Yes	Yes
<i>*Medicago polymorpha</i>	N/A	Mild	N/A	N/A	N/A
<i>*Melilotus indicus</i>	N/A	TBA	N/A	N/A	N/A
<i>*Mesembryanthemum crystallinum</i>	Ice Plant	Moderate	Yes	Yes	N/A
<i>*Monoculus monstrosus</i>	N/A	N/A	N/A	N/A	N/A
<i>*Moraea setifolia</i>	N/A	N/A	N/A	N/A	N/A

Taxon	Common Name	Criteria			
		Rating	Distribution	Invasiveness	Impacts
<i>*Ornithopus compressus</i>	Yellow Serradella	Mild	Yes	N/A	N/A
<i>*Parapholis incurva</i>	Coast Barbgrass	Mild	Yes	N/A	N/A
<i>*Parentucellia latifolia</i>	Common Bartsia	Moderate	Yes	Yes	
<i>*Pennisetum setaceum</i>	Fountain grass	Mild	Yes	N/A	N/A
<i>*Pentaschistis airoides</i>	N/A	Moderate	Yes	Yes	N/A
<i>*Petrohragia dubia</i>	N/A	N/A	N/A	N/A	N/A
<i>*Portulaca oleracea</i>	N/A	N/A	N/A	N/A	N/A
<i>*Raphanus raphanistrum</i>	Wild Radish	Mild	Yes	N/A	N/A
<i>*Acetosa vesicaria</i>	Ruby Dock	High	Yes	Yes	Yes
<i>*Schinus terebinthifolius</i>	N/A	TBA	N/A	N/A	N/A
<i>*Sisymbrium irio</i>	London Rocket	Mild	Yes	N/A	N/A
<i>*Sonchus oleraceus</i>	Common Sowthistle	Moderate	Yes	Yes	N/A
<i>*Trifolium hirtum</i>	N/A	Low	N/A	N/A	N/A
<i>*Urospermum picroides</i>	False Hawkbit	Moderate	Yes	Yes	N/A
<i>*Ursinia anthemoides</i>	Ursina	Moderate	Yes	Yes	N/A
<i>*Vaccaria hispanica</i>	N/A	Low	N/A	N/A	N/A
<i>*Vulpia muralis</i>	N/A	Low	N/A	N/A	N/A
<i>*Vulpia myuros</i>	N/A	Moderate	Yes	Yes	N/A
<i>*Wahlenbergia capensis</i>	Cape Bluebell	Moderate	Yes	Yes	N/A
<i>*Zaluzianskya divaricata</i>	N/A	Low	N/A	N/A	N/A

Seven of the introduced species recorded in the study area, **Acetosa vesicaria*, **Brassica tournefortii*, **Bromus diandrus*, **Ehrharta calycina*, **Eragrostis curvula*, **Lupinus cosentinii* and **Lycium ferocissimum* have a high rating under the Environmental Weed Strategy for Western Australia (CALM 1999).

The number of records and average covers of these species are listed below:

- **Acetosa vesicaria* from 1 quadrat with a cover of less than 1%;
- **Brassica tournefortii* from 1 quadrat with an average cover of less than 1%;
- **Bromus diandrus* from 7 quadrats with an average cover of 17%;
- **Ehrharta calycina* from 6 quadrats with a cover of 9%;
- **Eragrostis curvula* from 1 quadrat with a cover of 5%;
- **Lupinus cosentinii* from 10 quadrats with an average cover of less than 1%; and
- **Lycium ferocissimum* from 1 quadrat with an average cover of less than 1%.

The most commonly recorded introduced species within the survey area were **Arctotheca calendula*, **Ehrharta longiflora* and **Monoculus monstrosus*. The locations of these species are presented in Appendix H.

One of the introduced species recorded within the survey area, **Echium plantagineum* (Priority 1), is listed as a Declared Plant under the *Agriculture and Related Resources Protection Act 1976 (WA)*.

****Echium plantagineum* (Priority 1)**

**Echium plantagineum* is an erect annual or biennial herb to 1 m with blue, purple, pink or white flowers (Plate 34). It is a weed commonly found on roadsides, vacant land and disturbed areas and is adapted to a wide range of soils. **Echium plantagineum* is widespread throughout the south-west and eastern Goldfields. It is known from 135 records from the Western Australian Herbarium (WAH 2010).

**Echium plantagineum* was recorded from five quadrats and four relevés with an average cover of less than 1%. A further 900 individuals were recorded between Geraldton and Morawa in scattered populations, generally along the side of the cleared tracks that run parallel to the rail line. Locations of **Echium plantagineum* are listed in Appendix I.



Plate 34: **Echium plantagineum*

3.3 VEGETATION

3.3.1 Threatened and Priority Ecological Communities

One Threatened Ecological Community (TEC) listed under the *EPBC Act* occurs within the Geraldton Sandplains and Avon Wheatbelt bioregions (SEWPAC 2010). No Threatened Ecological Communities listed under the *EPBC Act* were recorded within or in the vicinity of the survey area.

Seventeen TECs, as endorsed by the Western Australian Minister for the Environment, occur within the Geraldton Sandplains and Avon Wheatbelt bioregions. None of these TECs occur within the survey area.

Seventy seven Priority Ecological Communities (PEC) occur within the Mid-West region and 17 PECs occur within the Wheatbelt region (DEC 2010c). None of these PECs are present within, or in the vicinity of, the survey area.

One TEC listed as Vulnerable, as endorsed by the Minister for the Environment occurs approximately 2 km east of the survey area and approximately 20 km north of Morawa. This TEC is known as the “Plant Assemblages of the Moonagin System” (DEC 2010c). Although it is recorded nearby, this TEC was not recorded in the survey area.

The Plant Assemblages of the Moonagin System (TEC) is described as:

“*Acacia* scrub (*A. ramulosa* subsp. *ramulosa* and *A. acuminata* and the occasional *A. tetragonophylla* and *A. quadrimarginea* on red soil on the summits and slopes of hills; *Acacia* scrub (*A. ramulosa* subsp. *ramulosa* and *A. acuminata* and the occasional *A. tetragonophylla*) with scattered *Eucalyptus loxophleba* and *E. oleosa* on red loam flats on the foothills; and *E. loxophleba* woodland on red loam flats of the pediments. There are also areas of *Melaleuca uncinata* thickets along creeklines, and *Eucalyptus salmonophloia* on clay patches on the summits of the lower hills (CALM 2002).”

Whilst several vegetation associations recorded within the survey area are floristically similar to the Moonagin System, the unique catenary sequence or mosaic pattern associated with the Moonagin System does not occur within the survey area.

3.3.2 Vegetation Associations

The survey area comprised eighty-eight vegetation associations within thirty-four broad vegetation formations (Figure 4). All vegetation associations and the extent of each within the survey area are listed in Table 7. The vegetation associations mapped within the survey area are described further in Appendix J. Data recorded at each quadrat and relevé site is detailed in Appendix K.

Table 7: Extent of each Broad Vegetation Formation and each Vegetation Association recorded within the Narngulu to Tilley Survey Area.

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Acacia and Allocasuarina Tall Shrubland	47.93	AAIT-GcEmAe	Tall Open Shrubland of <i>Acacia brumalis</i> and/or <i>Allocasuarina campestris</i> over Low Open to Open Shrubland of <i>Acacia brumalis</i> , <i>Allocasuarina campestris</i> , <i>Grevillea candelabroides</i> over Open Sedgeland of <i>Ecdeiocolea monostachya</i> over Open Grassland of <i>Austrostipa elegantissima</i>	30.91
		AAIT-Mvv	Tall Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Allocasuarina campestris</i> , <i>Acacia acuminata</i> and <i>Acacia</i> sp. Over Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Grevillea granulosa</i> over Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i> and <i>Pogonolepis stricta</i>	4.17
		AAIT-Mt	Tall Shrubland of <i>Allocasuarina campestris</i> , <i>Acacia sibina</i> and <i>Acacia</i> sp. over Open Shrubland of <i>Malleostemon tuberculatus</i> and <i>Acacia acuminata</i> over Very Open Grassland of <i>Avena barbata</i> , <i>Austrostipa variabilis</i> and <i>Austrostipa elegantissima</i> over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Velleia rosea</i>	2.39
		AAIT-MnPt	Tall Open Scrub of <i>Allocasuarina campestris</i> and <i>Acacia longiphylloidea</i> over Open Shrubland of <i>Melaleuca nematophylla</i> over Low Open Shrubland of <i>Platysace trachymenioides</i> over Very Open Sedgeland of <i>Ecdeiocolea monostachya</i> over Very Open Herbland of <i>Borya sphaerocephala</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	3.98
		AAIT-MvvMI	Tall Shrubland of <i>Allocasuarina campestris</i> and <i>Acacia acuminata</i> over Open Heath of <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Melaleuca longistaminea</i> over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> , <i>Schoenia cassiniana</i> and <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	1.25

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		AAIT-MaMc	Tall Shrubland of <i>Acacia sibina</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Allocasuarina campestris</i> , <i>Acacia acuminata</i> and <i>Melaleuca atroviridis</i> over Low Open Shrubland of <i>Melaleuca cordata</i> , <i>Acacia acuaria</i> and <i>Myrtaceae</i> sp.	5.24
<i>Acacia</i> and <i>Callitris</i> Shrubland	3.14	ACS-Ba	Tall Open Shrubland of <i>Acacia rostellifera</i> , <i>Banksia sceptrum</i> and <i>Allocasuarina campestris</i> over Shrubland of <i>Callitris arenaria</i>	3.14
<i>Acacia</i> and <i>Grevillea</i> Shrubland	34.95	AGS-KhCd	Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Acacia stereophylla</i> var. <i>stereophylla</i> over Low Open Shrubland of <i>Keraudrenia hermanniifolia</i> and <i>Halgania cyanea</i> var. Allambi Stn (B.W. Strong 676) over Very Open Grassland of <i>Ehrharta longiflora</i> , <i>Austrostipa elegantissima</i> and <i>Aristida contorta</i> over Open Herbland of <i>Cephalopterum drummondii</i> , <i>Daucus glochidiatus</i> , <i>Brassica napus</i> , <i>Podolepis canescens</i> and <i>Podolepis capillaris</i>	11.21
		AGS-EIAcc	Shrubland of <i>Acacia acuminata</i> and <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> over Open Grassland of <i>Ehrharta longiflora</i> and <i>Amphipogon caricinus</i> var. <i>caricinus</i>	12.32
		AGS-EIWaa	Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia</i> sp. over Low Shrubland of <i>Grevillea levis</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>Austrostipa elegantissima</i> over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>*Arctotheca calendula</i>	7.78
		AGS-Ae	Open Shrubland of <i>Acacia coolgardiensis</i> subsp. <i>coolgardiensis</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Senna charlesiana</i> over Very Open Grassland of <i>Austrostipa elegantissima</i>	3.64

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Acacia and Grevillea Tall Shrubland	28.18	AGT-PcPmm	Tall Open Shrubland of <i>Acacia rostellifera</i> and <i>Grevillea</i> sp. over Low Open Shrubland of <i>Grevillea vestita</i> subsp. <i>isopogoides</i> , <i>Pimelea microcephala</i> subsp. <i>microcephala</i> and <i>Keraudrenia hermanniifolia</i> over Open Grassland of <i>Austrostipa elegantissima</i> and <i>Ehrharta longiflora</i> over Very Open Herbland of <i>Podolepis canescens</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	9.44
		AGT-AuLpr	Tall Open Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Grevillea levis</i> over Open Shrubland of <i>Acacia ulicina</i> over Open Grassland of <i>*Lolium perenne</i> x <i>rigidum</i> and <i>*Bromus rubens</i> over Very Open Herbland of <i>*Arctotheca calendula</i>	11.44
		AGT-MtAa	Tall Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Acacia acuminata</i> over Shrubland of <i>Malleostemon tuberculatus</i> , <i>Acacia aciphylla</i> and <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Brachyscome ciliocarpa</i>	5.50
		AGT-HraRd	Tall Open Shrubland of <i>Grevillea hakeoides</i> subsp. <i>hakeoides</i> , <i>Acacia acuminata</i> and <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> over Open Shrubland of <i>Hakea recurva</i> subsp. <i>arida</i> and <i>Rhagodia drummondii</i> over Very Open Grassland of <i>Sisymbrium irio</i> and <i>*Hordeum leporinum</i> over Very Open Herbland of <i>Cephalipterum drummondii</i> , <i>Gnephosis angianthoides</i> , <i>*Arctotheca calendula</i> and <i>*Portulaca oleracea</i>	1.80
Acacia and Hakea Tall Shrubland	6.24	AHT-Hrr	Tall Open Shrubland of <i>Hakea recurva</i> subsp. <i>recurva</i> over Open Shrubland of <i>Acacia acuminata</i> and <i>Acacia acuaria</i> over Very Open Grassland of <i>Austrostipa variabilis</i> , <i>Monachather paradoxus</i> and <i>*Ehrharta longiflora</i> over Very Open Herbland <i>*Arctotheca calendula</i> and <i>Cephalipterum drummondii</i>	6.24

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Acacia and Melaleuca Heath	2.12	AMeH-EIPs	Open Heath of <i>Melaleuca longistaminea</i> and <i>Acacia acuminata</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>Austrostipa scabra</i> subsp. <i>scabra</i> over Very Open Herbland of <i>Pogonolepis stricta</i> , <i>Schoenia cassiniana</i> and <i>Podolepis lessonii</i>	2.12
Acacia and Melaleuca Shrubland	13.00	AMeS-AcAa	Tall Open Shrubland of <i>Acacia acuminata</i> , <i>Melaleuca eleuterostachya</i> and <i>Allocasuarina campestris</i> over Shrubland of <i>Melaleuca uncinata</i> and <i>Acacia andrewsii</i> over Very Open Herbland of <i>Hypochaeris glabra</i> and <i>Brachyscome ciliocarpa</i>	12.17
		AMeS-DdBs	Shrubland of <i>Acacia acuminata</i> , <i>Melaleuca longistaminea</i> , <i>Melaleuca radula</i> and <i>Melaleuca atroviridis</i> over Low Open Shrubland of <i>Darwinia diosmoides</i> and <i>Grevillea tenuiloba</i> over Very Open Herbland of <i>Borya sphaerocephala</i>	0.82
Acacia and Melaleuca Tall Shrubland	11.27	AMeT-Gg	Tall Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> over Open Shrubland of <i>Melaleuca fulgens</i> subsp. <i>steadmanii</i> , <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Acacia acuminata</i> over Low Open Shrubland of <i>Grevillea granulosa</i> over Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i>	1.05
		AMeT-Cd	Tall Shrubland of <i>Acacia acuminata</i> , <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Melaleuca atroviridis</i> over Open Shrubland of <i>Acacia tetragonophylla.</i> , <i>Myrtaceae</i> sp. and <i>Melaleuca radula</i> over Very Open Grassland of <i>*Avena barbata</i> over Open Herbland of <i>Schoenia cassiniana</i> , <i>Cephalopterum drummondii</i> and <i>Podolepis lessonii</i>	3.82
		AMeT-Gof	Tall Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia</i> sp. and <i>Melaleuca viminea</i> subsp. <i>viminea</i> over Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> , <i>Acacia longispinea</i> and <i>Acacia acuaria</i> over Very Open Grassland of <i>Gahnia drummondii</i> over Very Open Sedgeland of <i>Ecdeiocolea monostachya</i>	6.40

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Acacia and Myrtaceae Shrubland	0.65	AMyS-Ghh	Open Shrubland of <i>Acacia rostellifera</i> , <i>Thryptomene</i> sp. Wandana, <i>Rhagodia drummondii</i> and <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) over Low Open Shrubland of <i>Grevillea hakeoides</i> subsp. <i>hakeoides</i> and <i>Keraudrenia hermanniifolia</i> over Open Grassland of <i>Austrostipa elegantissima</i> , <i>*Ehrharta longiflora</i> , <i>Austrostipa scabra</i> subsp. <i>scabra</i> and <i>*Monochather paradoxus</i> over Very Open Herbland of <i>Drosera neesii</i> subsp. <i>borealis</i>	0.65
Acacia Heath	2.61	AH-Css	Open Heath of <i>Acacia blakelyi</i> and <i>Acacia rostellifera</i> over Low Open Shrubland of <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> and <i>Grevillea amplexans</i> subsp. <i>amplexans</i>	2.61
Acacia Shrubland	16.08	AS-TsMb	Open Shrubland of <i>Acacia rostellifera</i> over Low Open Shrubland of <i>Thryptomene strongylophylla</i> , <i>Calytrix</i> sp. Paynes Find, <i>Rhagodia drummondii</i> , <i>Grevillea hakeoides</i> subsp. <i>hakeoides</i> , <i>Mirbelia trichocalyx</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> , <i>*Monachather paradoxus</i> and <i>Austrostipa elegantissima</i>	6.96
		AS-HggAe	Open Shrubland of <i>Acacia acuminata</i> and <i>Senna charlesiana</i> over Low Shrubland of <i>Acacia andrewsii</i> , <i>Ptilotus obovatus</i> , <i>Maireana georgei</i> and <i>Maireana tomentosa</i> over Open Herbland of <i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i> , <i>Cephalopterum drummondii</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	5.89
		AS-RdEt	Shrubland of <i>Acacia anthochaera</i> , <i>Senna charlesiana</i> and <i>Acacia colletioides</i> over Low Open Shrubland of <i>Rhagodia drummondii</i> and <i>Enchylaena tomentosa</i>	3.22
Acacia Shrubland (Degraded)	39.46	AS-EICd (D)	Open Shrubland of <i>Acacia acuminata</i> over Open Grassland of <i>*Ehrharta longiflora</i> over Open Herbland of <i>Cephalopterum drummondii</i>	34.68

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		AS-PcAc (D)	Open Shrubland of <i>Acacia anthochaera</i> over Very Open Herbland of <i>Podolepis capillaris</i> and <i>Arctotheca calendula</i>	4.79
Acacia Tall Shrubland	125.16	AT-ArAsAe	Tall Shrubland of <i>Acacia rostellifera</i> over Open Shrubland of <i>Acacia saligna</i> , <i>Grevillea candelabroides</i> , <i>Allocasuarina campestris</i> and <i>Rhagodia drummondii</i> over Open Grassland of <i>Austrostipa elegantissima</i> and <i>*Ehrharta longiflora</i> over Very Open Sedgeland of <i>Dianella revoluta</i> var. <i>divaricata</i> and <i>Ecdeiocolea monostachya</i> over Very Open Herbland of <i>Arctotheca calendula</i> and <i>*Vulpia myuros</i>	2.05
		AT-AxAb	Tall Shrubland of <i>Acacia xanthina</i> over Open Heath of <i>Acacia brumalis</i> , <i>Acacia rostellifera</i> and <i>Rhagodia preissii</i> subsp. <i>obovata</i> over Low Open Shrubland of <i>Lechenaultia linarioides</i> and <i>Jacksonia ramulosa</i>	7.50
		AT-PmmSi	Tall Open Shrubland of <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> , <i>Acacia</i> sp. and <i>Acacia acuarina</i> over Low Shrubland of <i>Pimelea microcephala</i> subsp. <i>microcephala</i> sp., <i>Rhagodia drummondii</i> , <i>Maireana tomentosa</i> , <i>Maireana georgei</i> and <i>Atriplex codoncarpa</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>Austrostipa elegantissima</i> over Open Herbland of <i>*Sisymbrium irio</i> and <i>Chenopodium gaudichaudianum</i>	4.13
		AT-Ac	Tall Open Shrubland of <i>Acacia acuminata</i> over Shrubland of <i>Acacia coolgardiensis</i>	5.56
		AT-AIMa	Tall Shrubland of <i>Acacia coolgardiensis</i> , <i>Acacia longispinea</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> and <i>Melaleuca atroviridis</i> over Open Shrubland of <i>Acacia coolgardiensis</i> and/or <i>Melaleuca atroviridis</i> over Very Open Sedgeland of <i>Ecdeiocolea monostachya</i>	24.52

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		AT-Gof	Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i> , <i>Acacia coolgardiensis</i> and <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> over Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i>	8.73
		AT-Cd	Tall Open Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> over Open Shrubland of <i>Acacia acuminata</i> , <i>Acacia sibina</i> and <i>Hibbertia glomerata</i> subsp. <i>glomerata</i> over Very Open Herbland of <i>Calytrix depressa</i> , <i>Borya sphaerocephala</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	2.22
		AT-Gb	Tall Open Shrubland of <i>Acacia acuminata</i> over Open Shrubland of <i>Acacia</i> sp., <i>Acacia sibina</i> and <i>Mirbelia depressa</i> over Low Open Shrubland of <i>Acacia ulicina</i> , <i>Grevillea levis</i> over Very Open Grassland of <i>*Bromus diandrus</i> and <i>*Avena barbata</i>	5.02
		AT-CoBG	Tall Shrubland of <i>Acacia acuminata</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> and <i>Casuarina obesa</i> over Shrubland of <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen), <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> , <i>Melaleuca cordata</i> , <i>Allocasuarina campestris</i> and <i>Grevillea paradoxa</i>	6.68
		AT-AIMIAe	Tall Shrubland of <i>Acacia longiphylloidea</i> , <i>Grevillea paradoxa</i> , <i>Acacia sibina</i> and <i>Acacia acuminata</i> over Open Shrubland of <i>Mirbelia longifolia</i> , <i>Micromyrtus prochytes</i> , <i>Eremophila georgei</i> over Low Open Shrubland of <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Ricinocarpos muricatus</i>	0.21
		AT-MvvAc	Tall Shrubland of <i>Acacia acuminata</i> and <i>Melaleuca viminea</i> subsp. <i>viminea</i> over Open Shrubland of <i>Allocasuarina campestris</i> and <i>Malleostemon tuberculatus</i> over Low Open Shrubland of <i>Acacia coolgardiensis</i> over Very Open Herbland of <i>Velleia rosea</i> , <i>Ecdeiocolea monostachya</i> , <i>Podotheca angustifolia</i> and <i>Pogonolepis stricta</i>	3.57

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		AT-AaAan	Tall Open Scrub of <i>Acacia acuminata</i> and <i>Acacia anthochaera</i>	4.95
		AT-PoCd	Tall Open Shrubland of <i>Acacia anthochaera</i> over Low Open Shrubland of <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> over Herbland of <i>Cephalopterum drummondii</i> , <i>Vaccaria hispanica</i> and <i>Podolepis capillaris</i>	8.00
		AT-VeWaa	Tall Open Scrub of <i>Acacia</i> sp.	1.04
		AT-ArlAs	Tall Open Scrub of <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia sibina</i>	1.75
		AT-MtEI	Tall Open Shrubland <i>Acacia acuaria</i> over Open Shrubland of <i>Acacia acuminata</i> , <i>Acacia coolgardiensis</i> and <i>Rhagodia drummondii</i> over Low Shrubland <i>Maireana tomentosa</i> over Open Grassland of <i>*Ehrharta longiflora</i> over Very Open Herbland of <i>Gorteria personata</i>	16.41
		AT-MpPc	Tall Open Shrubland of <i>Acacia rostellifera</i> over Very Open Grassland of <i>*Bromus diandrus</i> , <i>*Monachather paradoxus</i> and <i>*Ehrharta longiflora</i> over Very Open Herbland of <i>Podolepis canescens</i> and <i>Brachyscome onocarpa</i>	6.20
		AT-AbAb	Tall Shrubland of <i>Acacia acuminata</i> over Shrubland of <i>Acacia brumalis</i> over Open Grassland of <i>*Avena barbata</i> and <i>Austrostipa variabilis</i>	16.63
Acacia Tall Shrubland (Degraded)	59.11	AT- AbArApEI (D)	Tall Open Scrub of <i>Acacia blakelyi</i> , <i>Acacia rostellifera</i> , <i>Acacia prainii</i> and/or <i>Acacia alata</i> var. <i>biglandulosa</i> over Open Grassland of <i>*Ehrharta longiflora</i> , <i>*Ehrharta calycina</i> , <i>Pennisetium setaceum</i> and <i>*Bromus diandrus</i> over <i>*Lupinus cosentinii</i>	59.11
Allocasuarina and Melaleuca Shrubland	3	AIMS-Ae	Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Allocasuarina campestris</i> over Low Open Shrubland of <i>Thryptomene</i> sp. East Yuna (J.W. Green 4639) over Open Grassland of <i>Austrostipa elegantissima</i> over Very Open Herbland of <i>*Monachather paradoxus</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	3.00

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
<i>Allocasuarina</i> Tall Shrubland	31.54	AIT-Em	Open Shrubland to Closed Tall Scrub of <i>Allocasuarina campestris</i> over Open Sedgeland of <i>Ecdeiocolea monostachya</i>	31.54
<i>Banksia</i> and <i>Nuytsia</i> Low Woodland	1.16	BNLW-XpEc	Low Open Woodland of <i>Banksia sceptrum</i> , <i>Nuytsia floribunda</i> and <i>Acacia blakelyi</i> over Open Shrubland of <i>Xanthorrhoea preissii</i> , <i>Banksia attenuata</i> and <i>Allocasuarina humilis</i> , over Low Open Shrubland of <i>Hibbertia hypericoides</i> , <i>Conostylis robusta</i> , <i>Stirlingia latifolia</i> over Closed Grassland of <i>*Ehrharta calycina</i> and <i>*Ursinia anthemoides</i>	1.16
<i>Callitris</i> and <i>Eucalyptus</i> Low Forest	5.08	CELF-Rd	Low Open Forest of <i>Callitris arenaria</i> and <i>Eucalyptus eudesmioides</i> over Low Open Shrubland of <i>Rhagodia drummondii</i> , <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369), <i>Comesperma scoparium</i> and <i>Santalum acuminatum</i> over Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>*Ehrharta longiflora</i> over Very Open Herbland of <i>Opercularia spermacocea</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	5.08
<i>Callitris</i> Open Woodland	23.55	COW-Xa	Low Woodland of <i>Callitris arenaria</i> and <i>Xylomelum angustifolium</i> over Low Open Shrubland of <i>Rhagodia preissii</i> subsp. <i>obovata</i> and <i>Allocasuarina campestris</i> over Very Open Grassland of <i>Austrostipa elegantissima</i> , <i>*Ehrharta longiflora</i> and <i>*Bromus diandrus</i>	23.55
<i>Dryandra</i> Tall Shrubland	23.69	DT-Rd	Tall Open Scrub of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> over Open Shrubland of <i>Rhagodia drummondii</i> over Open Grassland of <i>*Ehrharta calycina</i> and, <i>*Pennisetum setaceum</i> and <i>*Ehrharta longiflora</i> over Very Open Herbland of <i>Arctotheca calendula</i>	13.32
		DT-Ab	Open to Tall Open Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> over Shrubland of <i>Acacia blakelyi</i> and/or <i>Acacia brumalis</i>	10.37

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
<i>Dryandra</i> , <i>Acacia</i> and <i>Allocasuarina</i> Shrubland	5.79	DAAIS	Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> , <i>Allocasuarina campestris</i> , <i>Acacia saligna</i> , <i>Gastrobium spinosum</i> over Open Grassland of <i>Austrostipa elegantissima</i> and <i>Keraudrenia hermanniifolia</i> over Open Sedgeland of <i>Dampiera spicigera</i>	5.79
<i>Dryandra</i> , <i>Adenanthos</i> and <i>Acacia</i> Tall Shrubland	8.69	DAdAT-EI	Tall Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> , <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> , <i>Acacia blakelyi</i> and <i>Acacia rostellifera</i> over Open Grassland of <i>*Ehrharta longiflora</i> and <i>*Briza maxima</i>	8.69
<i>Eucalyptus</i> Low Forest	0.31	ELF-AsHt	Low Open Forest of <i>Eucalyptus camaldulensis</i> over Open Shrubland of <i>Acacia saligna</i> over Low Open Shrubland of <i>Hakea trifurcata</i> , <i>Acacia rostellifera</i> and <i>Acacia tetragonophylla</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> , <i>Austrostipa elegantissima</i> and <i>*Briza maxima</i>	0.31
<i>Eucalyptus</i> Low Woodland	10.4	ELW-Aa	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralae</i> over Open Shrubland of <i>Acacia acuminata</i> over Very Open Grassland of <i>*Avena barbata</i> and <i>*Briza maxima</i>	0.16
		ELW-RdSs	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Low Open Shrubland of <i>Rhagodia drummondii</i> , <i>Scaevola spinescens</i> , <i>Melaleuca uncinata</i> and <i>Sclerolaena diacantha</i>	0.50
		ELW-ArElBd	Low Open Woodland of <i>Eucalyptus eudesmioides</i> over Tall Open Shrubland of <i>Grevillea</i> sp. over Open Shrubland of <i>Acacia rostellifera</i> , <i>Santalum acuminatum</i> and <i>Rhagodia preissii</i> subsp. <i>obovata</i> over Open Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>	9.73
<i>Eucalyptus</i> Tree Mallee	120.19	ET-MaRd	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Tall Open Scrub of <i>Melaleuca acuminata</i> over Low Open Shrubland of <i>Rhagodia drummondii</i>	0.25

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		ET-Ac	Open Tree Mallee of <i>Eucalyptus eudesmioides</i> , <i>Eucalyptus rigidula</i> and <i>Eucalyptus jucunda</i> over Tall Shrubland of <i>Allocasuarina campestris</i> over Low Open Shrubland of <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) and <i>Opercularia spermacoceae</i> over Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>*Ehrharta longiflora</i>	13.55
		ET-EjAc	Very Open to Open Tree Mallee of <i>Eucalyptus jucunda</i> over Tall Open Scrub to Open Heath of <i>Allocasuarina campestris</i> over Low Shrubland <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	32.02
		ET-EcAt	Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Shrubland of <i>Eremophila clarkei</i> and <i>Acacia tetragonophylla</i>	0.10
		ET-AcGof	Very Open Tree Mallee of <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i> over Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Allocasuarina campestris</i> over Low Open Shrubland of <i>Pityrodia lepidota</i> , <i>Platysace trachymenioides</i> and <i>Verticordia eriocephala</i>	4.21
		ET-MvAa	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralae</i> over Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , <i>Acacia acuminata</i> , <i>Senna charlesiana</i> over Low Open Shrubland of <i>Melaleuca</i> sp. and <i>Ptilotus obovatus</i> over Very Open Grassland of <i>*Avena barbata</i> and <i>Pentaschistis airoides</i> over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i>	4.61
		ET-MuAsAa	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Tall Shrubland of <i>Melaleuca uncinata</i> , <i>Acacia sibina</i> and <i>Melaleuca eleuterostachya</i> over Low Open Shrubland of <i>Acacia andrewsii</i>	12.71

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
		ET-AaAs	Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Tall Open Shrubland of <i>Acacia acuminata</i> and <i>Melaleuca uncinata</i> over Low Open Shrubland of <i>Astroloma serratifolium</i>	3.49
		ET-MuPo	Very Open Tree Mallee of <i>Eucalyptus horistes</i> over Shrubland of <i>Melaleuca uncinata</i> and <i>Acacia acuminata</i> over Open Herbland of <i>*Portulaca oleracea</i> , <i>Podolepis capillaris</i> and <i>*Arctotheca calendula</i>	5.84
		ET-AaArl	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Tall Open Shrubland of <i>Acacia acuminata</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i> over Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>Austrostipa variabilis</i>	3.57
		ET-AaAa	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Tall Open Shrubland of <i>Acacia anthochaera</i> over Shrubland of <i>Acacia acuaria</i> over Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>*Avena barbata</i>	15.71
		ET-EggAsRd	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Open Shrubland of <i>Eremophila glabra</i> subsp. <i>glabra</i> , <i>Acacia anthochaera</i> and <i>Senna charlesiana</i> over Low Shrubland of <i>Atriplex stipitata</i> , <i>Rhagodia drummondii</i> and <i>Enchylaena tomentosa</i> over Very Open Grassland of <i>*Hordeum leporinum</i>	7.65
		ET-MvArl	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralae</i> and <i>Eucalyptus ewartiana</i> over Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i> over Very Open Herbland of <i>Amphipogon caricinus</i> var. <i>caricinus</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	16.47

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
<i>Eucalyptus</i> Tree Mallee (Degraded)	10.12	ET-EILc (D)	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> over Open Grassland of <i>*Ehrharta longiflora</i> , <i>*Pennisetum setaceum</i> and <i>*Bromus diandrus</i> over Open Herbland of <i>*Lupinus cosentinii</i> , <i>*Echium plantagineum</i> , <i>*Anagallis arvensis</i> , <i>*Hypochaeris glabra</i> , <i>*Melilotus indicus</i> and <i>Enchylaena tomentosa</i>	10.12
<i>Eucalyptus</i> Woodland (Degraded)	14.1	EW-Co (D)	Open Woodland of <i>Eucalyptus camaldulensis</i> over Tall Open Shrubland of <i>Casuarina obesa</i> over Closed Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>	0.18
		EW-AsBm (D)	Woodland of <i>Eucalyptus camaldulensis</i> over Tall Shrubland of <i>Acacia saligna</i> , <i>Exocarpos sparteus</i> , <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Grevillea biternata</i> over Open Shrubland of <i>Grevillea pinaster</i> and <i>Acacia tetragonophylla</i> over Grassland of <i>*Briza maxima</i> , <i>*Pennisetum setaceum</i> and <i>*Ehrharta longiflora</i>	1.02
		EW-AsArCd (D)	Low Open Woodland of <i>Eucalyptus eudemioides</i> over Tall Open Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i> over Shrubland of <i>Acacia rostelifera</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> , <i>Rhagodia preissii</i> subsp. <i>obovata</i> and <i>Labichea teretifolia</i> subsp. <i>grandistipulata</i> over Very Open Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i> over Open Herbland of <i>Cephalopterum drummondii</i> , <i>*Lupinus cosentinii</i> , <i>Podolepis canescens</i> , <i>Waitzia acuminata</i> var. <i>acuminata</i>	12.90
<i>Malleostemon</i> Tall Shrubland	0.45	MaT-Cp	Tall Open Shrubland of <i>Calycopeplus paucifolius</i> over Shrubland of <i>Malleostemon tuberculatus</i> and <i>Melaleuca fulgens</i> subsp. <i>steadmanii</i> over Low Open Shrubland of <i>Grevillea tenuiloba</i> and <i>Calytrix depressa</i> over Open Herbland of <i>Velleia rosea</i> , <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Borya sphaerocephala</i>	0.45
<i>Melaleuca</i> Shrubland	7.85	MeS-Ac	Open Heath of <i>Melaleuca viminea</i> subsp. <i>viminea</i>	7.85

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Melaleuca Tall Shrubland	23.82	MeT-GpCaa	Tall Shrubland of <i>Melaleuca cordata</i> and <i>Grevillea paradoxa</i> over Low Open Shrubland of <i>Cryptandra apetala</i> var. <i>apetala</i> and <i>Hibbertia stenophylla</i> over Very Open Grassland of <i>Homalocalyx aureus</i> , <i>Austrostipa elegantissima</i> and <i>Amphipogon caricinus</i> var. <i>caricinus</i>	20.49
		MeT-A	Tall Open Shrubland of <i>Melaleuca atroviridis</i> and <i>Acacia</i> sp.	3.32
Myrtaceous and Proteaceous Heath	2.28	MyPrH	Closed Heath of <i>Scholtzia oligandra</i> , <i>Acacia saligna</i> and <i>Grevillea candelabroides</i> over Low Open Shrubland of <i>Banksia fraseri</i> var. <i>ashbyi</i> , <i>Hakea trifurcata</i> , <i>Maireana georgei</i> and <i>Jacksonia ramulosa</i> over Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>Ehrharta calycina</i>	2.28
<i>Tecticornia</i> Low Heath	15.16	TH	Open Low Heath of <i>Tecticornia pruinosa</i> and <i>Hakea bucculenta</i>	15.16
<i>Xylomelum angustifolium</i> Low Open Woodlands	12.4	XW-AcAb	Low Open Woodland of <i>Xylomelum angustifolium</i> and <i>Scholtzia oligandra</i> over Shrubland of <i>Allocasuarina campestris</i> , <i>Acacia blakelyi</i> and <i>Conospermum boreale</i> subsp. <i>ascendens</i> over Low Open Shrubland of <i>Olearia dampieri</i> , <i>Acanthocarpus preissii</i> and <i>Glischrocaryon aureum</i>	10.69
		XW-Cp	Low Open Woodland of <i>Xylomelum angustifolium</i> over Tall Shrubland of <i>Allocasuarina campestris</i> and <i>Callistemon phoeniceus</i> over Low Open Shrubland of <i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i> and <i>Hakea bucculenta</i> over Very Open Sedgeland of <i>Ecdeiocolea monostachya</i> and <i>Mesomelaena preissii</i> subsp. <i>preissii</i> over Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i>	1.71

Broad Vegetation Formations	Extent within Survey Area (ha)	Vegetation Association Code	Vegetation Association Description	Extent within Survey Area (ha)
Impacted	110.65	I-CD	Low Open Woodland of <i>Eucalyptus eudesmioides</i> over Very Open Shrubland of <i>Grevillea</i> sp., <i>Santalum acuminatum</i> , <i>Acacia rostellifera</i> and <i>Rhagodia preissii</i> subsp. <i>obovata</i> over Open Grassland of <i>Austrostipa trichophylla</i> , <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>	101.32
		I-S	Very Open Shrubland of <i>Acacia acuminata</i> over Very Open Low Shrubland of <i>Atriplex codonocarpa</i> and <i>Rhagodia drummondii</i>	9.33

3.3.3 Vegetation Condition

Vegetation condition within the survey area ranged between Excellent to Completely Degraded (Figure 5). Of the total survey area, 41 ha of vegetation was categorised as Excellent; 256 ha as Very Good, 218 ha as Good; 201 ha as Degraded and 364 ha as Completely Degraded. The Completely Degraded areas include 260 ha mapped as cleared for maintained tracks, the existing rail and infrastructure.

Vegetation condition generally declined as the survey area extended east, from Geraldton to Morawa. Vegetation condition was generally more Degraded in the Mullewa and Geraldton segments of the survey area. Disturbances within the survey area included infrastructure, clearing, tracks, nearby agriculture impacts and introduced species.

Fire age within the survey area was mostly categorised as Very Old to Old (eight to over twelve years old), with eight quadrats categorised as Moderate (four to eight years old).

3.3.4 Vegetation Extent by Local Government Authority

Western Australia is divided into 142 Local Government Authorities (LGAs) or shires. Twenty-six LGAs occur within the rangelands or Extensive Land-use Zone (ELZ), a region with mostly uncleared native vegetation. The remaining 116 LGA's occur at least partly within the Intensive Land-use Zone (ILZ), a region that has been extensively cleared for agricultural activities (Shepherd 2001).

The survey area is located entirely within the ILZ and extends through three LGAs, namely Greenough (Geraldton), Mullewa and Morawa (Figure 6). All three LGAs retain less than 20% vegetation, with only 7.1% in the Mullewa LGA. The extent of vegetation within each LGA is listed in Table 8.

Table 8 Vegetation Extent in the Intensive Land-Use Zone by Local Government Authority within the Narngulu to Tilley Survey Area (Shepherd 2001)

Local Government Authority	Total Area (ha)	Potential Clearing Area (ha)	Native Vegetation Cover Remaining	
			(ha)	(%)
Greenough	177,404	177,404	26,612	15
Mullewa	1,076,999	496,895	35,336	7.1
Morawa	341,836	289,168	56,051	19.4

3.3.5 Regional Representation of Vegetation Associations

Beard (1975) described 17 vegetation types within the survey area (Table 9), these can be correlated to subsequent mapping by Shepherd *et al.* (2001).

The vegetation associations recorded during this survey have been broadly correlated with the Beard (1975) broad vegetation types by examining similarities in vegetation descriptions (Table 9). Differences exist with the terminology used in the descriptions as they are based on different methods of categorising and characterising vegetation types, and due to the differing spatial scale of the analysis (i.e. region vs. local scale).

Seventeen vegetation types (Shepherd *et al.*, 2001) were recorded within the survey area. Each vegetation type is categorized according to the area of remaining pre-European vegetation (Department of Natural Resources 2002). The five categories are:

Presumed Extinct: *Probably no longer present in the bioregion;*

Endangered: *<10% of pre-European extent remains;*

Vulnerable: *10-30% of pre-European extent exists;*

Depleted: *>30% of pre-European extent exists; and*

Least Concern: *>50% of pre-European extent exists and subject to little to no degradation over a majority of this area.*

Two of the 17 Shepherd (2001) vegetation types recorded within the survey area are considered to be Endangered, eight are Vulnerable, three are Depleted and four are of Least Concern. Some of these vegetation types occur in both bioregions.

The remaining pre-European vegetation has been assessed within each bioregion. Eleven of the 17 vegetation types (Shepherd 2001) were recorded within the Geraldton Sandplains section of the survey area. Of these, three are considered to be Endangered, five are Vulnerable, two are Depleted and one is of Least Concern (Table 9).

Eight of the 17 vegetation types (Shepherd 2001) were recorded within the Avon Wheatbelt section of the survey area. All eight of these vegetation types are considered to be Vulnerable (Table 9).

Table 9: Regional Representation of Vegetation within the Narngulu to Tilley Survey Area

Vegetation Code (Shepherd 2001)	Pre-European Extent (ha)*	Current Extent (ha)*	Remaining (%)*	Pre-European % in IUCN Class I-IV Reserves*	Conservation Status**	ENV Vegetation Associations (2010)				
Geraldton Sandplains (IBRA)	3,140,473	1,341,267	42.7	15.2	Depleted	N/A				
Avon Wheatbelt (IBRA)	9,517,109	1,443,690	15.2	1.2	Vulnerable	N/A				
Vegetation Type (Beard 1975) Western Australia										
35	213,685	21,972	10.3	2.3	Vulnerable	ELF-AsHt ET-EcAt	ET-AaAs ET-AaArl	ET-EggAsRd	I-S	
36	429,445	177,262	41.3	10.8	Depleted	AAIT-MaMc				
142	1,134,385	281,570	24.8	14.5	Vulnerable	AGT-PcPmm	EW-AsArCd (D)	EW-Co (D)	EW-AsBm (D)	
325	71,884	61,602	85.7	0	Least Concern	TH				
353	103,631	4,656	4.5	17.1	Endangered	ET-AaAa	AT-MpPc			
359	51,008	10,762	21.1	0	Vulnerable	ACS-Ba				
371	37,651	3,703	9.8	3.7	Endangered	AT-AbArApEl (D)	AT-ArAsAe	AS-TsMb		
372	93,635	28,141	30.1	84.8	Depleted	ET-ElLc (D)	ET-EjAc	COW-Xa	XW-Cp	
379	633,325	128,007	20.2	20.3	Vulnerable	ELW-RdSs	AIT-Em	ET-Ac	ET-MaRd	
380	607,325	317,763	52.3	31.5	Least Concern	COW-Xa	AIMS-Ae	AMyS-Ghh	ET-Ac	
408	382,507	154,708	40.4	62.6	Depleted	AH-Css AT-AxAb	DAdAT-El DT-Ab	MyPrH AAIT-GcEmAe	BNLW-XpEc DAAIS	
551	422,337	102,167	24.2	18.7	Vulnerable	XW-AcAb AAIT-Mvv	AAIT-MnPt	AGS-Ae	AAIT-Mt	
675	59,708	12,985	21.7	2.8	Vulnerable	DT-Rd	DT-Ab			
676	2,110,508	2,087,974	98.9	6.5	Least Concern	AT-Gof	TH			

Vegetation Code (Shepherd 2001)	Pre-European Extent (ha)*	Current Extent (ha)*	Remaining (%)*	Pre-European % in IUCN Class I-IV Reserves*	Conservation Status**	ENV Vegetation Associations (2010)			
684	145,457	30,397	20.9	1.2	Vulnerable	AAIT-GcEmAe I-CD AAIT-MvvMI AGT-AuLpr AGT-HraRd AMeS-DdBs	AT-AIMIAe AT-ArlAs AT-Cd AT-CoBG AT-Gb AT-MvvAc	AT-PoCd AT-VeWaa ET-MuPo ET-MvvArl AT-AbAb AMeT-Cd	AMeT-Gof AS-(D) AS-HggAe AS-RdEt AT-AaAan
687	60,397	10,556	17.5	27.3	Vulnerable	AGS-KhCd	AT-MtEl	AHT-Hrr	AS-EICd (D)
1413	2,296,506	1,390,609	60.6	14.7	Least Concern	DAAIS ET-MuAsAa MeS-Ac MeT-GpCaa	AS-PcAc (D) ET-AcGof AT-Ac AMeS-AcAa	MaT-Cp AMeH-EIPs AMeT-Gg	AGS-EIWaa AT-AIMa AGS-EIAcc
Vegetation Types in the Geraldton Sandplains Bioregion									
35	184,501	19,486	10.6	785	Vulnerable	ELF-AsHt ET-EcAt	ET-AaAs I-S	ET-AaArl	ET-EggAsRd
142	8,761	839	9.6	20	Endangered	AGT-PcPmm	EW-AsArCd (D)	EW-Co (D)	EW-AsBm (D)
325	4,455	419	9.4	0	Endangered	TH			
353	96,824	4,264	4.4	544	Endangered	ET-AaAa	AT-MpPc		
359	44,418	8,366	18.8	2	Vulnerable	ACS-Ba			
371	32,808	3,315	10.1	266	Vulnerable	AT-AbArApEl (D)	AT-ArAsAe	AS-TsMb	
372	82,084	28,352	34.5	24,234	Depleted	ET-EILc (D)	ET-EjAc	XW-Cp	COW-Xa
379	546,508	121,817	22.3	28,037	Vulnerable	ELW-RdSs	AIT-Em	ET-MaRd	ET-Ac
380	507,696	306,920	60.5	90,561	Least Concern	COW-Xa	AIMS-Ae	ET-Ac	AMyS-Ghh
408	328,527	142,231	43.3	94,769	Depleted	AH-Css AT-AxAb	DAdAT-El DT-Ab	MyPrH AAIT-GcEmAe	BNLW-XpEc DAAIS
675	51,851	10,992	21.2	358	Vulnerable	DT-Rd	DT-Ab		

Vegetation Code (Shepherd 2001)	Pre-European Extent (ha)*	Current Extent (ha)*	Remaining (%)*	Pre-European % in IUCN Class I-IV Reserves*	Conservation Status**	ENV Vegetation Associations (2010)				
Vegetation Types in the Avon Wheatbelt Bioregion										
36	300,996.95	65,031.48	21.61	9,446.86	Vulnerable	AAIT-MaMc				
142	561,021.49	63,729.18	11.36	2,878.54	Vulnerable	AGT-PcPmm	EW-AsArCd (D)	EW-AsBm (D)	EW-Co (D)	
380	23,170.18	2,360.32	10.19	273.74	Vulnerable	COW-Xa ACS-Ba	AIMS-Ae	ET-Ac	AMyS-Ghh	
551	257,692.70	37,505.75	14.55	3,120.43	Vulnerable	XW-AcAb AGS-Ae	AAIT-MnPt	AAIT-Mvv	AAIT-Mt	
676	124,573.11	24,316.22	19.52	411.11	Vulnerable	AT-Gof	TH			
684	213,291.36	33,523.85	15.72	498.99	Vulnerable	AAIT-GcEmAe I-CD AAIT-MvvMI AGT-AuLpr AGT-HraRd AMeS-DdBs	AT-ALMIAe AT-ArIAs AT-Cd AT-CoBG AT-Gb AT-AbAb	AT-MvvAc AT-PoCd AT-VeWaa ET-MuPo ET-MvvArl AT-AaAan	AMeT-Cd AMeT-Gof AS-(D) AS-HggAe AS-RdEt	
687	37,458.99	7,298.56	19.48	2,844.02	Vulnerable	AGS-KhCd	AT-MtEl	AHT-Hrr	AS-EICd (D)	
1413	546,675.69	135,264.53	24.74	11,821.81	Vulnerable	DAAIS ET-MuAsAa MeS-Ac MeT-GpCaa	AS-PcAc (D) ET-AcGof AT-Ac MaT-Cp	AMeH-EIPs AMeT-Gg AMeS-AcAa	AGS-EIWaa AT-ALMa AGS-EIAcc	

*Shepherd *et al.* (2001)

**Department of Natural Resources and Environment (2002)

4 DISCUSSION

4.1 Reserves and Corridors

The survey area occurs within the Mid-West region of Western Australia, specifically within two bioregions; the Geraldton Sandplains and the Avon Wheatbelt. The Avon Wheatbelt encompasses approximately 25% of Western Australia's known Declared Rare Flora (SEWPAC 2007). Both bioregions comprise a high percentage of endemic and Declared Rare and Priority Flora. Both of these bioregions have been extensively cleared for dryland agriculture and livestock grazing (SEWPAC 2007). As a result of this extensive clearing, the Geraldton Sandplains and Avon Wheatbelt bioregions are included within the south-west biodiversity 'hotspot', which is an area characterised by high endemism amongst flora and fauna and a high level of threat from exceptional loss of habitat (Myers *et. al* 2000).

European settlement of the Mid-West region of Western Australia and the establishment of wheat farms after the completion of the Great Southern Railway in 1889, saw the beginning of vegetation clearing for agriculture in the region, which accelerated greatly after the Second World War (Saunders and Hobbs 1991). The clearing of native vegetation continued until it appeared that much of the State's unique flora, and the fauna which depends on it, could be potentially be lost (Saunders and Hobbs 1991). As a result of increasing public concern, the State government was motivated to designate land to be left as nature reserves in newly-created agricultural areas (Saunders and Hobbs 1991).

Vegetation clearing associated with agriculture within the three Local Government Authorities (LGAs) of the survey area has been extensive, with the Greenough (Geraldton), Mullewa and Morawa LGAs containing 15%, 7.1% and 19.4% of the remaining remnant vegetation, respectively (Shepherd 2001). Geraldton and Morawa have been significantly cleared as a result of agricultural processes, the amount of remaining vegetation within the Mullewa LGA is categorised as Endangered by the Department of Natural Resources (2002).

Much of the remaining vegetation within the Mid-West region has been conserved within nature reserves (Walshe 2009). According to Shepherd *et al.* (2001), 42.7% of the native vegetation existing prior to pre-European settlement remains within the Geraldton Sandplains, and 15.2% remains within the Avon Wheatbelt. Based on the significant amount of clearing within these regions, the Geraldton Sandplains and Avon Wheatbelt are categorised as 'Depleted' and 'Vulnerable' by the Department of Natural Resources (2002) respectively. Based on this, any remnant vegetation existing within the extensively cleared Mid-West region is considered to be significant, particularly within the Avon Wheatbelt bioregion.

In addition to allocating land for conservation, a need has been recognised for reserves to be connected to each other to maintain genetic diversity by facilitating the movement of biota between reserves (Saunders *et. al* 1995). This issue was assisted by

the conservation of roadside vegetation, forming vegetative corridors, or ‘wildlife corridors’ (Saunders *et. al* 1995).

A wildlife corridor is defined as a linear two-dimensional landscape element that connects two or more patches of wildlife habitat that would have been connected prior to European settlement (Saunders *et. al* 1995). These corridors are considered to be significant as they allow for the movement of biota between habitats and facilitate preservation of genetic diversity amongst populations; provide a regional representation of the vegetation associations that were present prior to European settlement; and represent significant areas of conserved land.

The rail corridor between Mullewa and Morawa, which constitutes approximately half of the survey area, is considered to be one of the most important wildlife corridors identified in the Avon Wheatbelt (Breckwolfdt 1990). This corridor is considered significant as it contains unused settlement townsites approximately every 20 km which were developed, providing valuable vegetation remnants and wildlife habitat (Breckwolfdt 1990). Breckwolfdt (1990) further noted that vegetation on the eastern side of the rail alignment was in better condition than that of the western side.

The survey area intersects the Leda (Canna), Forty Mile and Wilroy Nature Reserves (Figure 6). In addition to representing and containing endemic vegetation of the Mid-West region that existed prior to European settlement, numerous Priority Flora were recorded within the Forty Mile (*Acacia leptospermoides* subsp. *psammophila*), Wilroy (*Gompholobium cinereum*) and Leda (*Stylidium pendulum*, *Grevillea tenuiloba* and *Ricinocarpos oliganthus*) nature reserves, highlighting their significance.

The survey area, which includes the rail alignment and access tracks that run parallel to the rail from Geraldton to Morawa, contains remnant vegetation varying from Completely Degraded to Excellent. This narrow strip of vegetation acts as a corridor that allows for nature reserves to be connected to each other, conserving remnant vegetation and facilitating genetic diversity of wildlife populations located within the Leda (Canna), Forty Mile and Wilroy Nature Reserves (Saunders *et. al* 1995).

4.2 Regional Representation of Vegetation Associations

Two of the Beard (1975) vegetation associations mapped within the survey area (a23Lc and e6MreaSi) contain less than 10% of their pre-European extent and are categorised as ‘Endangered’ by the NRE (2002). The ENV vegetation associations corresponding to a23Lc include the *Eucalyptus* Tree Mallee vegetation association ET-AaAa and the *Acacia* Tall Shrubland vegetation association AT-MpPc (Table 9). The vegetation associations corresponding to e6MreaSi include the *Acacia* Tall Shrubland vegetation associations AT-AbArApEl (D) and AT-ArAsAe, and the *Acacia* Shrubland vegetation association AS-TsMb. Based on the limited extent and ‘Endangered’ status of a23Lc and e6MreaSi, the ENV vegetation associations related to these Beard (1975) associations can be considered to be of conservation significance.

Of the remaining 15 Beard (1975) vegetation associations, eight are considered to contain less than 30% of their pre-European extent, and are categorised as ‘Vulnerable’ as per the NRE (2002). These vegetation associations (abSi; c3Sc; e6,8Mi; e6c5Mr a9,19Si; e6Mr a19Si; e6Mr a19Si/c3Sc; mhSc; and x4SZc) correspond to forty-nine of the vegetation associations mapped within the survey area during the current survey (Table 9). Based on their limited extent and ‘Vulnerable’ status vegetation mapped during this survey that is associated with these Beard (1975) associations can be considered to be of conservation significance (Table 9).

A further three Beard (1975) vegetation associations (acmSc; x3SZc/acSc and x2SZc) are considered to contain less than 50% of their pre-European extent, and are categorised as ‘Depleted’ as per the NRE (2002). These three associations correspond to thirteen vegetation associations mapped within the survey area during the current survey (Table 9).

Four Beard (1975) vegetation associations (k1,3Ci, x3SZc, k3Ci and acmSc) are considered to contain over 50% of their pre-European extent, and are categorised as ‘Least Concern’ as per the NRE (2002). These four associations correspond to 21 vegetation associations mapped within the survey area during the current survey (Table 9).

4.3 Threatened and Priority Ecological Communities

No vegetation associations representing TECs under the *EPBC Act*, ESAs under the *EP Act*, or PECs as listed by the DEC were recorded during the survey. One TEC listed as Vulnerable, as endorsed by the Minister for the Environment occurs approximately 2 km east of the survey area and approximately 20 km north of Morawa. This TEC is known as the “Plant Assemblages of the Moonagin System” (DEC 2010c).

The “Plant Assemblages of the Moonagin System” covers the fine-grained Achaean rocks of the Moonagin and Milhun Ranges, located north-east of Morawa (CALM 2002). The assemblage comprises a particular series of plant communities recurring in a catenary sequence or mosaic pattern linked to topographic, pedagogical and/or geological features (CALM 2002). This catenary sequence or ‘system’ has a distinctive geology, topography and plant community, different from the land surrounding it and from that of any comparable systems (such as the Koolanooka and Billeranga systems) (CALM 2002).

4.4 Vegetation Condition of the Survey Area

The condition of the vegetation within the survey area has been significantly reduced by the impact of several disturbances. Clearing of vegetation within the survey area has occurred both for the existing rail line and approximately 5 m either side of the track. In addition, two cleared vehicle access tracks (one on either side of the rail line) run consistently through the length of the survey area from Geraldton to Morawa (Figure 4). The estimated area cleared for maintained tracks, existing rail and other infrastructure within the survey area was mapped as 260 ha. This equates to approximately 24% of the survey area.

These cleared tracks, as well as the intensive clearing of vegetation that borders much of the survey area, has facilitated the invasion of introduced species. The high number of vehicle tracks has also increased public access into the survey area.

4.5 Flora

The average flora richness per quadrat was 28.8 species. This is lower than the species richness recorded during the Community Bushland Survey (True and O’Callaghan 1998). The Community Bushland Survey area was located on selected farms within the Morawa district approximately 25 km west of survey area and encompasses similar vegetation associations as those represented within the Narngulu to Tilley survey area, including ‘Mixed *Allocasuarina*, *Acacia* and Myrtaceae Shrubland’, Tall *Allocasuarina* and *Melaleuca* Shrublands, and *Eucalyptus* Woodlands. True and O’Callaghan (1998) recorded an average flora richness of 32.33 from 18 quadrats 10 x 10 m in size.

The difference in species richness can be attributed to differences in survey methodology and environmental factors. The differences in survey methodology include that True and O’Callaghan (1998) recorded a smaller number of quadrats (18 within eight different vegetation associations) and that these quadrat sites were carefully chosen to target vegetation of best condition for each vegetation association. In contrast, the average species richness within the quadrats recorded during the current survey is based on 92 quadrats (from 31 broad floristic vegetation associations) in vegetation of a condition representative throughout the survey area.

Differences in species richness can also be attributed to environmental factors, including below average rainfall for the region, significant degradation of vegetation associations along the rail alignment, and the widespread occurrence of introduced species within the survey area.

4.6 Threatened, Declared Rare and Priority Flora

Three species gazetted as Declared Rare Flora under the *WC Act*, including one species listed as Vulnerable under the *EPBC Act* - *Caladenia wanosa*, *Grevillea bracteosa* subsp. *howatharra* and *Grevillea phanerophlebia*, were recorded within the survey area. With the exception of these species, 13 species gazetted as Declared Rare Flora pursuant to the *WC Act* identified as potentially occurring within the survey area, were not recorded during the survey. These species include two mallees, seven shrubs and four herbs.

The two DRF mallees (*Eucalyptus beardiana* and *Eucalyptus synandra*) generally grow in sandy soils (Australian Nation Botanic Gardens 2004), suggesting that suitable habitat for both species is present within the survey area (Table 3); *Eucalyptus beardiana* favours red or yellow sand dunes and *Eucalyptus synandra* favours sandy and lateritic soils (WAH 2010). These species both flower between August to September, and were expected to be in flower during the survey. As these species were considered likely to occur within the survey and were not located, it can be suggested that these species may not occur with the survey area.

The seven DRF shrub species (*Chorizema humile*, *Commersonia adenothalia*, *Eremophila viscida*, *Gyrostemon reticulatus*, *Hypocalymma longifolium*, *Leucopogon marginatus* and *Tecticornia bulbosa*) are perennial shrubs and are all considered to favour loamy sands (WAH 2010). The survey was undertaken during the flowering period of five of these species except *Commersonia adenothalia* and *Leucopogon marginatus*, which both flower in August. As these species were considered likely to occur within the survey area and as habitats preferred by these species were located within the survey area, it is possible that *Chorizema humile*, *Commersonia adenothalia*, *Eremophila viscida*, *Leucopogon marginatus* and *Tecticornia bulbosa* may occur within or in close proximity to the survey area, even though they were not located during the survey. As *Commersonia adenothalia* and *Leucopogon marginatus* flower in August, these species may not have been identifiable at the time of the survey, but may occur within the survey area. In contrast, *Gyrostemon reticulatus*, which is presumed to be extinct and *Hypocalymma longifolium*, which favours swamplands, are not expected to occur within the survey area based on habitat preference.

The remaining four DRF herb species (*Caladenia elegans*, *Caladenia hoffmanii*, *Drakaea concolor* and *Wurmbea tubulosa*) are all perennial species. They persist as tubers in the soil and are only considered to be identifiable when in flower. These species are known to be sensitive to rainfall and in low rainfall seasons may flower late in the season or not at all. Suitable habitats for all of these species except *Caladenia hoffmanii* (which favours rocky hillsides and swamps) are present within the survey area; *Caladenia elegans* and *Wurmbea tubulosa* favour seasonally wet areas while *Drakaea concolor* favours sandy areas. However, as the survey was not undertaken during the flowering season (August), *Caladenia elegans*, *Drakaea concolor* and *Wurmbea tubulosa* may not have been identifiable at the time of the survey, but may still occur within the survey area.

Of the 89 Priority Flora identified during the DEC Threatened Flora Database search (DEC 2010b), 28 were recorded during the survey. Of these, 17 species were recorded once (Appendix G). Whilst extensive targeted searches of these species were undertaken within the vegetation associations containing these individuals, no additional individuals were recorded. Based on the previous records of these species within the survey area, below average rainfall within the region and large extent of the survey area, they could potentially occur.

Of the remaining 61 priority species not recorded during the survey, 20 were considered Likely, 28 were considered Possible and 13 were considered Unlikely to occur within the survey area based on habitat preference as described by WAH (2010)(Table 3).

Of the 20 Priority Flora considered likely to occur, 19 are perennial species and one is an annual species. These 19 perennial species favour the soil and geology that are widespread within the survey area (sandy soils with loam and gravel) and were located in, or within close proximity to, the survey area based on the DEC Database Search (DEC 2010b). Additionally, of these 19 perennial Priority Flora, 13 species (*Dampiera scaevolina*, *Enekbatus dualis*, *Enekbatus planifolius*, *Leptospermum exsertum*, *Stylidium pendulum*, *Stylidium wilroyense*, *Dicrastylis incana*, *Enekbatus longistylis*, *Grevillea leptopoda*, *Persoonia pentasticha*, *Urodon capitatus*, *Verticordia densiflora* var. *roseostella* and *Eucalyptus ebbanoensis* subsp. *photina*) were expected to be flowering and should have been identifiable and present at the time of the survey. Although these species were considered likely to occur within the survey as they were likely to be identifiable and obvious at the time of the survey and were not located, it can be suggested that these species may not occur within the survey area.

The annual species, *Tricoryne* sp. Morawa (G.J. Keighery & N. Gibson 6759) favours red-brown sand and loam (WAH 2010). The below average rainfall experienced during 2010 may have affected the emergence of this species, which suggests it may have been undetected but could potentially occur within the survey area.

Of the 28 Priority Flora identified as possibly occurring within the survey area, 25 are perennial species and three are annual species. The 25 perennial species favour soil and geology similar to those present within the survey area, including sandplains, hillslopes, drainage lines and winter-wet areas, and generally located over one kilometre outside of the survey area based on the DEC Database Search (DEC 2010b). Although these species were considered likely to occur within the survey area as they were likely to be identifiable and obvious at the time of the survey and were not located, it can be suggested that these species may not occur within the survey area.

The three annual species considered to possibly occur within the survey area; *Chthonocephalus muellerianus*, *Comesperma griffinii* and *Gnephosis cassiniana*, favour sandplains similar to those within the survey area. The below average rainfall experienced during 2010 may have affected the emergence of this species, which suggests it may remain undetected but could potentially occur within the survey area.

Thirteen Priority Flora potentially occurring within the survey area were identified as Unlikely to occur. These species favour habitats not present within the survey area such as salt-lakes, marshes and outcrops, and are not expected to occur.

Although the survey was undertaken at the appropriate time of year (spring), the below average rainfall in the region may have affected the emergence of some annual species. Perennial species considered likely to occur within the survey area, but that were not located during the survey, may occur in or within close proximity to the survey area, and may not have been identifiable during the survey due to below average rainfall and significant vegetation degradation. Therefore, it cannot be definitively stated that further species of conservation significance do not occur within the survey area.

4.7 Weeds

Fifty-two introduced species were recorded within the survey area. Of these, 47 species are defined as environmental weeds as per the Environmental Weed Strategy for Western Australia (CALM 1999). The majority of these are considered to be common agricultural (**Arctotheca calendula* and **Echium plantagineum*) and bushland (**Ehrharta calycina*) weeds in the mid-west region (Hussey *et al.*, 2007). Most of these introduced species were recorded along the roads and tracks and along agricultural land, from which they have been introduced. A significant proportion of the remaining vegetation has been invaded by various introduced weeds such as **Arctotheca calendula* and **Bromus diandrus*.

One Declared Plant was recorded within the survey area; **Echium plantagineum* (Paterson's Curse). **Echium plantagineum* occurred in varying densities throughout the survey area, with approximately 900 individuals being recorded between Geraldton and Tilley. Additionally, three of the seven introduced species with a high rating under the Environmental Weed Strategy for Western Australia (CALM 1999), **Bromus diandrus*, **Ehrharta calycina* and **Eragrostis curvula*, were the most commonly recorded introduced species within the survey area with average quadrat foliage covers of 17%, 9% and 5% respectively.

**Echium plantagineum* is listed as a Priority One within the entire State of Western Australia and requires management strategies to reduce the further spread of seeds. Additionally, the spread of the seven introduced species categorised as High under the Environmental Weed Strategy for Western Australia (CALM 1999) should be managed.

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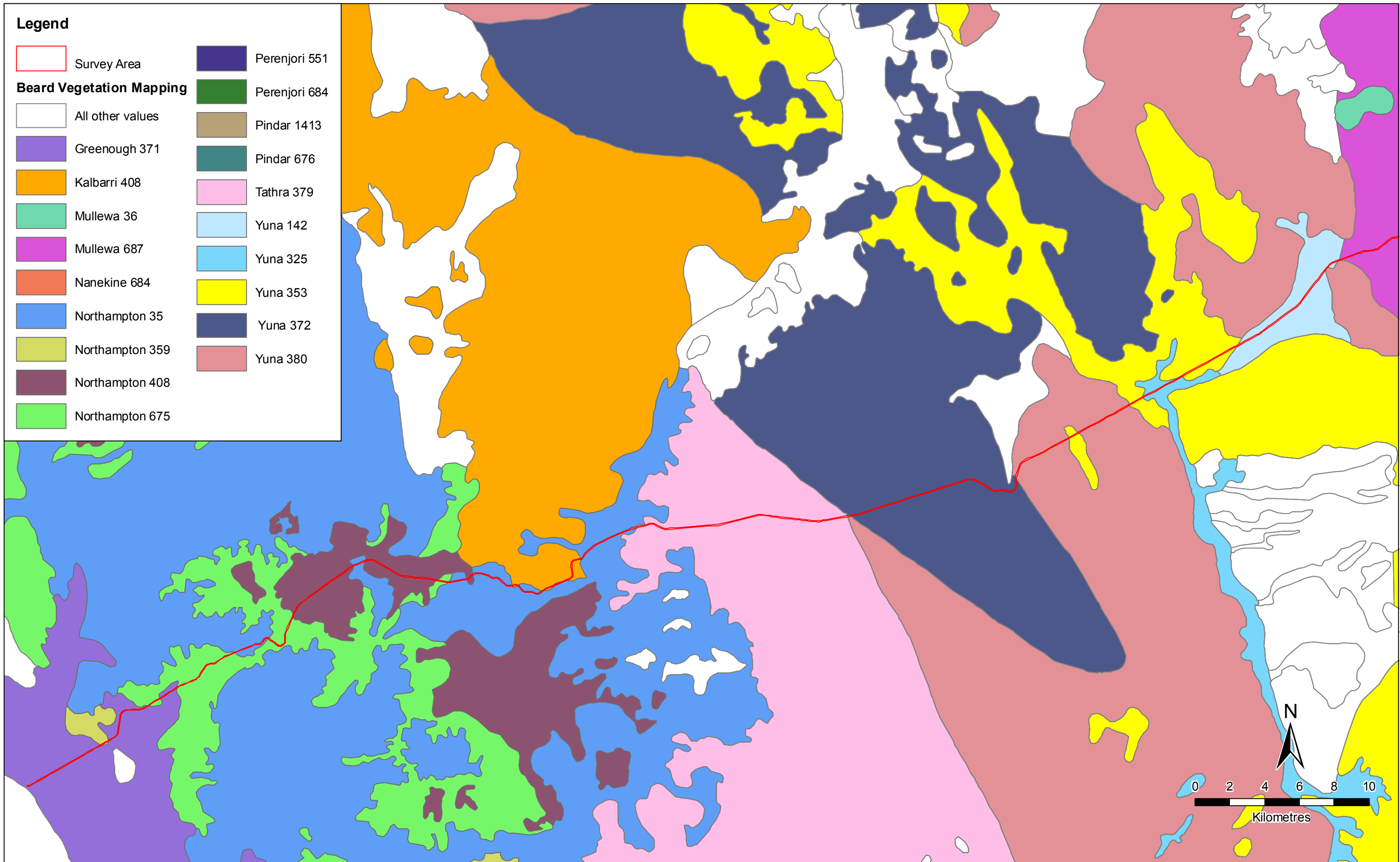
FIGURES



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 04-11-2010
DRAWN S. Rho	
SCALE 1:700,000 @ A3	PROJECTION GDA 94 MGA 50

Regional Location and Interim Biogeographic Regionalisation Mapping

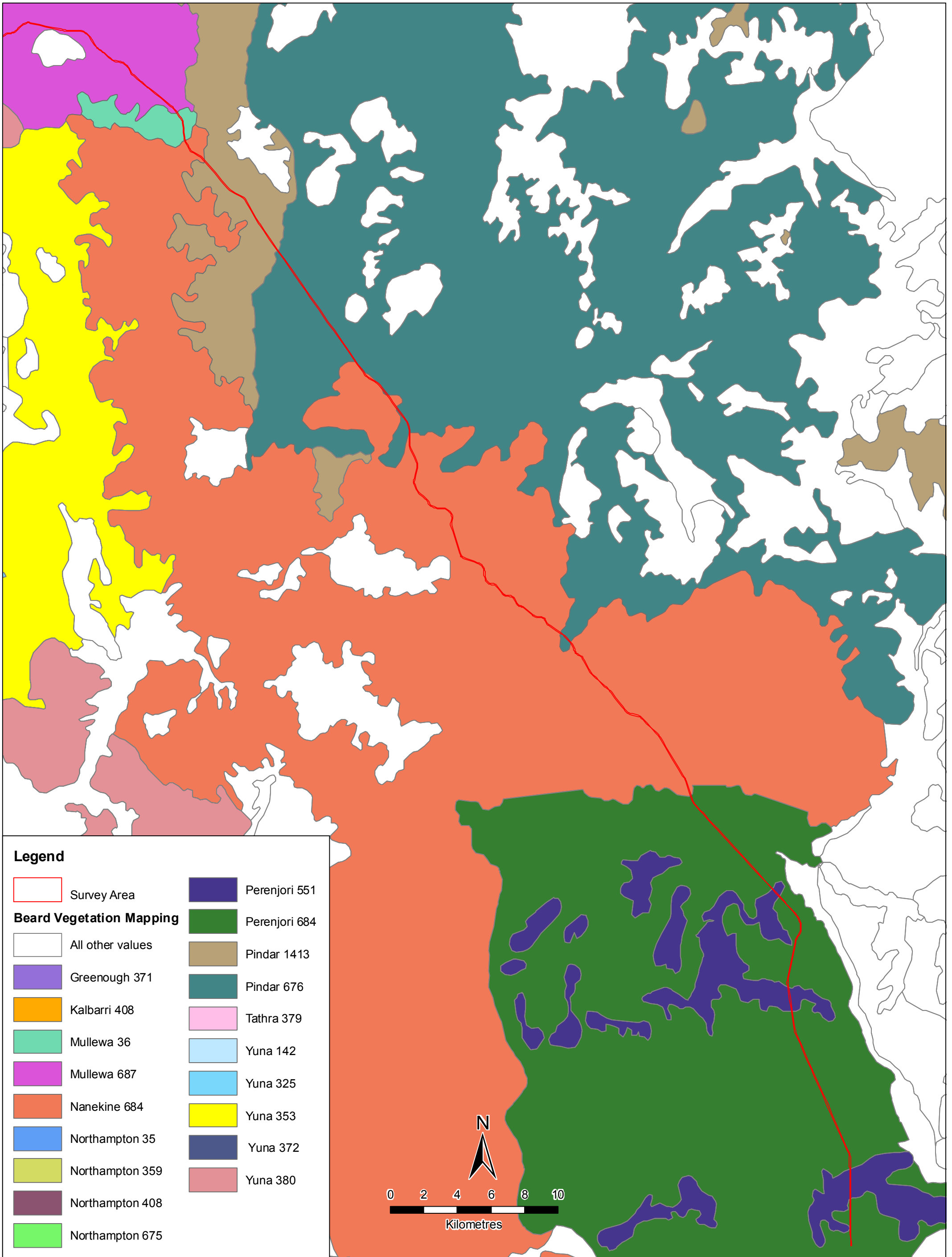
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



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AUTHOR: L. Trotter	DATE 14-12-2010
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Beard Vegetation Mapping of the Survey Area

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



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L. Trotter

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Beard Vegetation Mapping of the Survey Area

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

Acacia and Allocasuarina Tall Shrubland

- AAIT-GcEmAe** Tall Open Shrubland of *Acacia brumalis* and/or *Allocasuarina campestris* over Low Open to Open Shrubland of *Acacia brumalis*, *Allocasuarina campestris*, *Grevillea candelabroides* over Open Sedgeland of *Ecdeiocolea monostachya* over Open Grassland of *Austrostipa elegantissima*
- AAIT-Mvv** Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Allocasuarina campestris*, *Acacia acuminata* and *Acacia* sp. Over Open Shrubland of *Melaleuca viminea* subsp. *viminea*, *Baeckea* sp. Gutha (B.L. Rye 239041 and M.E. Trudgen) and *Grevillea granulosa* over Very Open Grassland of *Amphipogon caricinus* var. *caricinus* and *Pogonolepis stricta*
- AAIT-Mt** Tall Shrubland of *Allocasuarina campestris*, *Acacia sibina* and *Acacia* sp. over Open Shrubland of *Malleostemon tuberculatus* and *Acacia acuminata* over Very Open Grassland of *Avena barbata*, *Austrostipa variabilis* and *Austrostipa elegantissima* over Very Open Herbland of *Waitzia acuminata* var. *acuminata* and *Velleia rosea*
- AAIT-MnPt** Tall Open Scrub of *Allocasuarina campestris* and *Acacia longiphyllodinea* over Open Shrubland of *Melaleuca nematophylla* over Low Open Shrubland of *Platysace trachymenioides* over Very Open Sedgeland of *Ecdeiocolea monostachya* over Very Open Herbland of *Borya sphaerocephala* and *Waitzia acuminata* var. *acuminata*
- AAIT-MvvMI** Tall Shrubland of *Allocasuarina campestris* and *Acacia acuminata* over Open Heath of *Melaleuca viminea* subsp. *viminea* and *Melaleuca longistaminea* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*, *Schoenia cassiniana* and *Cheilanthes sieberi* subsp. *sieberi*
- AAIT-MaMc** Tall Shrubland of *Acacia sibina*, *Acacia ramulosa* var. *ramulosa*, *Allocasuarina campestris*, *Acacia acuminata* and *Melaleuca atroviridis* over Low Open Shrubland of *Melaleuca cordata*, *Acacia acuaria* and *Myrtaceae* sp.

Acacia and Callitris Shrubland

- ACS-Ba** Tall Open Shrubland of *Acacia rostelifera*, *Banksia sceptrum* and *Allocasuarina campestris* over Shrubland of *Callitris arenaria*

Acacia and Grevillea Shrubland

- AGS-KhCd** Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Acacia stereophylla* var. *stereophylla* over Low Open Shrubland of *Keraudrenia hermanniifolia* and *Halgania cyanea* var. Allambi Stn (B.W. Strong 676) over Very Open Grassland of *Ehrharta longiflora*, *Austrostipa elegantissima* and *Aristida contorta* over Open Herbland of *Cephalipterum drummondii*, *Daucus glochidiatus*, *Brassica napus*, *Podolepis canescens* and *Podolepis capillaris*
- AGS-EIAcc** Shrubland of *Acacia acuminata* and *Grevillea obliquistigma* subsp. *funicularis* over Open Grassland of *Ehrharta longiflora* and *Amphipogon caricinus* var. *caricinus*
- AGS-EIWaa** Shrubland of *Acacia stereophylla* var. *stereophylla*, *Grevillea obliquistigma* subsp. *funicularis*, *Acacia ramulosa* var. *linophylla* and *Acacia* sp. over Low Shrubland of *Grevillea levis* over Very Open Grassland of *Ehrharta longiflora* and *Austrostipa elegantissima* over Very Open Herbland *Waitzia acuminata* var. *acuminata* and *Arctotheca calendula*
- AGS-Ae** Open Shrubland of *Acacia coolgardiensis* subsp. *coolgardiensis*, *Grevillea obliquistigma* subsp. *funicularis* and *Senna charlesiana* over Very Open Grassland of *Austrostipa elegantissima*.

Acacia and Grevillea Tall Shrubland

- AGT-PcPmm** Tall Open Shrubland of *Acacia rostelifera* and *Grevillea* sp. over Low Open Shrubland of *Grevillea vestita* subsp. *isopogoides*, *Pimelea microcephala* subsp. *microcephala* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima* and *Ehrharta longiflora* over Very Open Herbland of *Podolepis canescens* and *Waitzia acuminata* var. *acuminata*
 - AGT-AuLpr** Tall Open Shrubland of *Acacia ramulosa* var. *linophylla*, *Grevillea obliquistigma* subsp. *funicularis* and *Grevillea levis* over Open Shrubland of *Acacia ulicina* over Open Grassland of **Lolium perenne* x *rigidum* and **Bromus rubens* over Very Open Herbland of *Arctotheca calendula*
 - AGT-MTaa** Tall Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Acacia acuminata* over Shrubland of *Malleostemon tuberculatus*, *Acacia aciphylla* and *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369) over Very Open Herbland of *Waitzia acuminata* var. *acuminata* and *Brachyscome ciliocarpa*
 - AGT-HraRd** Tall Open Shrubland of *Grevillea hakeoides* subsp. *hakeoides*, *Acacia acuminata* and *Acacia sclerosperma* subsp. *sclerosperma* over Open Shrubland of *Hakea recurva* subsp. *arida* and *Rhagodia drummondii* over Very Open Grassland of *Sisymbrium irio* and *Hordeum leporinum** over Very Open Herbland of *Cephalipterum drummondii*, *Gnephosis angianthoides*, *Arctotheca calendula** and *Portulaca oleracea**
- Acacia and Hakea Tall Shrubland
- AHT-Hrr** Tall Open Shrubland of *Hakea recurva* subsp. *recurva* over Open Shrubland of *Acacia acuminata* and *Acacia acuaria* over Very Open Grassland of *Austrostipa variabilis*, *Monachather paradoxus* and *Ehrharta longiflora* over Very Open Herbland *Arctotheca calendula* and *Cephalipterum drummondii*

Acacia and Melaleuca Heath

- AMeH-EIPs** Open Heath of *Melaleuca longistaminea* and *Acacia acuminata* over Very Open Grassland of **Ehrharta longiflora* and *Austrostipa scabra* subsp. *scabra* over Very Open Herbland of *Pogonolepis stricta*, *Schoenia cassiniana* and *Podolepis lessonii*

Acacia and Melaleuca Shrubland

- AMeS-AcAa** Shrubland of *Acacia acuminata*, *Melaleuca longistaminea*, *Melaleuca radula* and *Melaleuca atroviridis* over Low Open Shrubland of *Darwinia diosmoides* and *Grevillea tenuiloba* over Very Open Herbland of *Borya sphaerocephala*
- AMeS-DdBs** Tall Open Shrubland of *Acacia acuminata*, *Melaleuca eleuterostachya* and *Allocasuarina campestris* over Shrubland of *Melaleuca uncinata* and *Acacia andrewsii* over Very Open Herbland of *Hypochaeris glabra* and *Brachyscome ciliocarpa*

Acacia and Melaleuca Tall Shrubland

- AMeT-Gg** Tall Shrubland of *Melaleuca viminea* subsp. *viminea* and *Acacia ramulosa* var. *linophylla* over Open Shrubland of *Melaleuca fulgens* subsp. *steedmanii*, *Baeckea* sp. Gutha (B.L. Rye 239041 and M.E. Trudgen) and *Acacia acuminata* over Low Open Shrubland of *Grevillea granulosa* over Very Open Grassland of *Amphipogon caricinus* var. *caricinus*
- AMeT-Cd** Tall Shrubland of *Acacia acuminata*, *Melaleuca viminea* subsp. *viminea* and *Melaleuca atroviridis* over Open Shrubland of *Acacia tetragonophylla* *Myrtaceae* sp. and *Melaleuca radula* over Very Open Grassland of *Avena barbata*, over Open Herbland of *Schoenia cassiniana*, *Cephalipterum drummondii* and *Podolepis lessonii*
- AMeT-Gof** Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Acacia* sp. and *Melaleuca viminea* subsp. *viminea* over Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis*, *Acacia longispinea* and *Acacia acuaria* over Very Open Grassland of *Gahnia drummondii* over Very Open Sedgeland of *Ecdeiocolea monostachya*

Acacia and Myrtaceae Shrubland

- AMyS-Ghh** Open Shrubland of *Acacia rostelifera*, *Thryptomene* sp. *Wandana*, *Rhagodia drummondii* and *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369) over Low Open Shrubland of *Grevillea hakeoides* subsp. *hakeoides* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima*, *Ehrharta longiflora*, *Austrostipa scabra* subsp. *scabra* and *Monochather paradoxus* over Very Open Herbland of *Drosera neesii* subsp. *borealis*

Acacia Heath

- AH-Css** Open Heath of *Acacia blakelyi* and *Acacia rostelifera* over Low Open Shrubland of *Conospermum stoechadis* subsp. *stoechadis* and *Grevillea amplexans* subsp. *amplexans*

Acacia Shrubland


- AS-TsMb** Open Shrubland of *Acacia rostelifera* over Low Open Shrubland of *Thryptomene strongylophylla*, *Calytrix* sp. Paynes Find, *Rhagodia drummondii*, *Grevillea hakeoides* subsp. *hakeoides*, *Mirbelia trichocalyx* over Very Open Grassland of *Ehrharta longiflora*, *Monachather paradoxus* and *Austrostipa elegantissima*
- AS-HggAe** Open Shrubland of *Acacia acuminata* and *Senna charlesiana* over Low Shrubland of *Acacia andrewsii*, *Ptilotus obovatus*, *Maireana georgei* and *Maireana tomentosa* over Open Herbland of *Hyalosperma glutinosum* subsp. *glutinosum*, *Cephalipterum drummondii* and *Waitzia acuminata* var. *acuminata*
- AS-RdEt** Shrubland of *Acacia anthochaera*, *Senna charlesiana* and *Acacia colletioides* over Low Open Shrubland of *Rhagodia drummondii* and *Enchylaena tomentosa*

Acacia Shrubland (Degraded)

- AS-EICd (D)** Open Shrubland of *Acacia acuminata* over Open Grassland of *Ehrharta longiflora* over Open Herbland of *Cephalipterum drummondii*
- AS-PcAc (D)** Open Shrubland of *Acacia anthochaera* over Very Open Herbland of *Podolepis capillaris* and *Arctotheca calendula*

Acacia Tall Shrubland (Degraded)

- AT-AbArApE (D)** Tall Open Scrub of *Acacia blakelyi*, *Acacia rostelifera*, *Acacia prainii* and/or *Acacia alata* var. *biglandulosa* over Open Grassland of *Ehrharta longiflora*, *Ehrharta calycina*, *Pennisetium setaceum* and *Bromus diandrus* over *Lupinus cosentinii*

	CLIENT	JOB NO.	
	Strategen	10.159	
	AUTHOR:	DRAWN	DATE
	L. Trotter	S. Rho	04-11-2010
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Vegetation Associations Legend

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

Acacia Tall Shrubland

- AT-MtEI** Tall Open Shrubland *Acacia acutaria* over Open Shrubland of *Acacia acuminata*, *Acacia coolgardiensis* and *Rhagodia drummondii* over Low Shrubland *Maireana tomentosa* over Open Grassland of *Ehrharta longiflora* over Very Open Herbland of *Gorteria personata*
- AT-MpFc** Tall Open Shrubland of *Acacia rostellifera* over Very Open Grassland of *Bromus diandrus*, *Monachather paradoxus* and *Ehrharta longiflora* over Very Open Herbland of *Podolepis canescens* and *Brachyscome onocarpa*
- AT-AbAb** Tall Shrubland of *Acacia acuminata* over Shrubland of *Acacia brumalis* over Open Grassland of *Avena barbata* and *Austrostipa variabilis*
- AT-ArAsAe** Tall Shrubland of *Acacia rostellifera* over Open Shrubland of *Acacia saligna*, *Grevillea candelabroides*, *Allocasuarina campestris* and *Rhagodia drummondii* over Open Grassland of *Austrostipa elegantissima* and *Ehrharta longiflora* over Very Open Sedgeland of *Dianella revoluta* var. *divaricata* and *Ecdeiocolea monostachya* over Very Open Herblnd of *Arctotheca calendula* and *Vulpia myuros*
- AT-AxAb** Tall Shrubland of *Acacia xanthina* over Open Heath of *Acacia brumalis*, *Acacia rostellifera* and *Rhagodia preissii* subsp. *obovata* over Low Open Shrubland of *Lechenaultia linarioides* and *Jacksonia ramulosa*
- AT-PmmSi** Tall Open Shrubland of *Acacia sclerosperma* subsp. *sclerosperma*, *Acacia* sp. and *Acacia acutaria* over Low Shrubland of *Pimelea microcephala* subsp. *microcephala*, *Rhagodia drummondii*, *Maireana tomentosa*, *Maireana georgei* and *Atriplex codoncarpa* over Very Open Grassland of *Ehrharta longiflora* and *Austrostipa elegantissima* over Open Herbland of *Sisymbrium irio* and *Chenopodium gaudichaudianum*
- AT-Ac** Tall Open Shrubland of *Acacia acuminata* over Shrubland of *Acacia coolgardiensis*
- AT-AIMa** Tall Shrubland of *Acacia coolgardiensis*, *Acacia longispinea*, *Acacia stereophylla* var. *stereophylla* and *Melaleuca atroviridis* over Open shrubland of *Acacia coolgardiensis* and/or *Melaleuca atroviridis* over Very Open Sedgeland of *Ecdeiocolea monostachya*
- AT-Gof** Shrubland of *Acacia stereophylla* var. *stereophylla*, *Acacia coolgardiensis* and *Grevillea obliquistigma* subsp. *funicularis* over Very Open Grassland of *Amphipogon carcinus* var. *carcinus*
- AT-Cd** Tall Open Shrubland of *Acacia ramulosa* var. *linophylla* over Open Shrubland of *Acacia acuminata*, *Acacia sibina* and *Hibbertia glomerata* subsp. *glomerata* over Very Open Herbland of *Calytrix depressa*, *Borya sphaerocephala* and *Waitzia acuminata* var. *acuminata*
- AT-Gb** Tall Open Shrubland of *Acacia acuminata* over Open Shrubland of *Acacia* sp., *Acacia sibina* and *Mirbelia depressa* over Low Open Shrubland of *Acacia ulicina*, *Grevillea levis* over Very Open Grassland of *Bromus diandrus* and *Avena barbata*
- AT-CoBG** Tall Shrubland of *Acacia acuminata*, *Acacia stereophylla* var. *stereophylla* and *Casuarina obesa* over Shrubland of *Baeckea* sp. Gutha (B.L. Rye 239041 and M.E. Trudgen), *Grevillea obliquistigma* subsp. *funicularis*, *Melaleuca cordata*, *Allocasuarina campestris* and *Grevillea paradoxa*
- AT-AIMIAe** Tall Shrubland of *Acacia longiphylloidea*, *Grevillea paradoxa*, *Acacia sibina* and *Acacia acuminata* over Open Shrubland of *Mirbelia longifolia*, *Micromyrtus prochytes*, *Eremophila georgei* over Low Open Shrubland of *Baeckea* sp. Gutha (B.L. Rye 239041 and M.E. Trudgen) and *Ricinocarpos muricatus*
- AT-MvvAc** Tall Shrubland of *Acacia acuminata* and *Melaleuca viminea* subsp. *viminea* over Open Shrubland of *Allocasuarina campestris* and *Malleostemon tuberculatus* over Low Open Shrubland of *Acacia coolgardiensis* over Very Open Herbland of *Velleia rosea*, *Ecdeiocolea monostachya*, *Podotheca angustifolia* and *Pogonolepis stricta*.
- AT-AaAan** Tall Open Scrub of *Acacia acuminata* and *Acacia anthochaera*.
- AT-PoCd** Tall Open Shrubland of *Acacia anthochaera* over Low Open Shrubland of *Ptilotus obovatus* and *Solanum lasiophyllum* over Herbland of *Cephalopterum drummondii*, *Vaccaria hispanica* and *Podolepis capillaris*
- AT-VeWaa** Tall Open Scrub of *Acacia* sp.
- AT-ArAs** Tall Open Scrub of *Acacia ramulosa* var. *linophylla* and *Acacia sibina*

Allocasuarina and Melaleuca Shrubland

- AIMS-Ae** Open Shrubland of *Melaleuca viminea* subsp. *viminea* and *Allocasuarina campestris* over Low Open Shrubland of *Thryptomene* sp. East Yuna (J.W. Green 4639) over Open Grassland of *Austrostipa elegantissima* over Very Open Herbland of *Monachather paradoxus* and *Waitzia acuminata* var. *acuminata*

Allocasuarina Tall Shrubland

- AIT-Em** Open Shrubland to Closed Tall Scrub of *Allocasuarina campestris* over Open Sedgeland of *Ecdeiocolea monostachya*

Banksia and Nuytsia Low Woodland

- BNLW-XpEc** Low Open Woodland of *Banksia sceptrum*, *Nuytsia floribunda* and *Acacia blakelyi* over Open Shrubland of *Xanthorrhoea preissii*, *Banksia attenuata* and *Allocasuarina humilis*, over Low Open Shrubland of *Hibbertia hypericoides*, *Conostylis robusta*, *Stirlingia latifolia* over Closed Grassland of *Ehrharta calycina* and *Ursinia anthemoides*

Callitris and Eucalyptus Low Forest

- CELF-Rd** Low Open Forest of *Callitris arenaria* and *Eucalyptus eudesmioides* over Low Open Shrubland of *Rhagodia drummondii*, *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369), *Comesperma scoparium* and *Santalum acuminatum* over Very Open Grassland of *Austrostipa elegantissima* and *Ehrharta longiflora* over Very Open Herbland of *Opercularia spermacocea* and *Waitzia acuminata* var. *acuminata*

Callitris Open Woodland

- COW-Xa** Low Woodland of *Callitris arenaria* and *Xylomelum angustifolium* over Low Open Shrubland of *Rhagodia preissii* subsp. *obovata* and *Allocasuarina campestris* over Very Open Grassland of *Austostipa elegantissima*, *Ehrharta longiflora* and *Bromus diandrus*.

Dryandra Tall Shrubland

- DT-Ab** Open to Tall Open Shrubland of *Dryandra sessilis* var. *flabellifolia* over Shrubland of *Acacia blakelyi* and/or *Acacia brumalis*
- DT-Rd** Tall Open Scrub of *Dryandra sessilis* var. *flabellifolia* over Open Shrubland of *Rhagodia drummondii* over Open Grassland of *Ehrharta calycina* and, *Pennisetum setaceum* and *Ehrharta longiflora* over Very Open Herbland of *Arctotheca calendula*

Dryandra, Acacia and Allocasuarina Shrubland

- DAAIS** Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Allocasuarina campestris*, *Acacia saligna*, *Gastrolobium spinosum* over Open Grassland of *Austrostipa elegantissima* and *Keraudrenia hermannifolia* over Open Sedgeland of *Dampiera spicigera*

Dryandra, Adenanthos and Acacia Tall Shrubland

- DAdAT-EI** Tall Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Adenanthos cygnorum* subsp. *cygnorum*, *Acacia blakelyi* and *Acacia rostellifera* over Open Grassland of *Ehrharta longiflora* and *Briza maxima*

Eucalyptus Low Forest

- ELF-AsHt** Low Open Forest of *Eucalyptus camaldulensis* over Open Shrubland of *Acacia saligna* over Low Open Shrubland of *Hakea trifurcata*, *Acacia rostellifera* and *Acacia tetragonophylla* over Very Open Grassland of *Ehrharta longiflora*, *Austrostipa elegantissima* and *Briza maxima*

Eucalyptus Low Woodland

- ELW-RdSs** Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Low Open Shrubland of *Rhagodia drummondii*, *Scaevola spinescens*, *Melaleuca uncinata* and *Sclerolaena diacantha*
- ELW-ArEIBd** Low Open Woodland of *Eucalyptus eudesmioides* over Tall Open Shrubland of *Grevillea* sp. over Open Shrubland of *Acacia rostellifera*, *Santalum acuminatum* and *Rhagodia preissii* subsp. *Obovata* over Open Grassland of *Bromus diandrus* and *Ehrharta longiflora*
- ELW-Aa** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralae* over Open Shrubland of *Acacia acuminata* over Very Open Grassland of *Avena barbata* and *Briza maxima*



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N/A	N/A

Vegetation Associations Legend

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

Eucalyptus Tree Mallee

- ET-MaRd** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Scrub of *Melaleuca acuminata* over Low Open Shrubland of *Rhagodia drummondii*
- ET-Ac** Open Tree Mallee of *Eucalyptus eudesmioides*, *Eucalyptus rigidula* and *Eucalyptus jucunda* over Tall Shrubland of *Allocasuarina campestris* over Low Open Shrubland of *Baekkea* sp. Dudawa (M.E. Trudgen MET 5369) and *Opercularia spermacocea* over Very Open Grassland of *Austrostipa elegantissima* and *Ehrharta longiflora*
- ET-EjAc** Very Open to Open Tree Mallee of *Eucalyptus jucunda* over Tall Open Scrub to Open Heath of *Allocasuarina campestris* over Low Shrubland *Baekkea* sp. Dudawa (M.E. Trudgen MET 5369)
- ET-EcAt** Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Shrubland of *Eremophila clarkei* and *Acacia tetragonophylla*
- ET-AcGof** Very open Tree Mallee of *Eucalyptus leptopoda* subsp. *arctata* over Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Allocasuarina campestris* over Low Open Shrubland of *Pityrodia lepidota*, *Platysace trachymenioides* and *Verticordia eriocephala*
- ET-AaAri** Open Tree Malle of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia acuminata* and *Acacia ramulosa* var. *linophylla* over Very Open Grassland of *Austrostipa elegantissima* and *Austrostipa variabilis*
- ET-MvvAa** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralae* over Open Shrubland of *Melaleuca viminea* subsp. *viminea*, *Acacia acuminata*, *Senna charlesiana* over Low Open Shrubland of *Melaleuca* sp. and *Ptilotus obovatus* over Very Open Grassland of *Avena barbata* and *Pentaschistis airoides* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*
- ET-MuAsAa** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Shrubland of *Melaleuca uncinata*, *Acacia sibina* and *Melaleuca eleuterostachya* over Low Open Shrubland of *Acacia andrewsii*
- ET-AaAs** Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia acuminata* and *Melaleuca uncinata* over Low Open Shrubland of *Astroloma serratifolium*
- ET-MuPo** Very Open Tree Mallee of *Eucalyptus horistes* over Shrubland of *Melaleuca uncinata* and *Acacia acuminata* over Open Herbland of *Portulaca oleracea*, *Podolepis capillaris* and *Arctotheca calendula*
- ET-AaAa** Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia anthochaera* over Shrubland of *Acacia acuaria* over Very Open Grassland of *Ehrharta longiflora* and *Avena barbata* *
- ET-EggAsRd** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Shrubland of *Eremophila glabra* subsp. *glabra*, *Acacia anthochaera* and *Senna charlesiana* over Low Shrubland of *Atriplex stipitata*, *Rhagodia drummondii* and *Enchylaena tomentosa* over Very open Grassland of *Hordeum leporinum*
- ET-MvvAri** Very Open Tree Mallee *Eucalyptus loxophleba* subsp. *supralaevis* and *Eucalyptus ewartiana* over Shrubland of *Melaleuca viminea* subsp. *viminea*, *Acacia ramulosa* var. *linophylla* and *Acacia acuminata* over Very Open Herbland of *Amphipogon caricinus* var. *caricinus* and *Waitzia acuminata* var. *acuminata*

Eucalyptus Tree Mallee (Degraded)

- ET-EILc (D)** Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Grassland of *Ehrharta longiflora*, *Pennisetum setaceum* and *Bromus diandrus* over Open Herbland of *Lupinus cosentinii*, *Echium plantagineum*, *Anagallis arvensis*, *Hypochoeris glabra*, *Melilotus indicus* and *Enchylaena tomentosa*

Eucalyptus Woodland (Degraded)

- EW-AsArCd (D)** Low Open Woodland of *Eucalyptus eudesmioides* over Tall Open Shrubland of *Acacia stereophylla* var. *stereophylla* over Shrubland of *Acacia rostellifera*, *Grevillea obliquistigma* subsp. *funicularis*, *Rhagodia preissii* subsp. *obovata* and *Labichea teretifolia* subsp. *grandistipulata* over Very Open Grassland of *Bromus diandrus* and *Ehrharta longiflora* over Open Herbland of *Cephalopterum drummondii*, *Lupinus cosentinii*, *Podolepis canescens*, *Waitzia acuminata* var. *acuminata*

- EW-Co (D)** Open Woodland of *Eucalyptus camaldulensis* over Tall Open Shrubland of *Casuarina obesa* over Closed Grassland of *Bromus diandrus* and *Ehrharta longiflora*

- EW-AsBm (D)** Woodland of *Eucalyptus camaldulensis* over Tall Shrubland of *Acacia saligna*, *Exocarpos sparteus*, *Melaleuca viminea* subsp. *viminea* and *Grevillea biternata* over Open Shrubland of *Grevillea pinaster* and *Acacia tetragonophylla* over Grassland of *Briza maxima*, *Pennisetum setaceum* and *Ehrharta longiflora*

Impacted

- I** Cleared- Maintained tracks, Roads, Existing Rail and other Infrastructure
- I-S** Very Open Shrubland of *Acacia acuminata* over Very Open Low Shrubland of *Atriplex codonocarpa* and *Rhagodia drummondii*
- I-CD** Low Open Woodland of *Eucalyptus eudesmioides* over Very Open Shrubland of *Grevillea* sp., *Santalum acuminatum*, *Acacia rostellifera* and *Rhagodia preissii* subsp. *obovata* over Open Grassland of *Austrostipa trichophylla*, *Bromus diandrus* and *Ehrharta longiflora*

Malleostemon Tall Shrubland

- MaT-Cp** Tall Open Shrubland of *Calycopeplus paucifolius* over Shrubland of *Malleostemon tuberculatus* and *Melaleuca fulgens* subsp. *steadmanii* over Low Open Shrubland of *Grevillea tenuiloba* and *Calytrix depressa* over Open Herbland of *Velleia rosea*, *Waitzia acuminata* var. *acuminata* and *Borya sphaerocephala*

Melaleuca Shrubland

- MeS-Ac** Open Heath of *Melaleuca viminea* subsp. *viminea*

Melaleuca Tall Shrubland

- MeT-A** Tall Open Shrubland of *Melaleuca atroviridis* and *Acacia* sp.
- MeT-GpCaa** Tall Shrubland of *Melaleuca cordata* and *Grevillea paradoxa* over Low Open shrubland of *Cryptandra apetala* var. *apetala* and *Hibbertia stenophylla* over Very Open Grassland of *Homalocalyx aureus*, *Austrostipa elegantissima* and *Amphipogon caricinus* var. *caricinus*

Myrtaceous and Proteaceous Heath

- MyPrH** Closed Heath of *Scholtzia oligandra*, *Acacia saligna* and *Grevillea candelabroides* over Low Open Shrubland of *Banksia fraseri* var. *ashbyi*, *Hakea trifurcata*, *Maireana georgei* and *Jacksonia ramulosa* over Very Open Grassland of *Austrostipa elegantissima* and *Ehrharta calycina*

Tecticornia Low Heath

- TH** Open Low Heath of *Tecticornia pruinosa* and *Hakea bucculenta*

Xylomelum angustifolium Low Open Woodlands

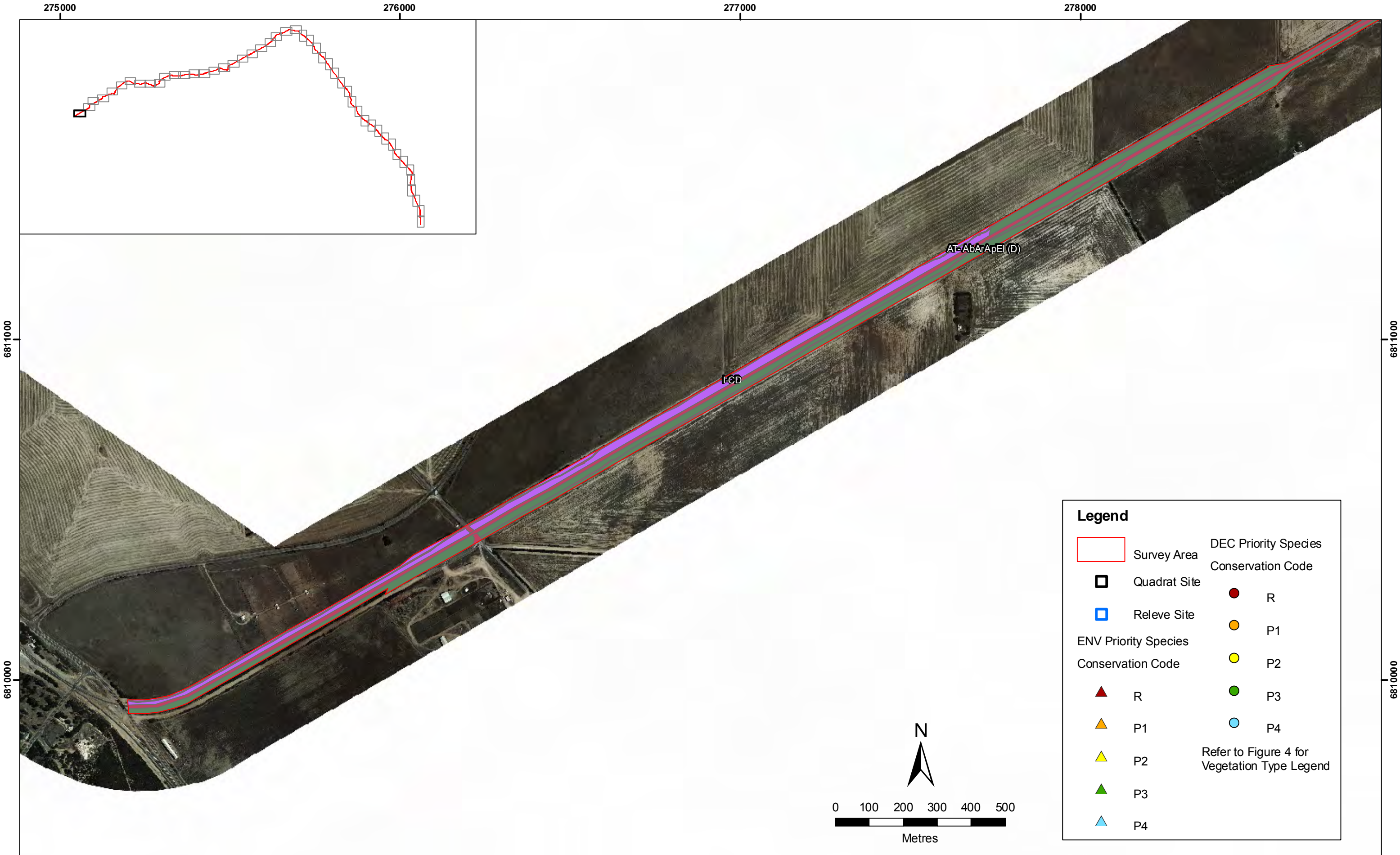
- XW-Cp** Low Open Woodland of *Xylomelum angustifolium* over Tall Shrubland of *Allocasuarina campestris* and *Callistemon phoeniceus* over Low Open Shrubland of *Calothamnus quadridius* subsp. *angustifolius* and *Hakea bucculenta* over Very Open Sedgeland of *Ecdeiocolea monostachya* and *Mesomelaena preissii* subsp. *preissii* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*
- XW-AcAb** Low Open Woodland of *Xylomelum angustifolium* and *Scholtzia oligandra* over Shrubland of *Allocasuarina campestris*, *Acacia blakelyi* and *Conospermum boreale* subsp. *ascendens* over Low Open Shrubland of *Olearia dampieri*, *Acanthocarpus preissii* and *Glischrocaryon aureum*



CLIENT	JOB NO.
Strategen	10.159
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SCALE	PROJECTION
N/A	N/A

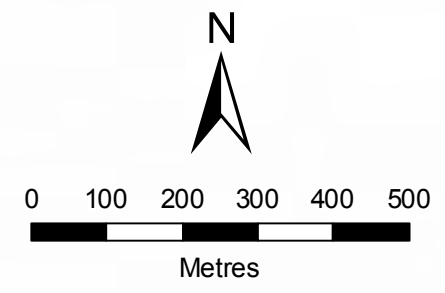
Vegetation Associations Legend

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

Survey Area	DEC Priority Species Conservation Code
Quadrat Site	R
Relve Site	P1
ENV Priority Species Conservation Code	P2
R	P3
P1	P4
P2	Refer to Figure 4 for Vegetation Type Legend
P3	
P4	



CLIENT Strategen	JOB NO. 276000 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50
DRAWN S. Rho	

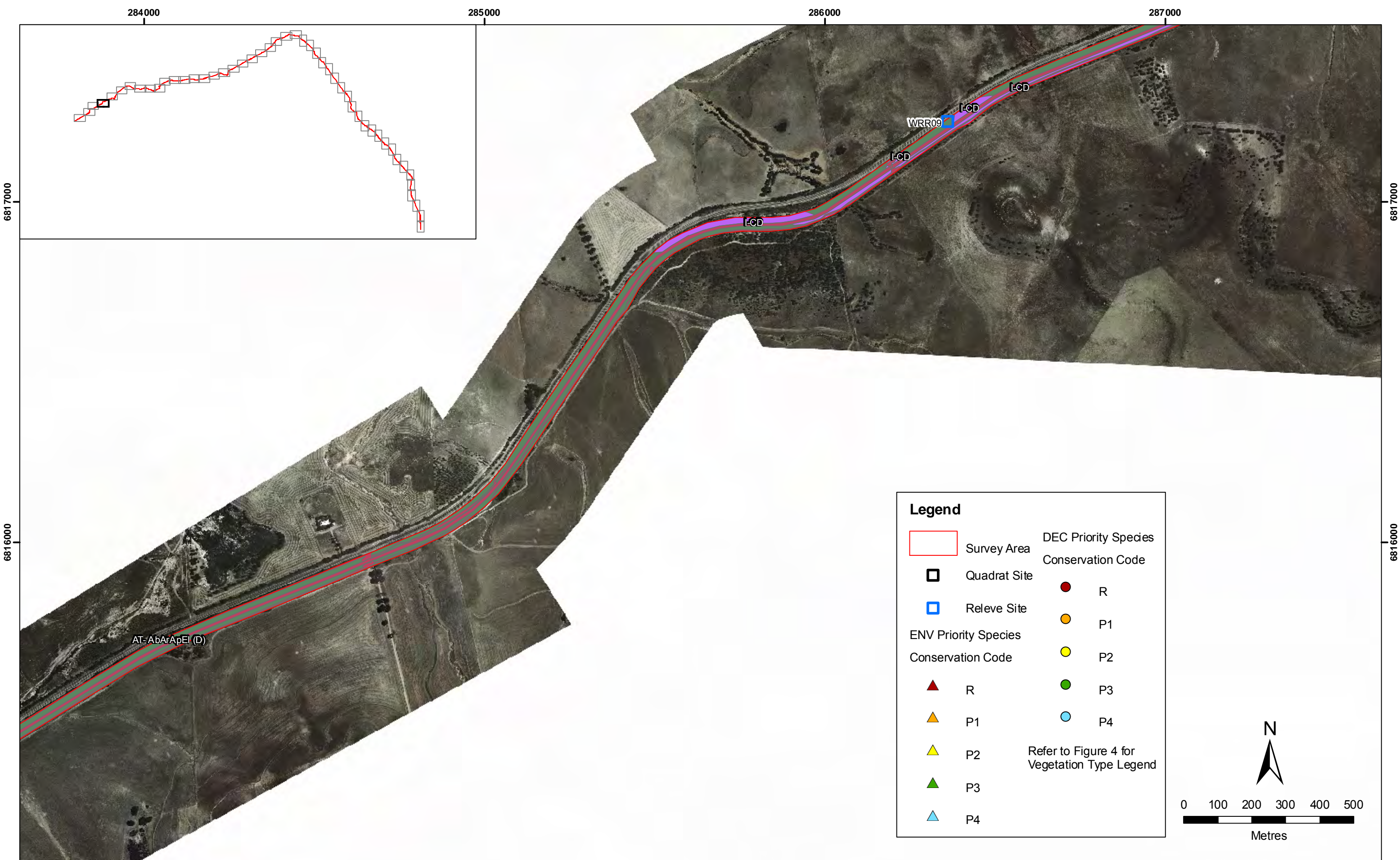
Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



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Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
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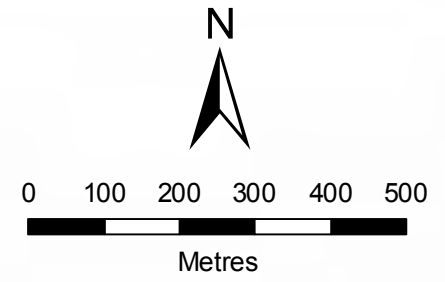
Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment





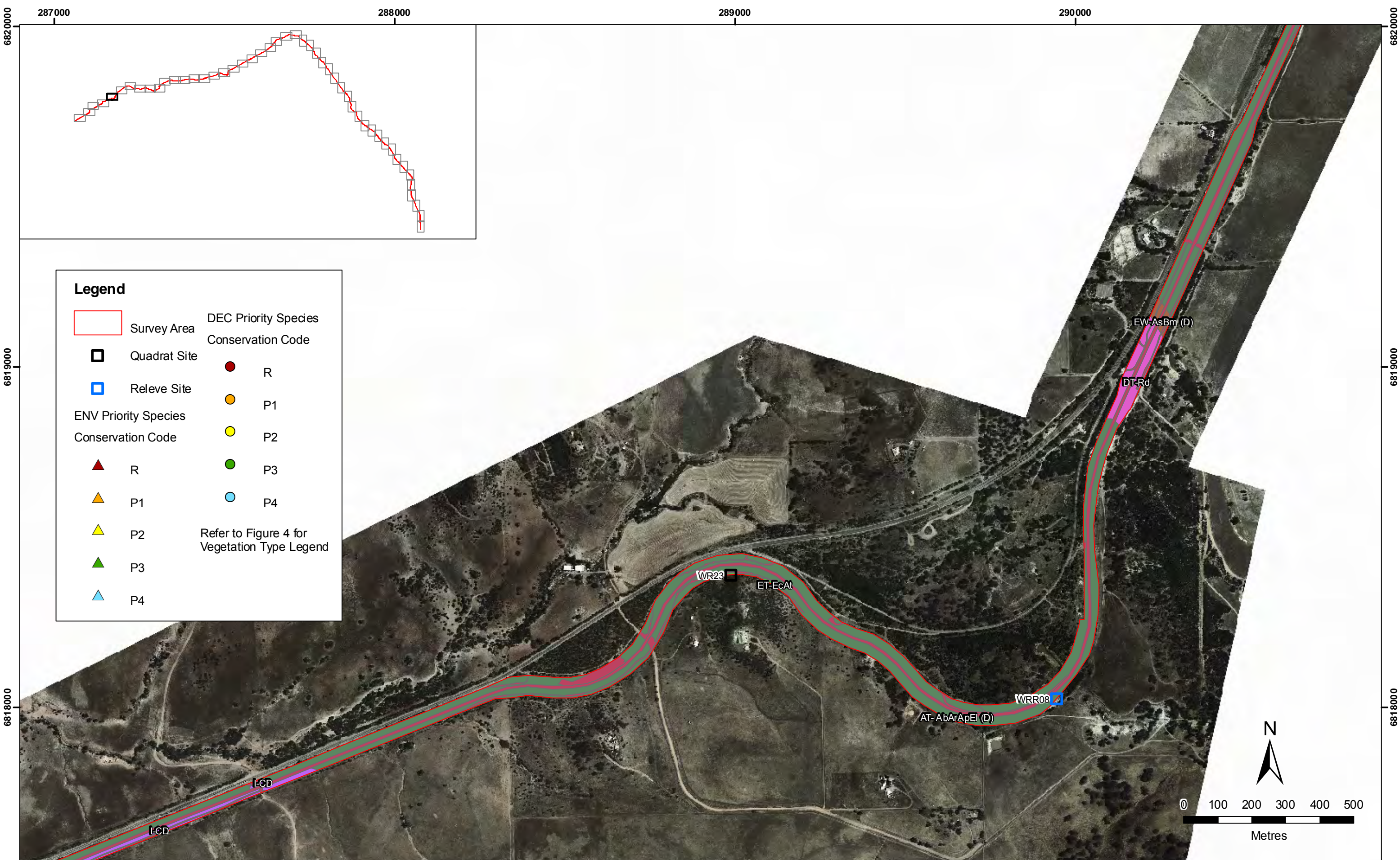
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	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
	ENV Priority Species Conservation Code	P2
	R	P3
	P1	P4
	P2	
	P3	Refer to Figure 4 for Vegetation Type Legend
	P4	



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
PROJECTION	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



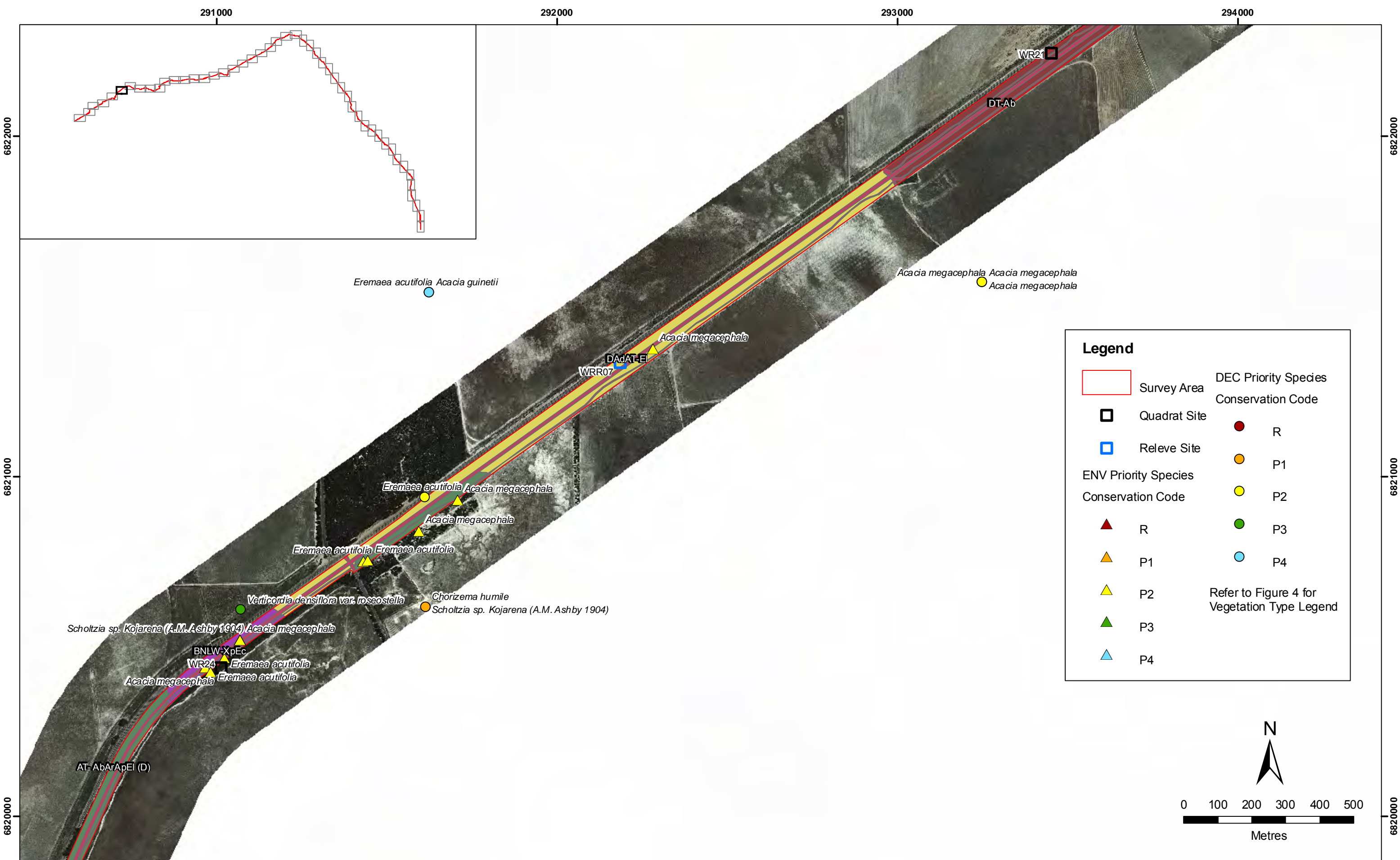
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| Releve Site | ● P1 |
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| ▲ R | ● P3 |
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| ▲ P2 | Refer to Figure 4 for Vegetation Type Legend |
| ▲ P3 | |
| ▲ P4 | |



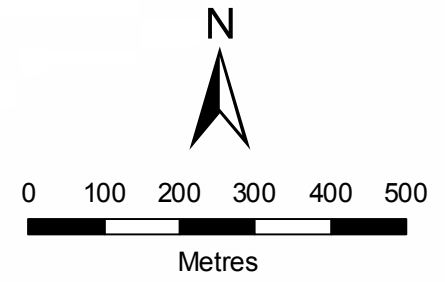
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AUTHOR: L. Trotter	DRAWN S. Rho
SCALE 1:10,000 @ A3	DATE 14-12-2010
PROJECTION GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
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Legend

	Survey Area		DEC Priority Species Conservation Code R
	Quadrat Site		P1
	Releve Site		P2
ENV Priority Species Conservation Code			P3
	R		P4
	P1	Refer to Figure 4 for Vegetation Type Legend	
	P2		
	P3		
	P4		



CLIENT	291000	JOB NO.	292000
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
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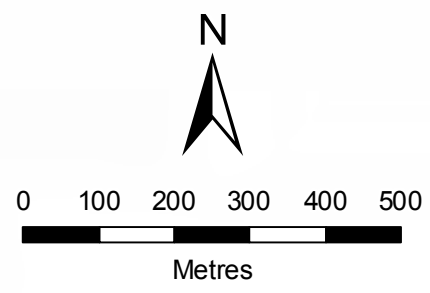
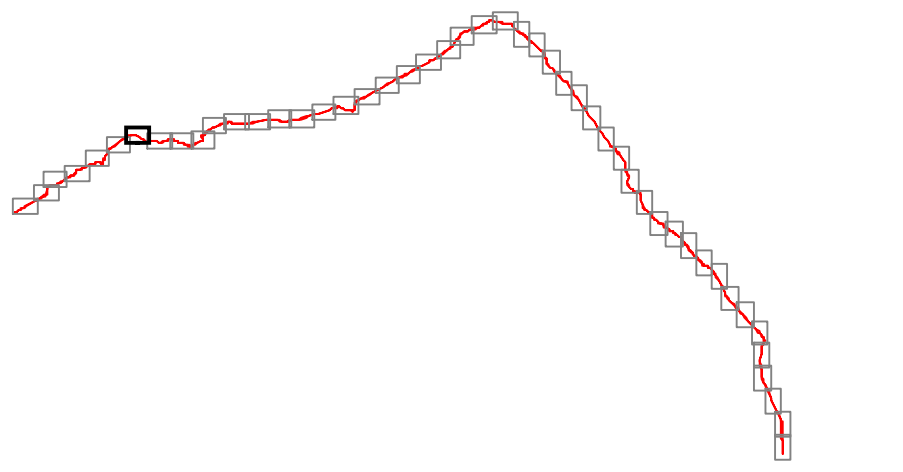
Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

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Legend

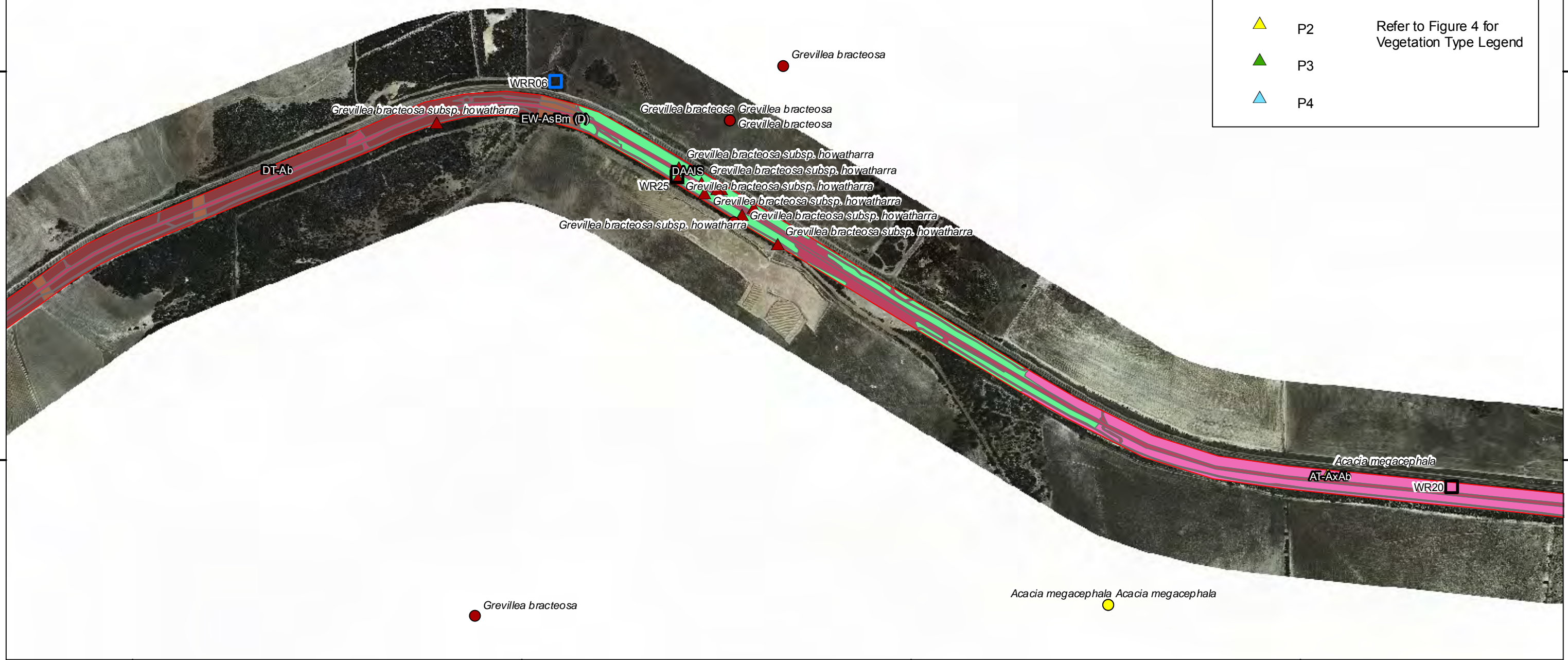
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6823000

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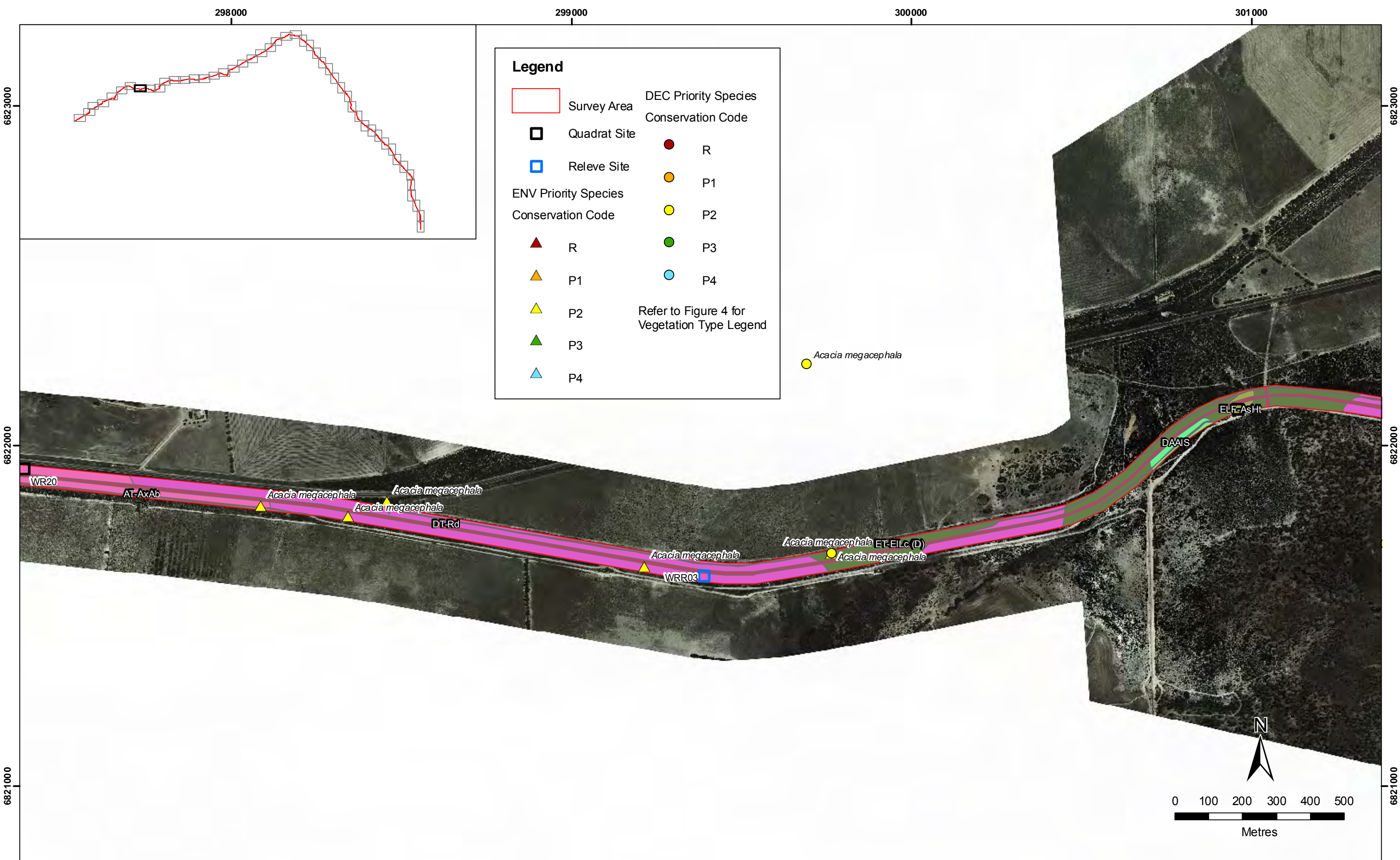
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L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
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Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



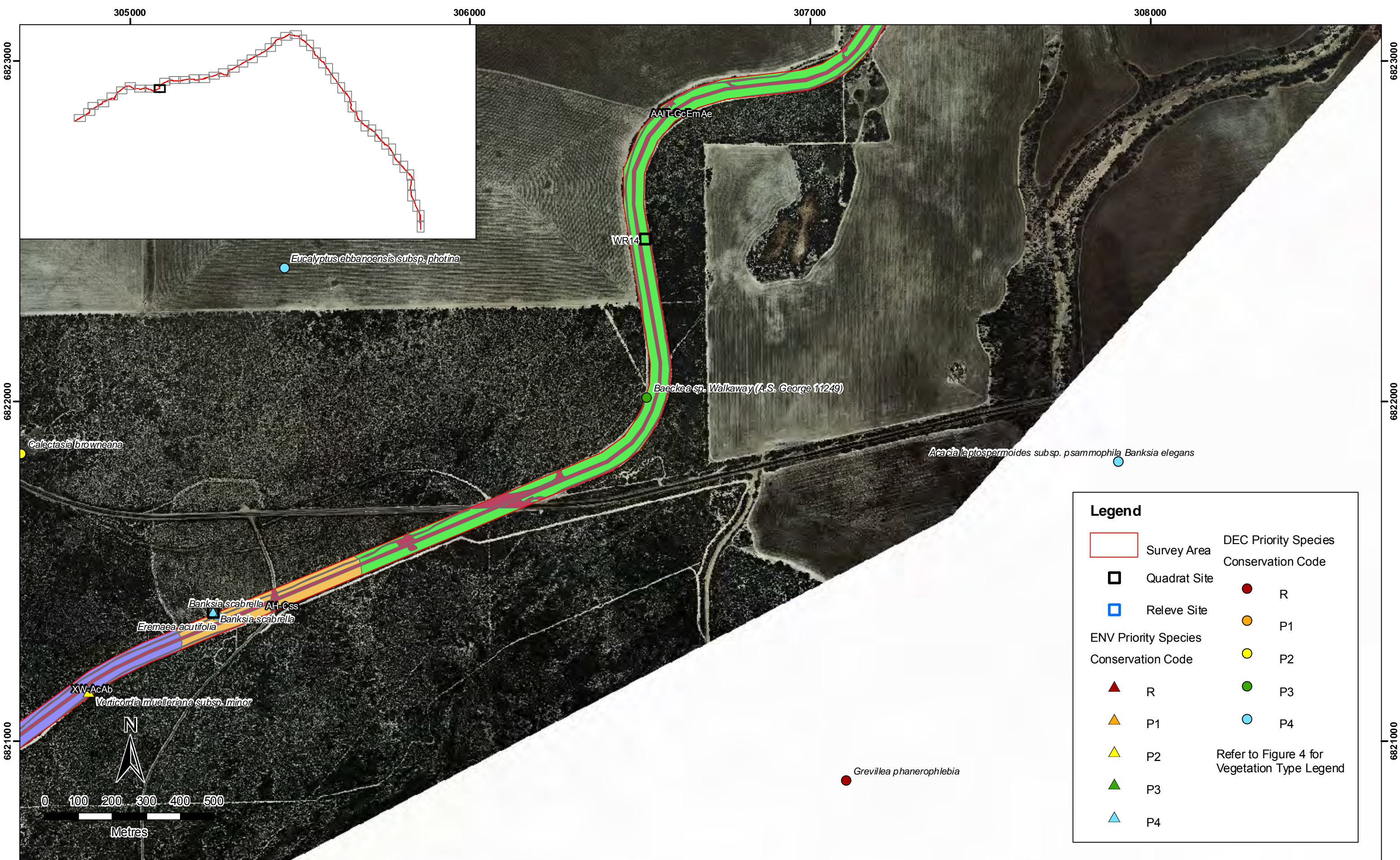
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AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
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Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
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AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
		PROJECTION	GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
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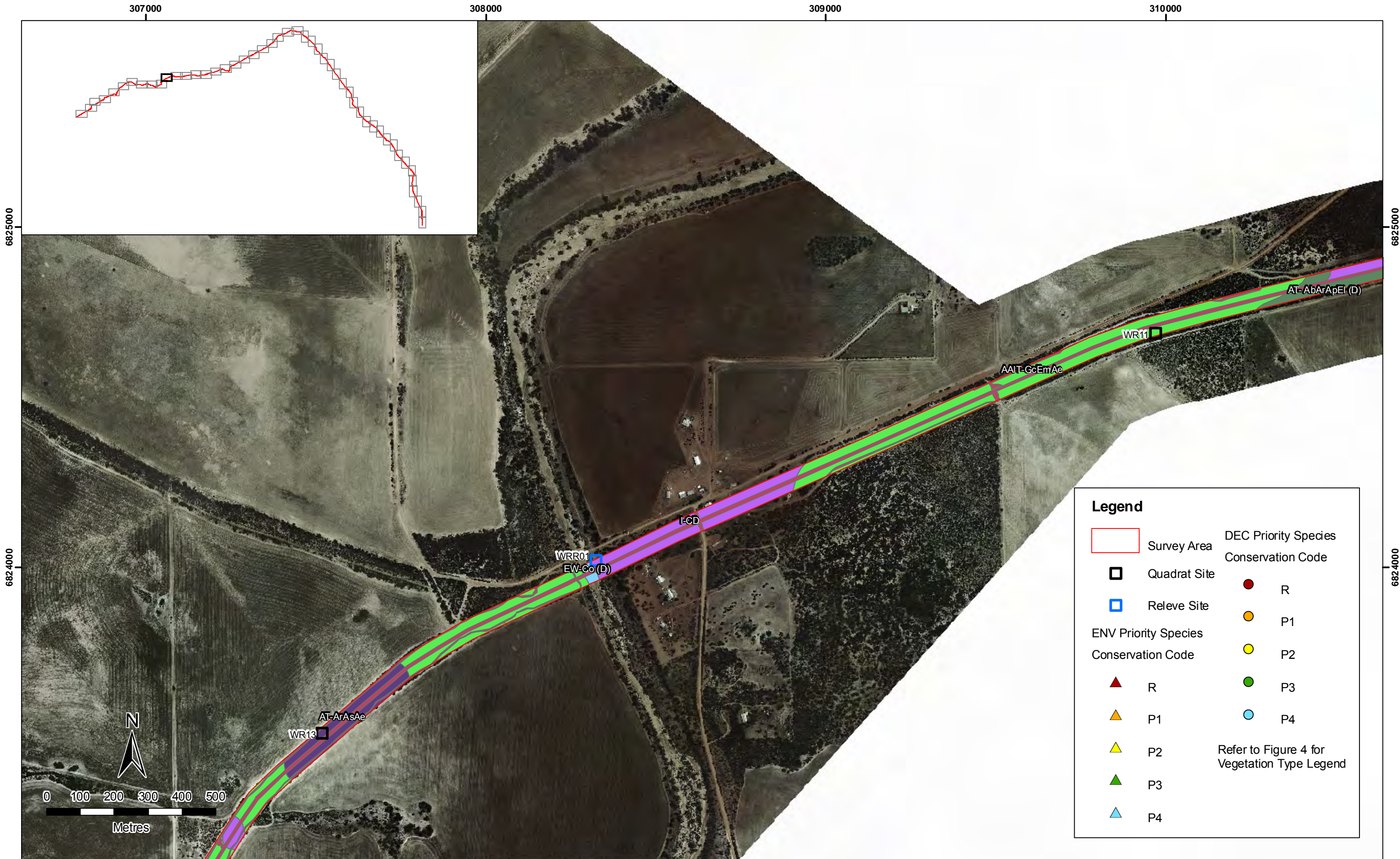
Legend

	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	

	305000	306000	307000	308000
	Stratagen	JOB NO.	10.159	
	AUTHOR:	DRAWN	DATE	
	L. Trotter	S. Rho	14-12-2010	
	SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50			

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 4.10



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
PROJECTION	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



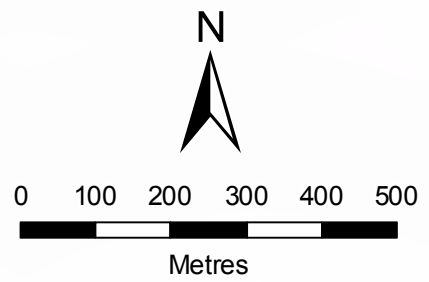
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Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	



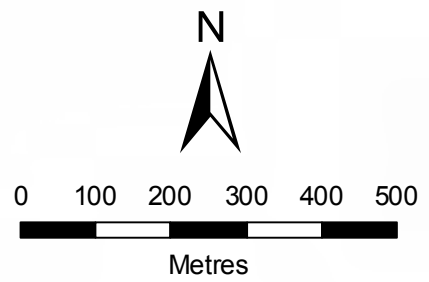
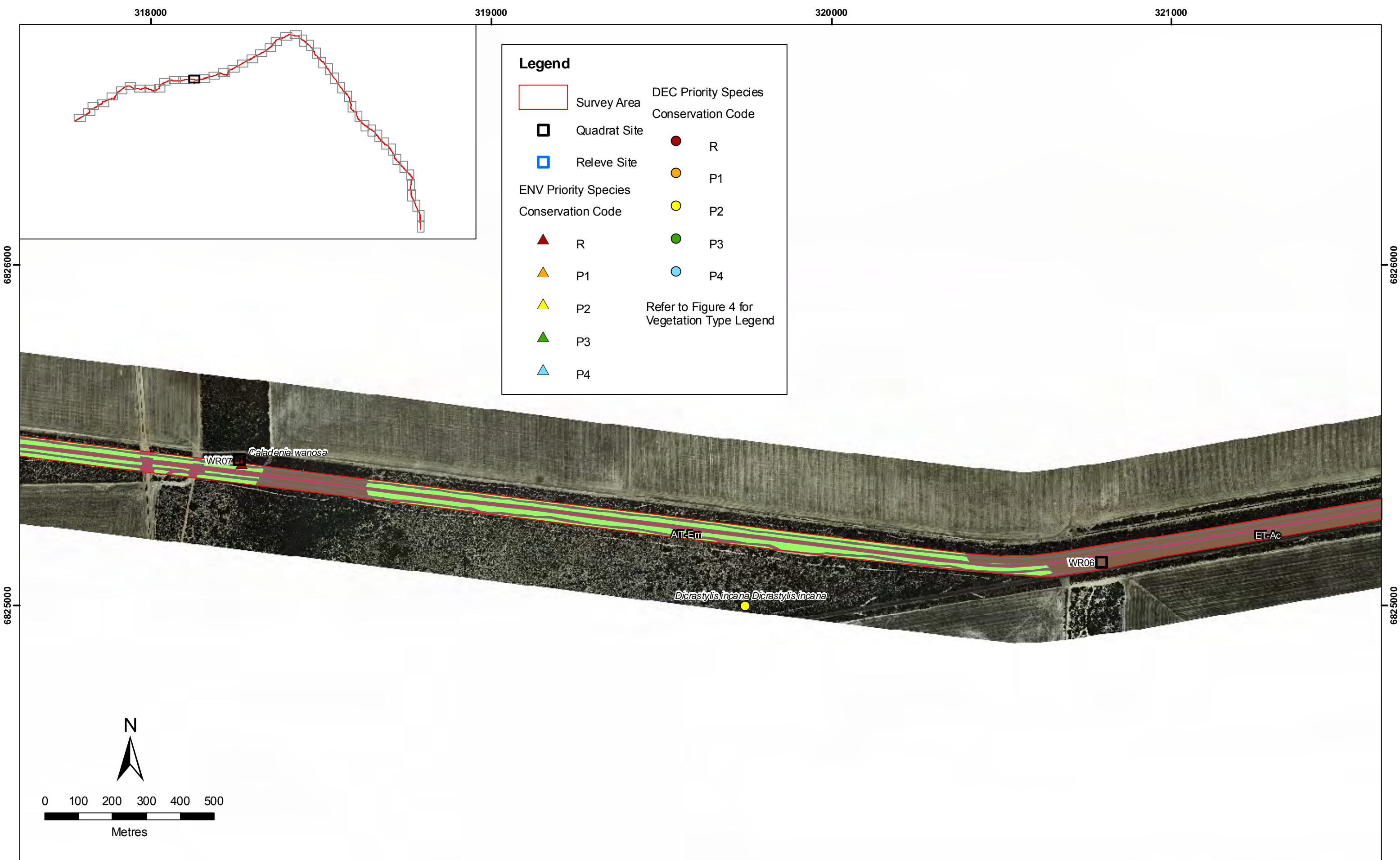
Baeckea sp. Walkaway (A.S. George 11249)

Eucalyptus ebbanoensis subsp. photina

Acacia leptospermoides subsp. psammophila

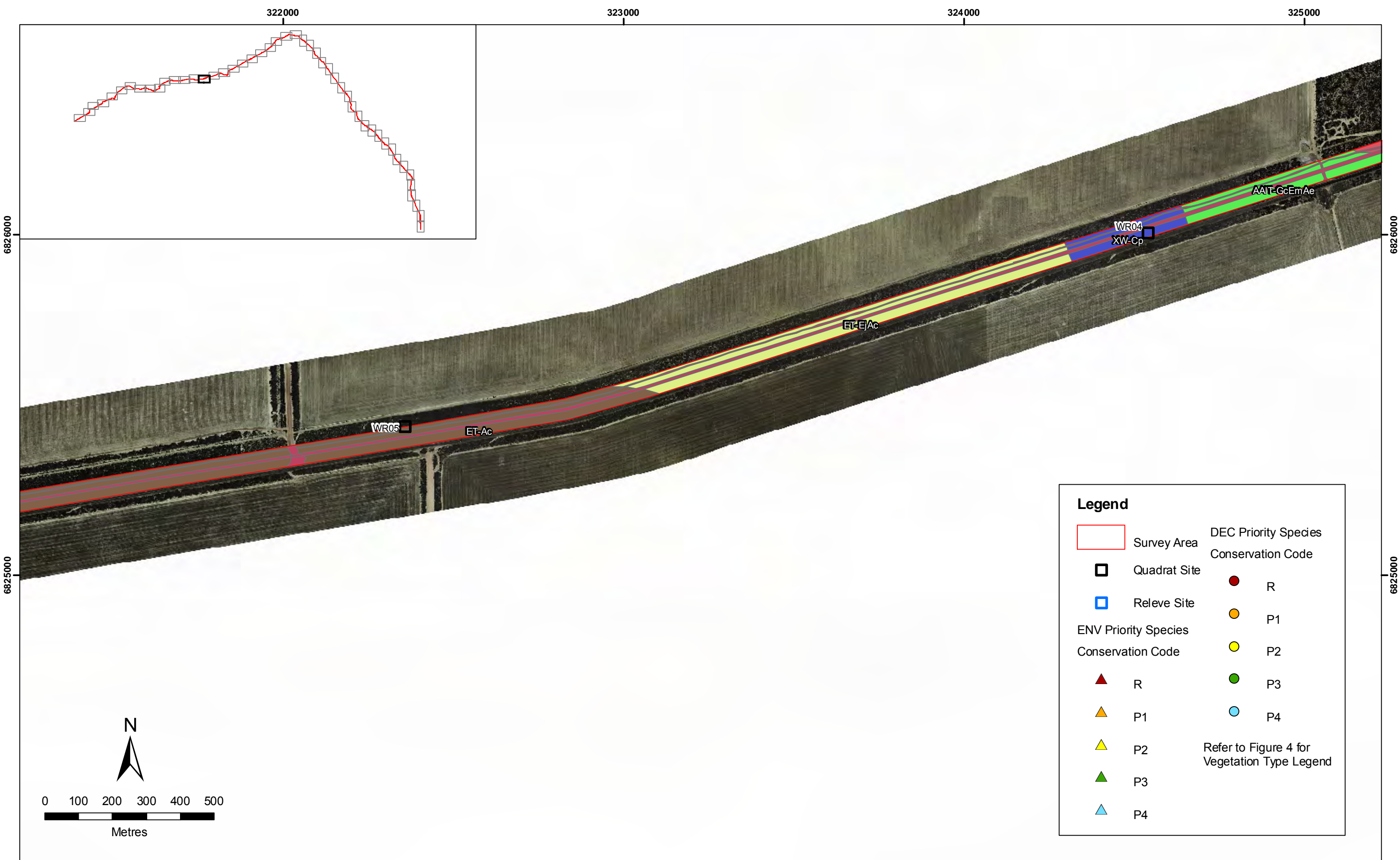
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	Strategen	10.159	
	AUTHOR:	DRAWN	DATE
	L. Trotter	S. Rho	14-12-2010
	SCALE	PROJECTION	
	1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



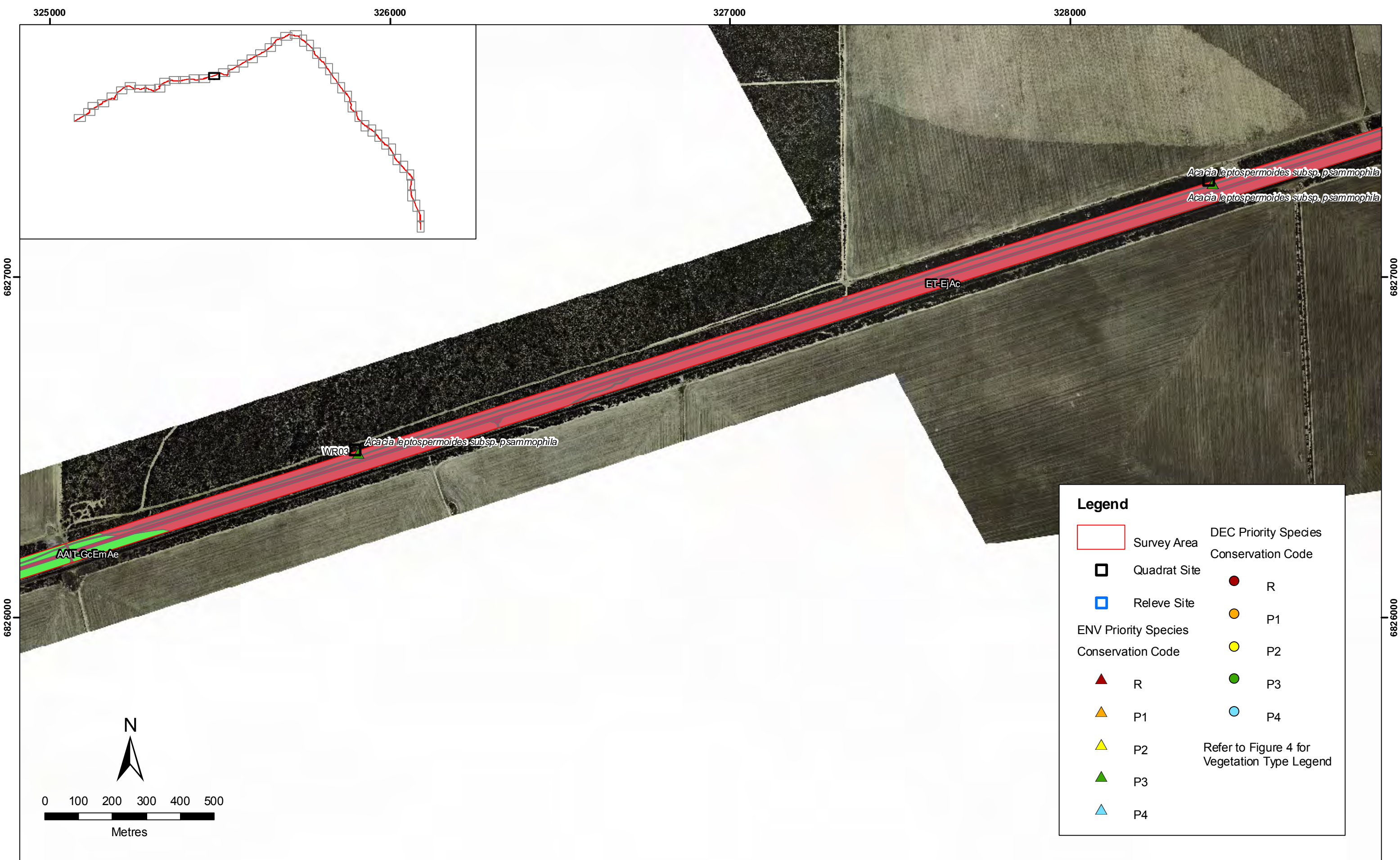
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Strategen	10.159
AUTHOR:	DATE
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



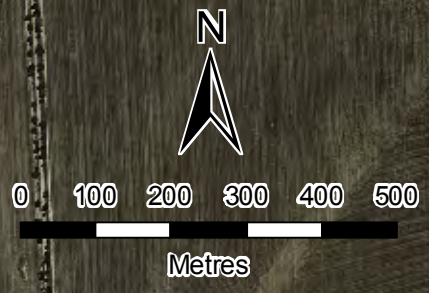
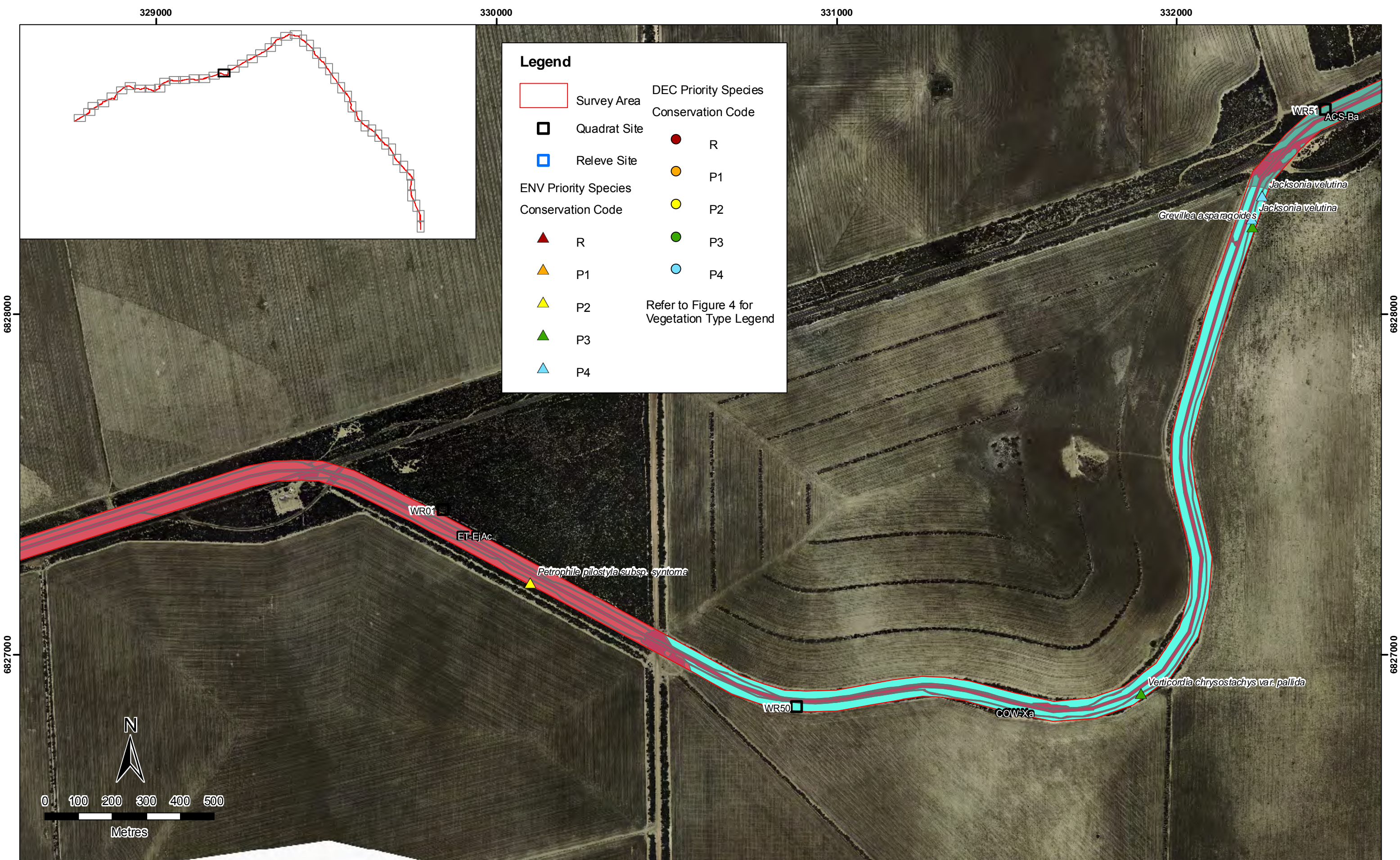
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Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



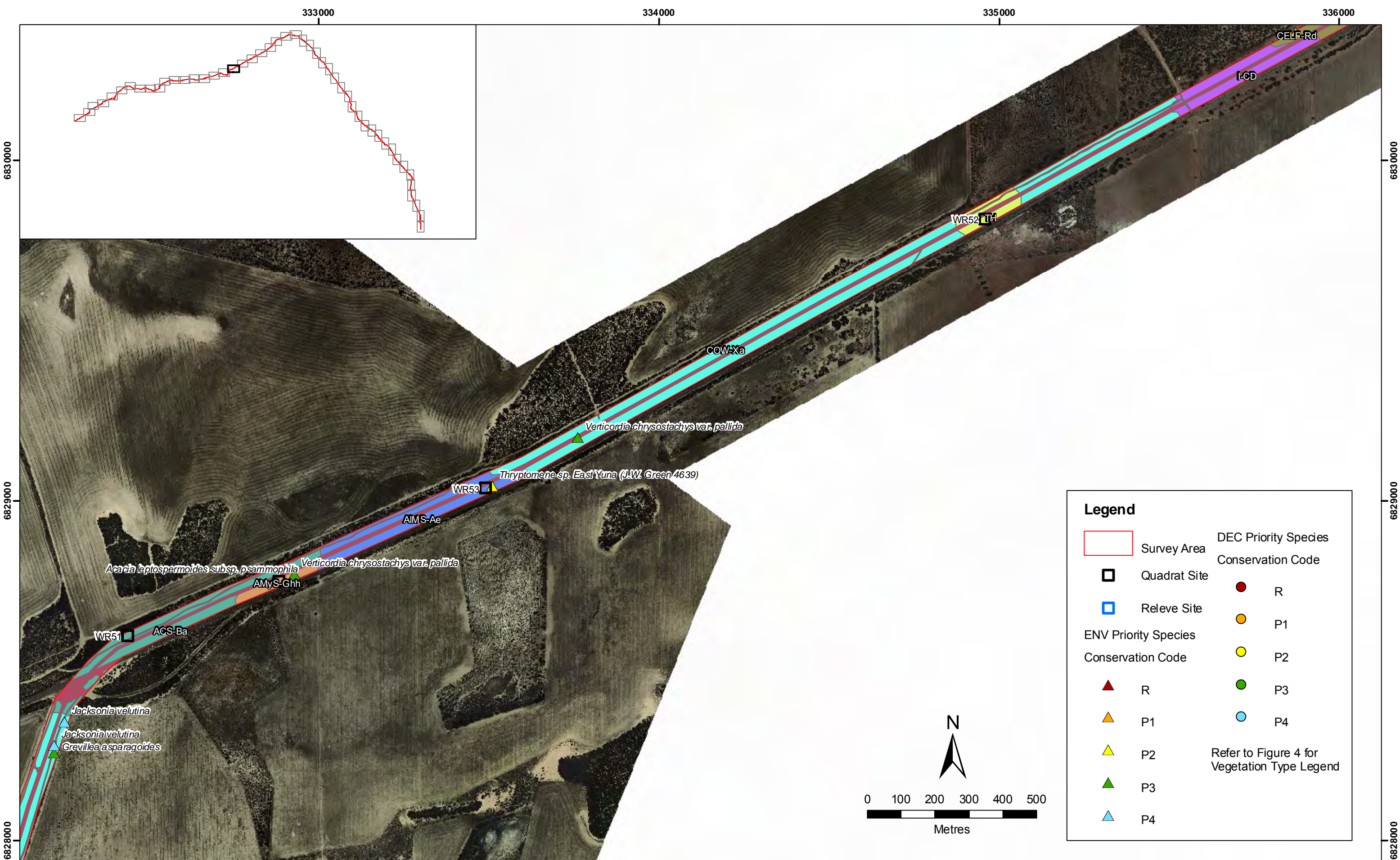
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AUTHOR: L. Trotter
DRAWN: S. Rho
SCALE: 1:10,000 @ A3
PROJECTION: GDA 94 MGA 50
JOB NO: 326000
 10.159
DATE: 14-12-2010

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



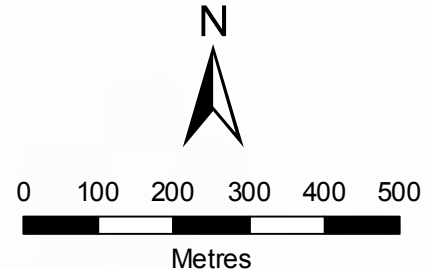
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	Stratagen	10.159	
	AUTHOR:	DRAWN	DATE
	L. Trotter	S. Rho	14-12-2010
	SCALE	PROJECTION	
	1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



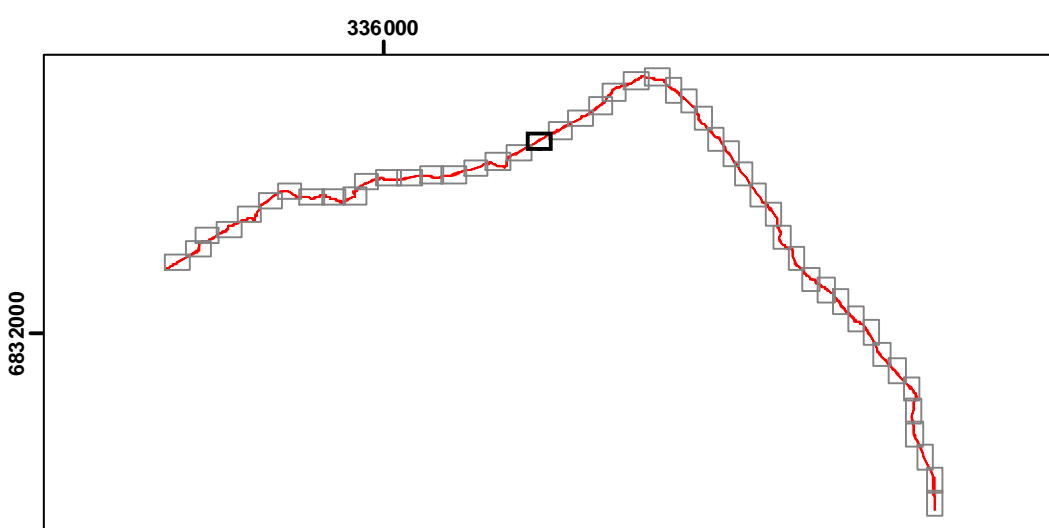
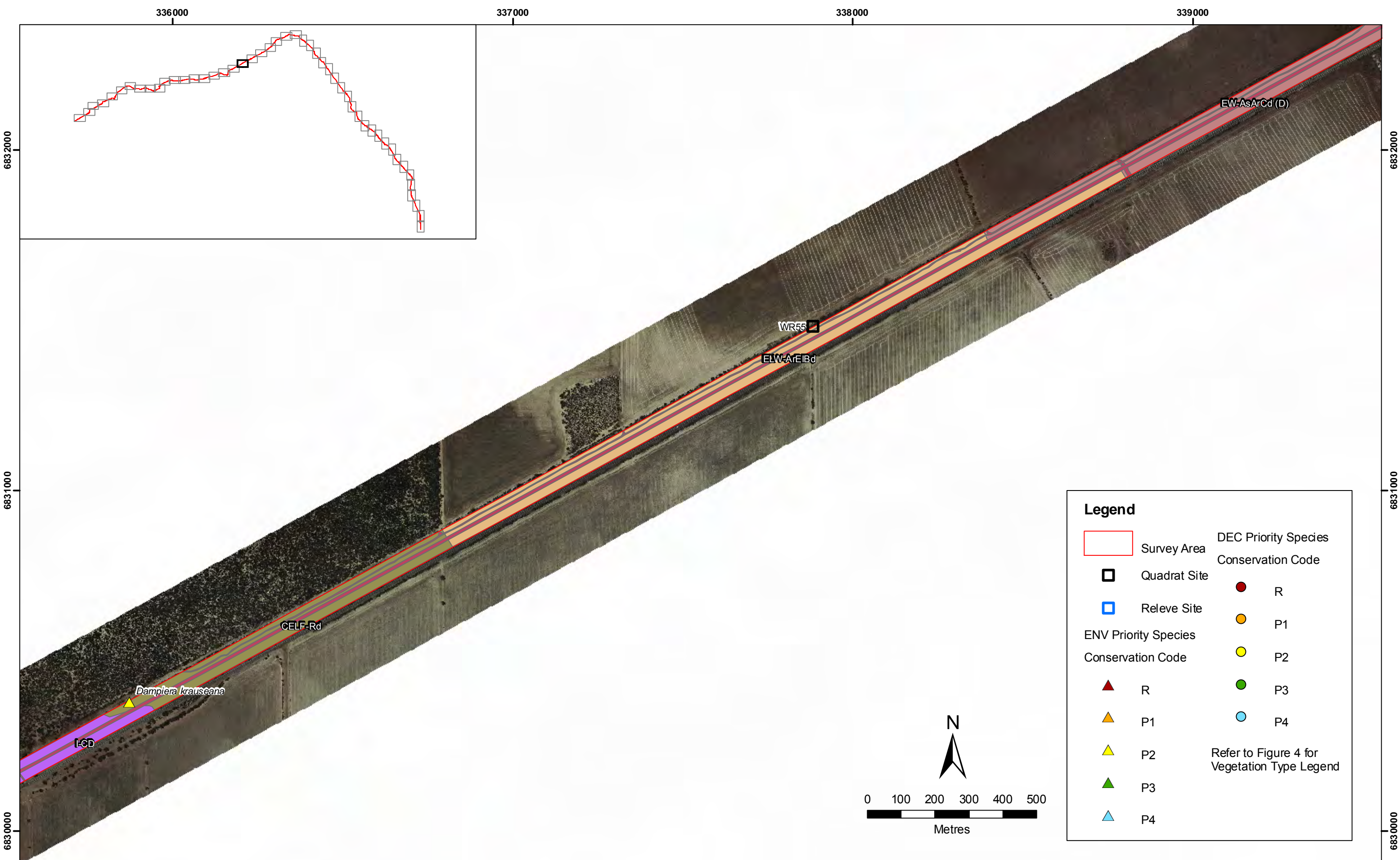
Legend

	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	



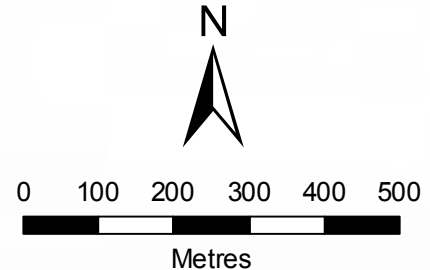
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Strategen	10.159	
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



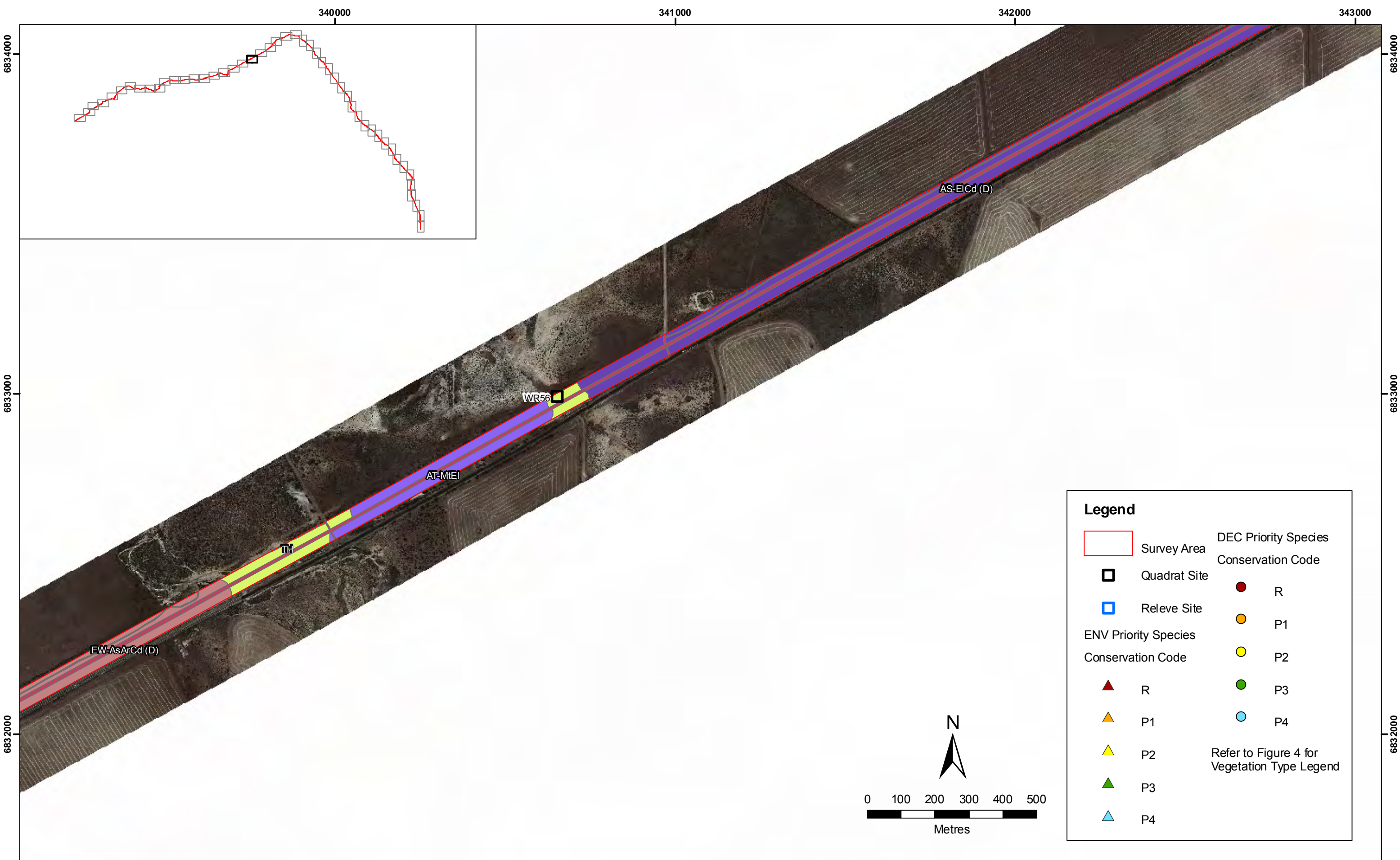
Legend

	Survey Area		DEC Priority Species Conservation Code
	Quadrat Site	●	R
	Releve Site	●	P1
		●	P2
	ENV Priority Species Conservation Code	●	P3
▲	R	●	P4
▲	P1		
▲	P2		Refer to Figure 4 for Vegetation Type Legend
▲	P3		
▲	P4		
















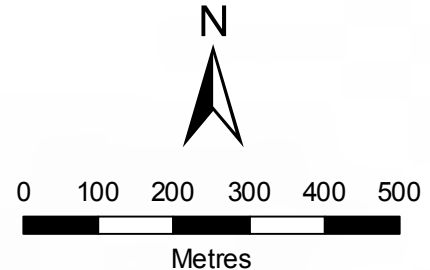
CLIENT: Strategen
 AUTHOR: L. Trotter
 SCALE: 1:10,000 @ A3
 JOB NO.: 10.159
 DATE: 14-12-2010
 DRAWN: S. Rho
 PROJECTION: GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



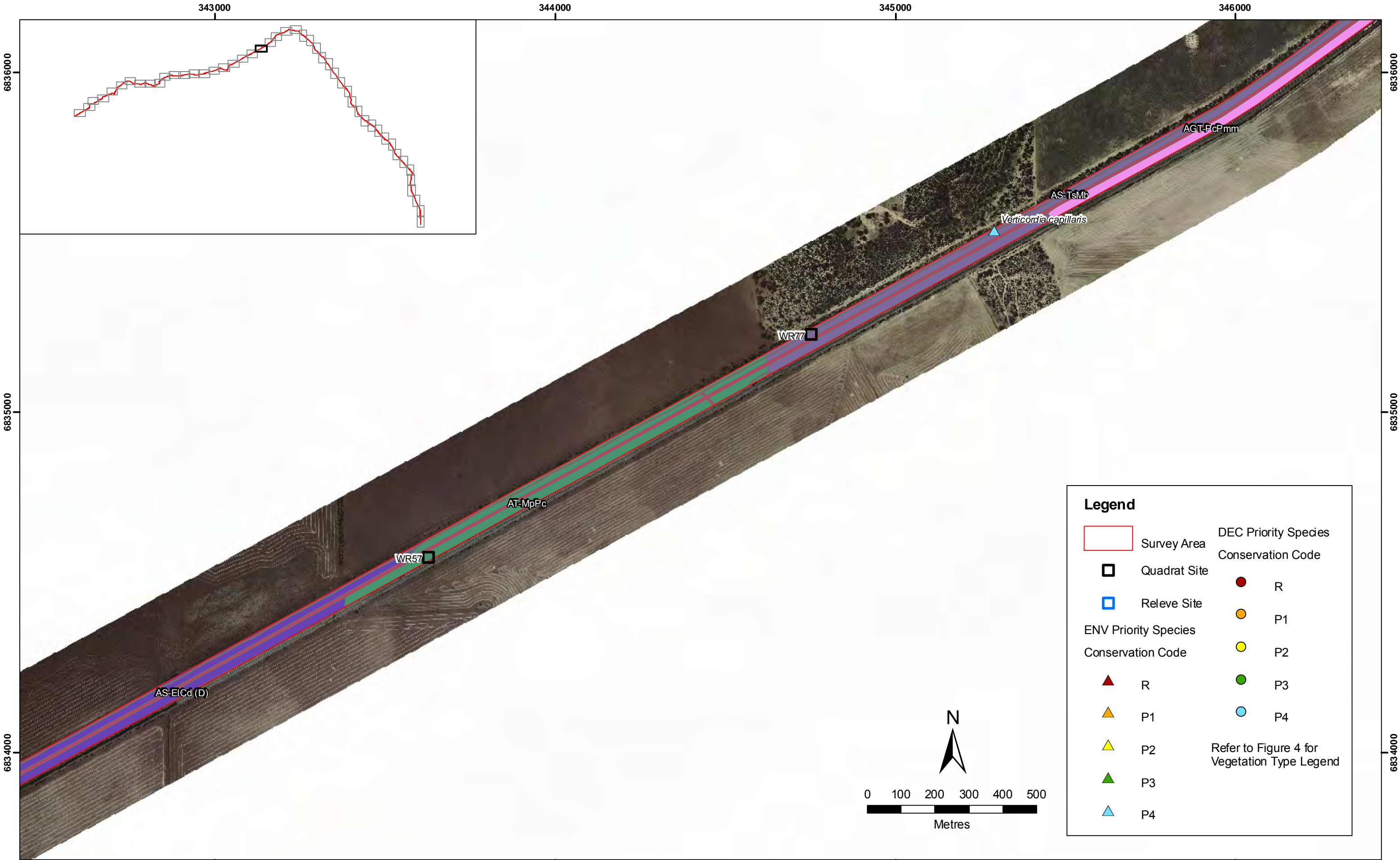
Legend

	Survey Area		DEC Priority Species Conservation Code R
	Quadrat Site		P1
	Releve Site		P2
	ENV Priority Species Conservation Code R		P3
	P1		P4
	P2	Refer to Figure 4 for Vegetation Type Legend	
	P3		
	P4		



CLIENT	NO.
Strategen	10.159
AUTHOR:	DRAWN
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50
DATE	
14-12-2010	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

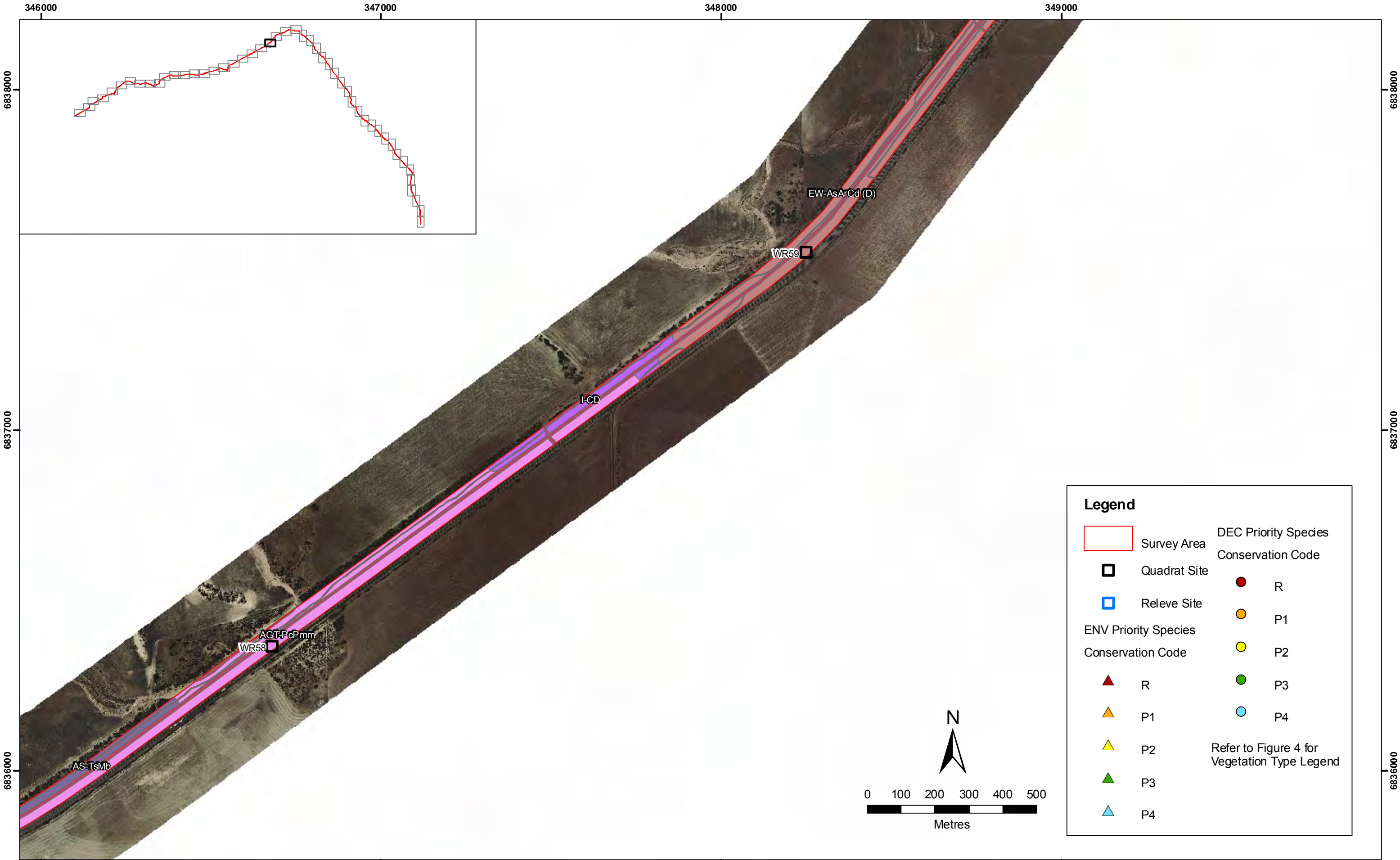
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	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	
	P3	
	P4	

Refer to Figure 4 for Vegetation Type Legend



CLIENT	343000	JOB NO.	10.159
Strategen			
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment
















CLIENT Strategen	JOB NO 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50
DRAWN S. Rho	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

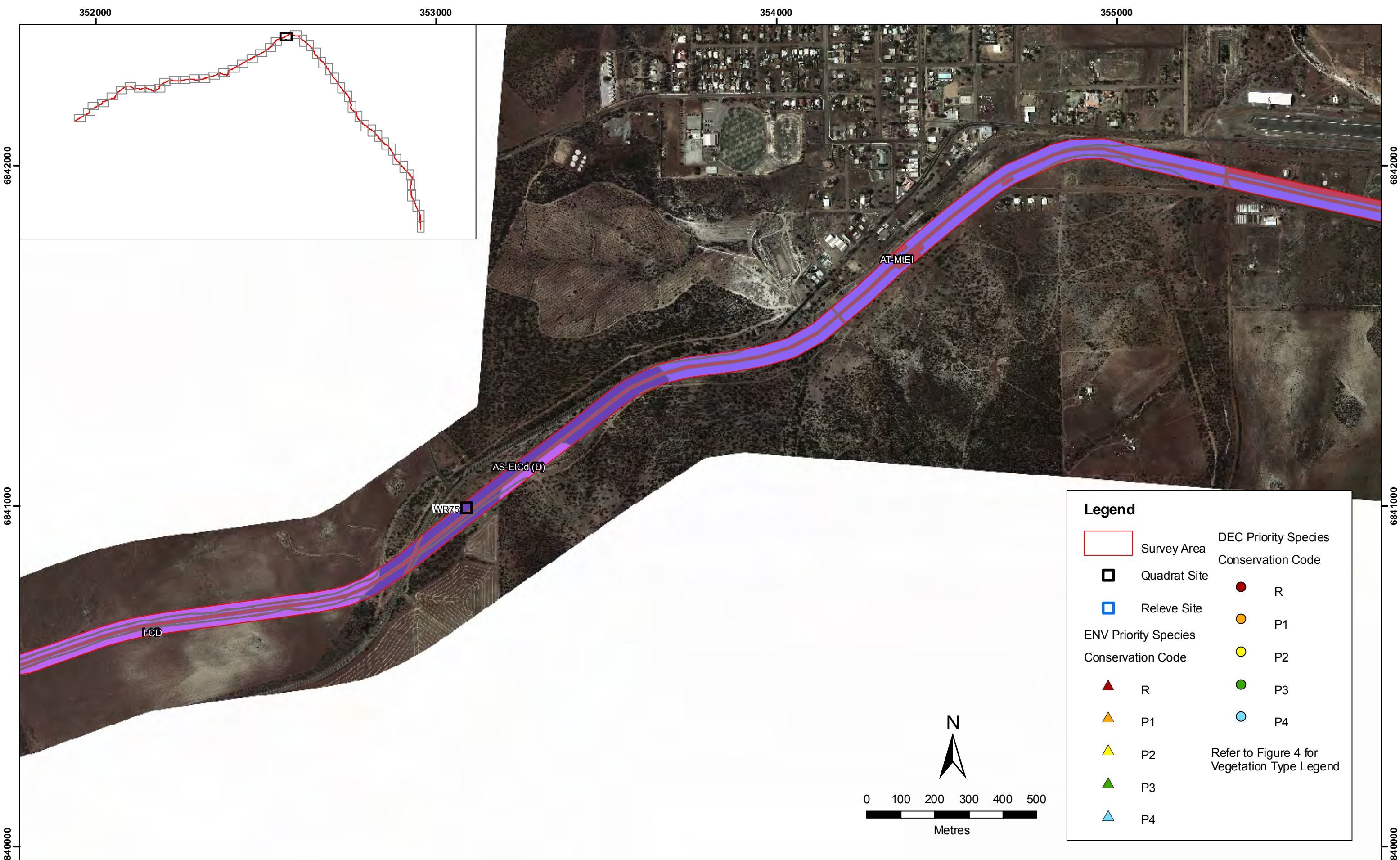
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	Quadrat Site	 R
	Releve Site	 P1
ENV Priority Species Conservation Code		 P2
	R	 P3
	P1	 P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	



CLIENT	JOB NO.
Strategen	10.159
AUTHOR:	DRAWN
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50
DATE	
14-12-2010	

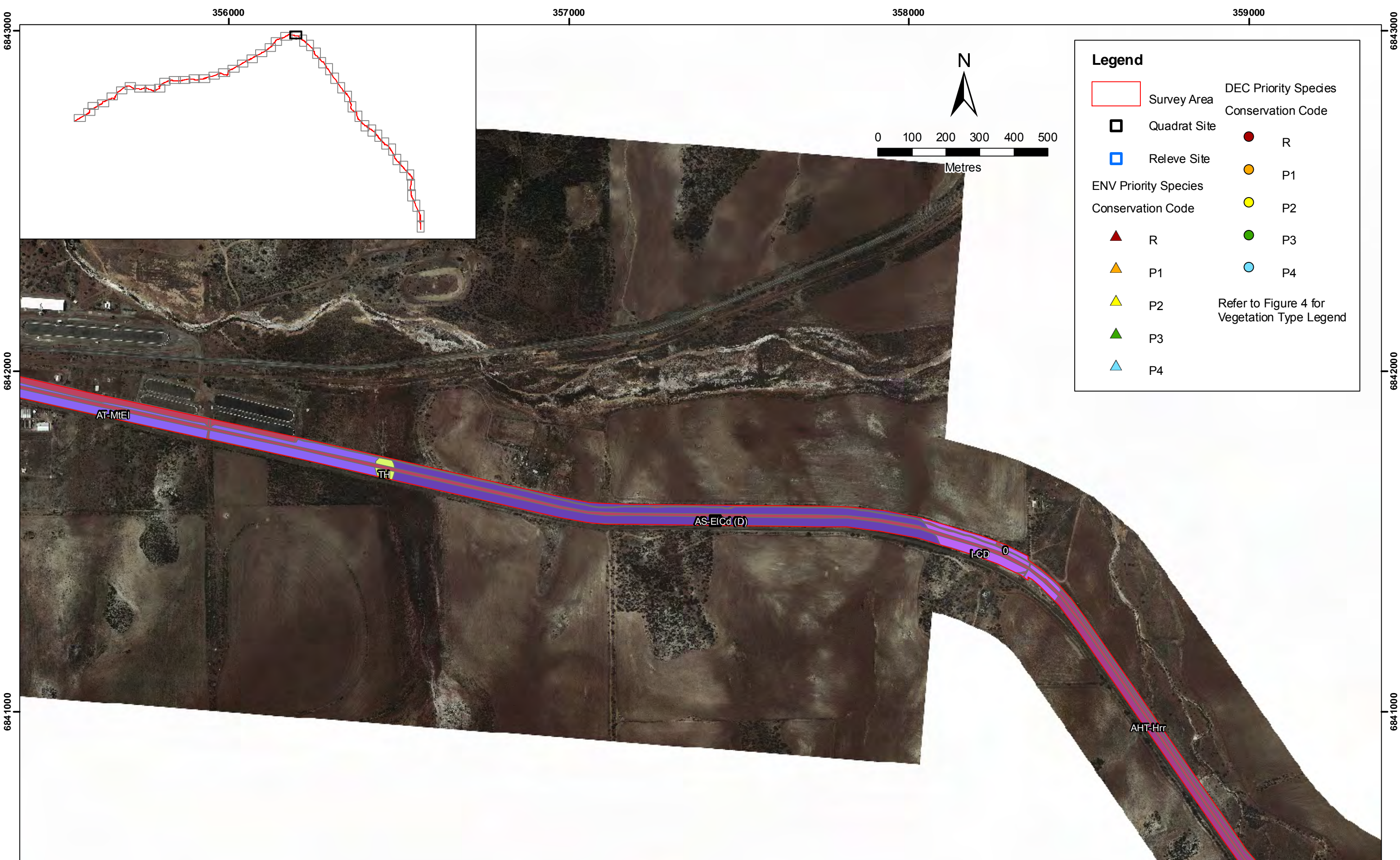
Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 4.23



	CLIENT	JOB NO.
	Strategen	10.159
	AUTHOR:	DRAWN
	L. Trotter	S. Rho
	SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Releve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



CLIENT	356000	JOB NO.	
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
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Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

359000

360000

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6841000

6841000

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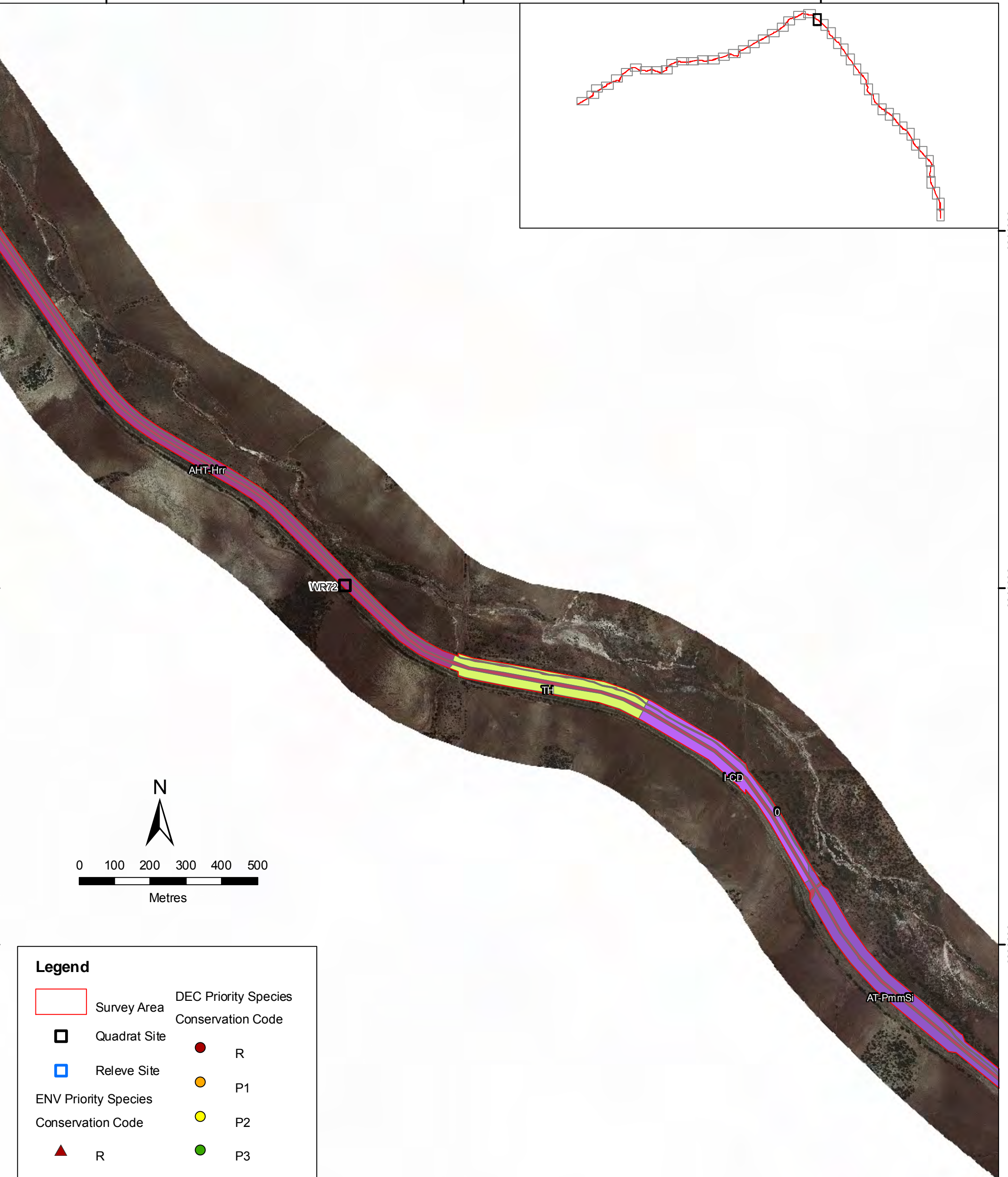
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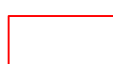












6839000

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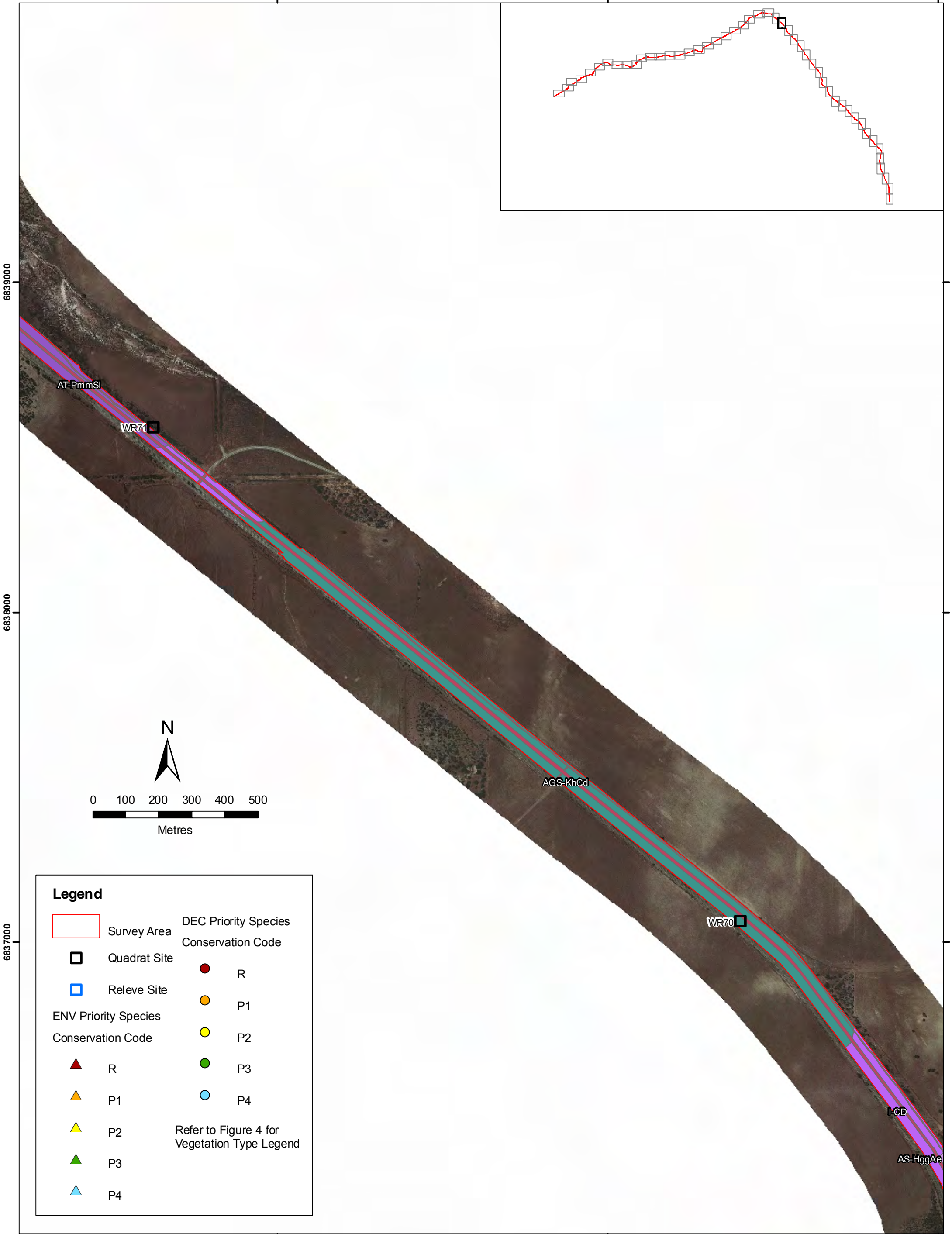
- | | | | |
|---|--------------|---|--|
|  | Survey Area |  | DEC Priority Species Conservation Code R |
|  | Quadrat Site |  | P1 |
|  | Releve Site |  | P2 |
| ENV Priority Species Conservation Code | |  | P3 |
|  | R |  | P4 |
|  | P1 | Refer to Figure 4 for Vegetation Type Legend | |
|  | P2 | | |
|  | P3 | | |
|  | P4 | | |



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DATE	14-12-2010
DRAWN	S. Rho		
SCALE	1:10,000 @ A3	PROJECTION	GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 4.26



Legend

- | | |
|---|--|
| Survey Area | DEC Priority Species Conservation Code |
| Quadrat Site | ● R |
| Relevé Site | ● P1 |
| ENV Priority Species Conservation Code | ● P2 |
| ▲ R | ● P3 |
| ▲ P1 | ● P4 |
| ▲ P2 | Refer to Figure 4 for Vegetation Type Legend |
| ▲ P3 | |
| ▲ P4 | |

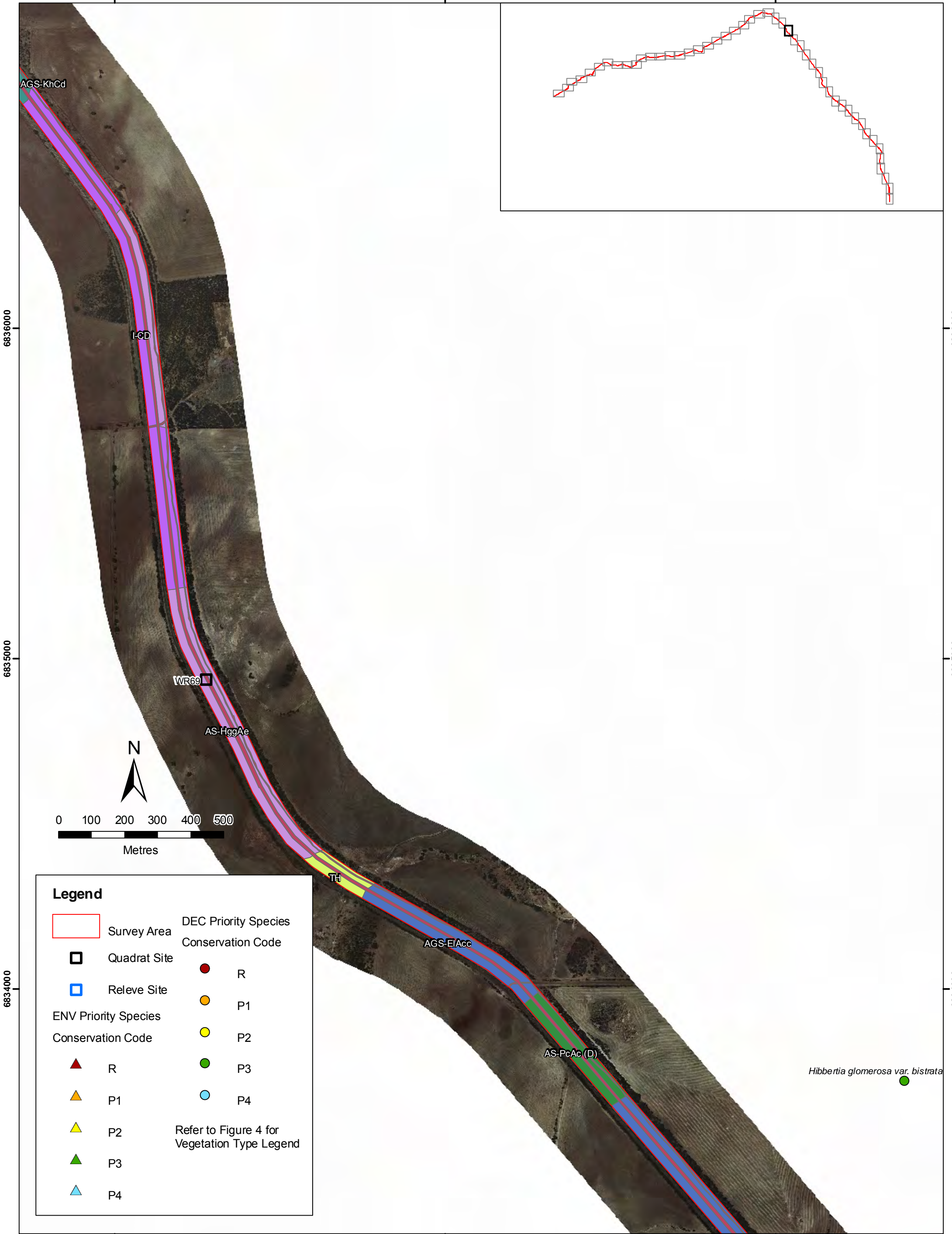


CLIENT	362000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE **4.27**



Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Releve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	

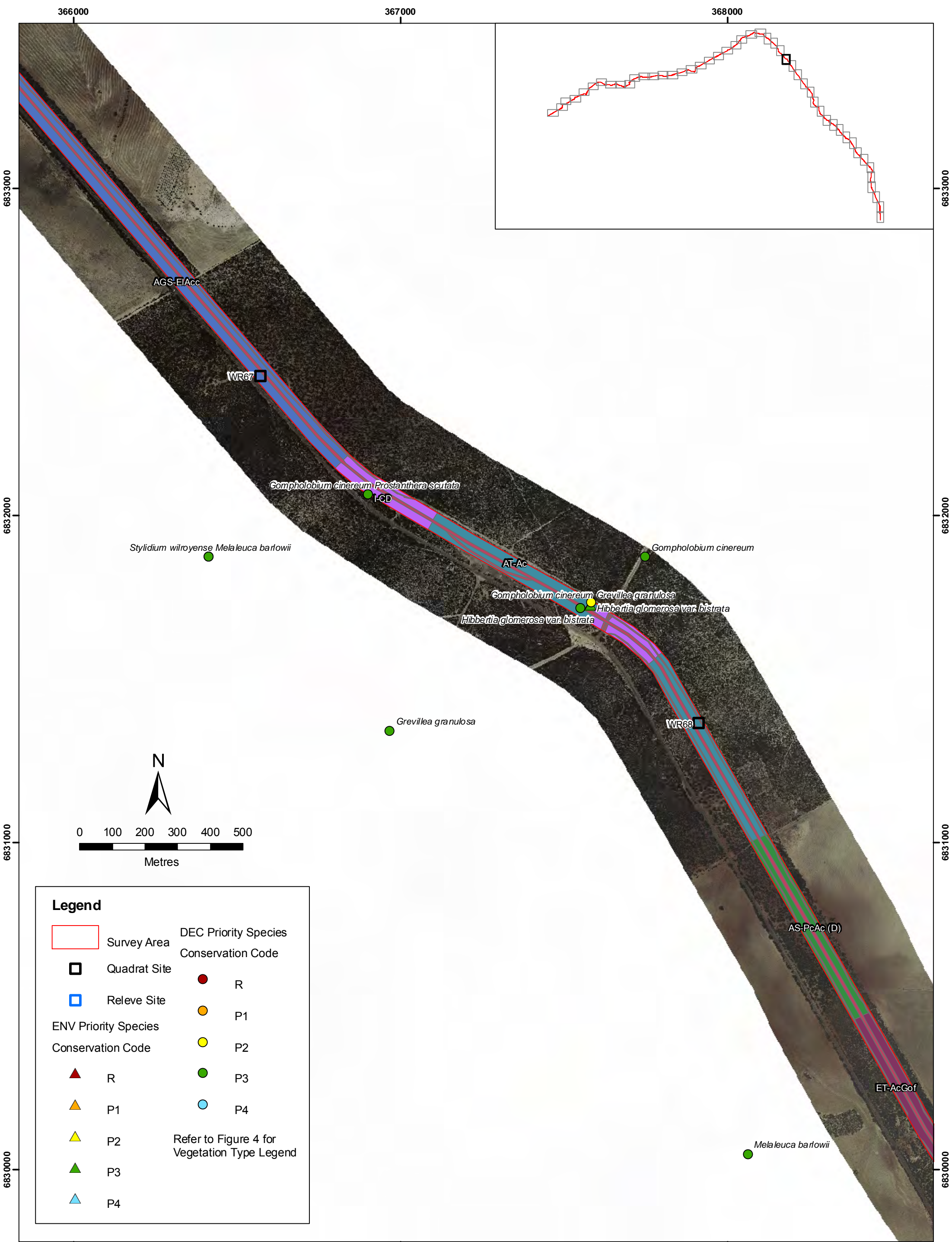
Hibbertia glomerosa var. bistrata



CLIENT: Strategen
 AUTHOR: L. Trotter
 SCALE: 1:10,000 @ A3

JOB NO.: 10.159
 DATE: 14-12-2010
 DRAWN: S. Rho
 PROJECTION: GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



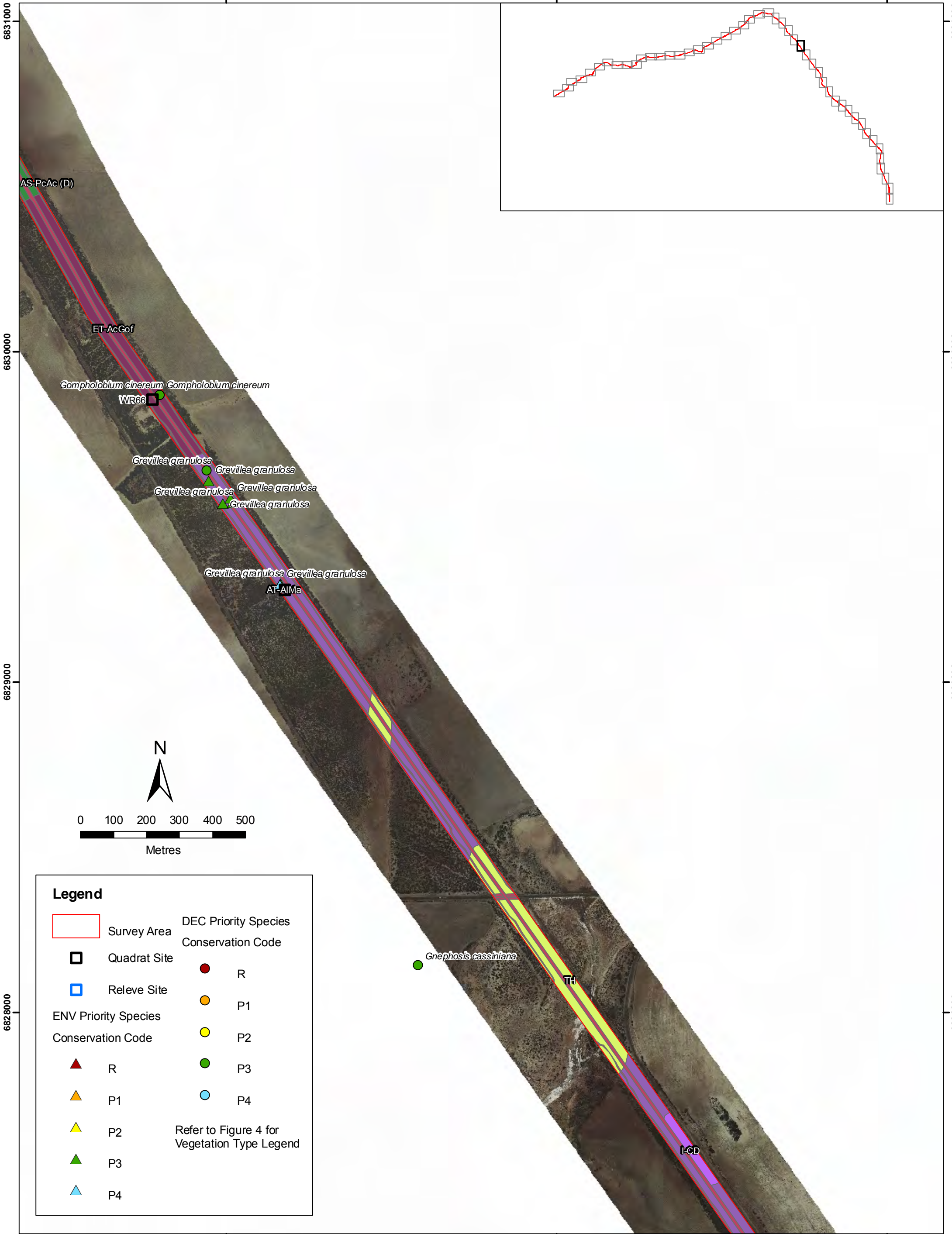
Legend

- | | |
|---|--|
| Survey Area | DEC Priority Species Conservation Code |
| Quadrat Site | ● R |
| Releve Site | ● P1 |
| ENV Priority Species Conservation Code | ● P2 |
| ▲ R | ● P3 |
| ▲ P1 | ● P4 |
| ▲ P2 | Refer to Figure 4 for Vegetation Type Legend |
| ▲ P3 | |
| ▲ P4 | |



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Releve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



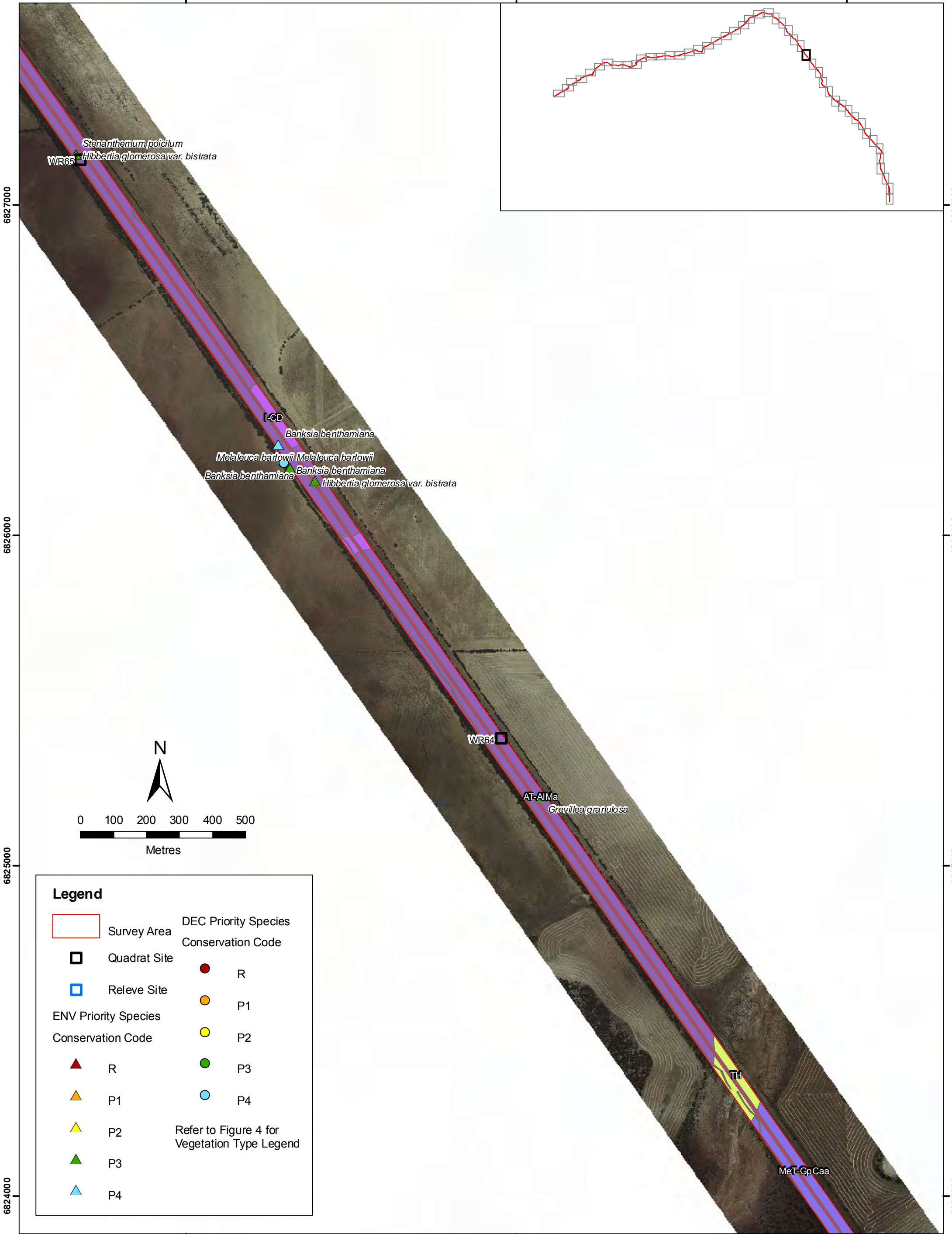
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Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
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1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

371 000

372 000

373 000



682 7000

682 7000

682 6000

682 6000

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682 5000

682 4000

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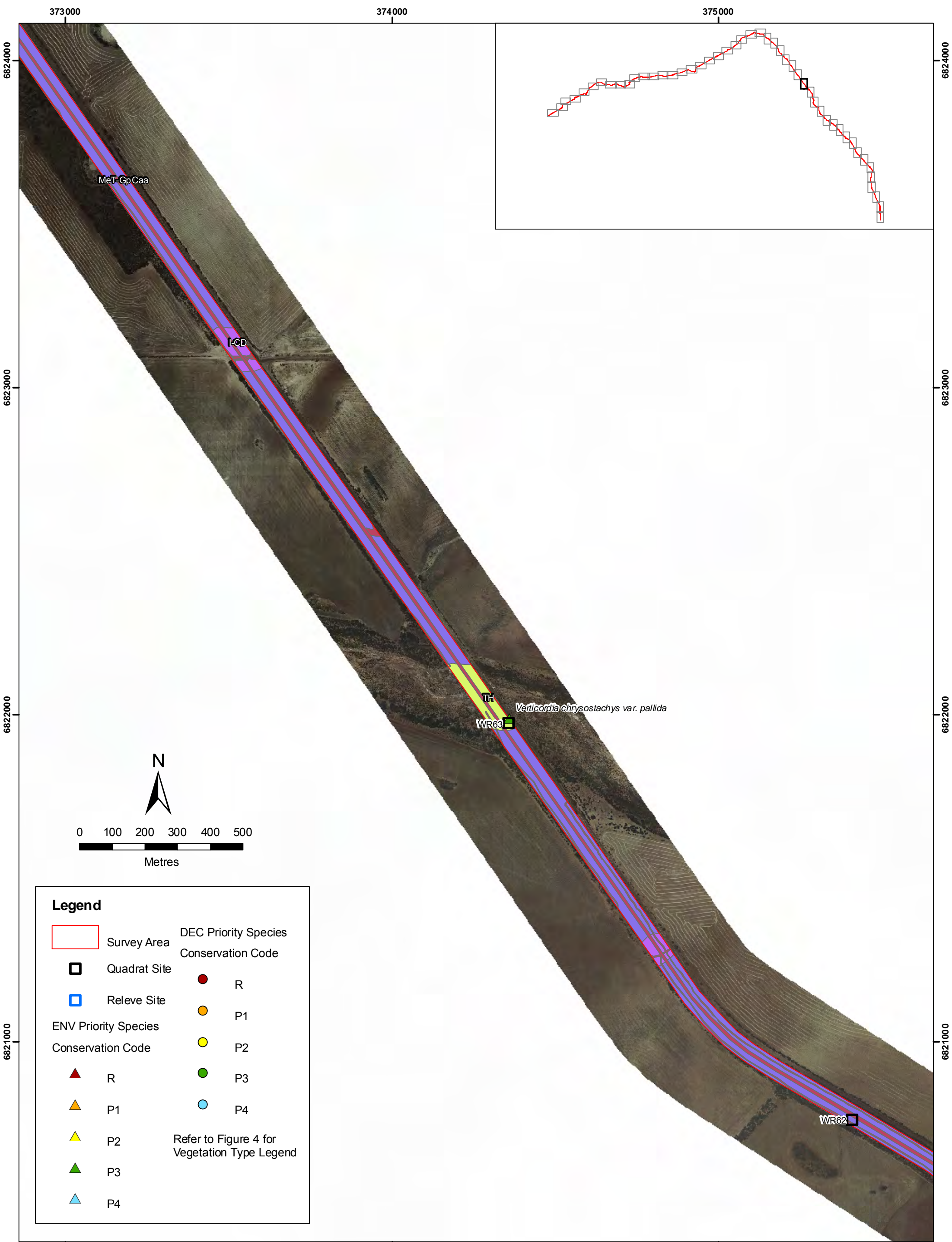
Legend

- | | | |
|--|--------------|--|
| | Survey Area | DEC Priority Species Conservation Code |
| | Quadrat Site | R |
| | Releve Site | P1 |
| ENV Priority Species Conservation Code | | P2 |
| | R | P3 |
| | P1 | P4 |
| | P2 | Refer to Figure 4 for Vegetation Type Legend |
| | P3 | |
| | P4 | |



CLIENT	371 000	JOB NO.	
	Strategen		10.159
AUTHOR:		DRAWN	
L. Trotter		S. Rho	14-12-2010
SCALE		PROJECTION	
1:10,000 @ A3		GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

- | | | |
|--|--------------|--|
| | Survey Area | DEC Priority Species Conservation Code |
| | Quadrat Site | R |
| | Releve Site | P1 |
| ENV Priority Species Conservation Code | | P2 |
| | R | P3 |
| | P1 | P4 |
| | P2 | Refer to Figure 4 for Vegetation Type Legend |
| | P3 | |
| | P4 | |



CLIENT
Strategen

AUTHOR:
L. Trotter

SCALE
1:10,000 @ A3

DRAWN
S. Rho

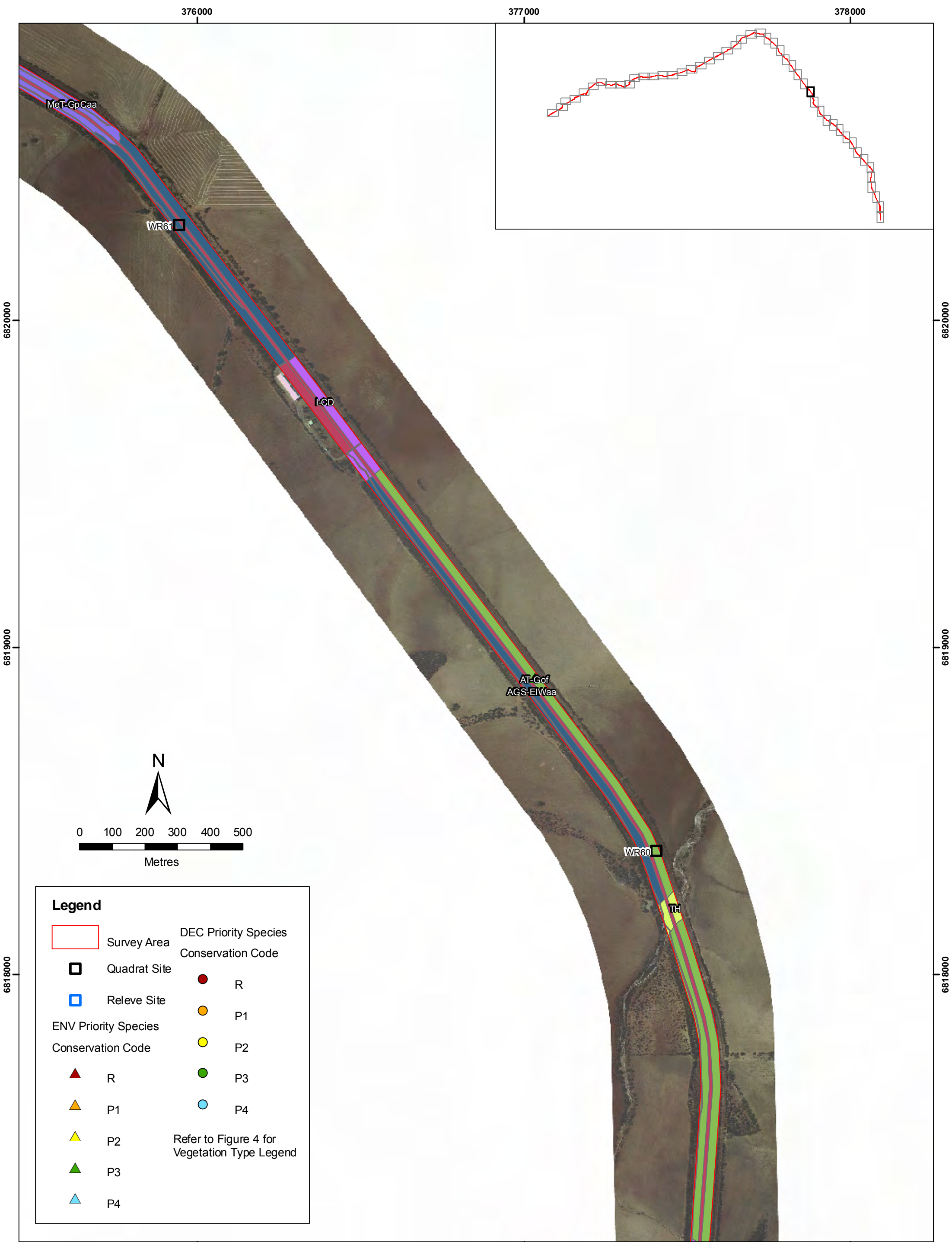
PROJECTION
GDA 94 MGA 50

JOB NO. 374000
10.159

DATE
14-12-2010

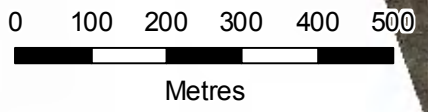
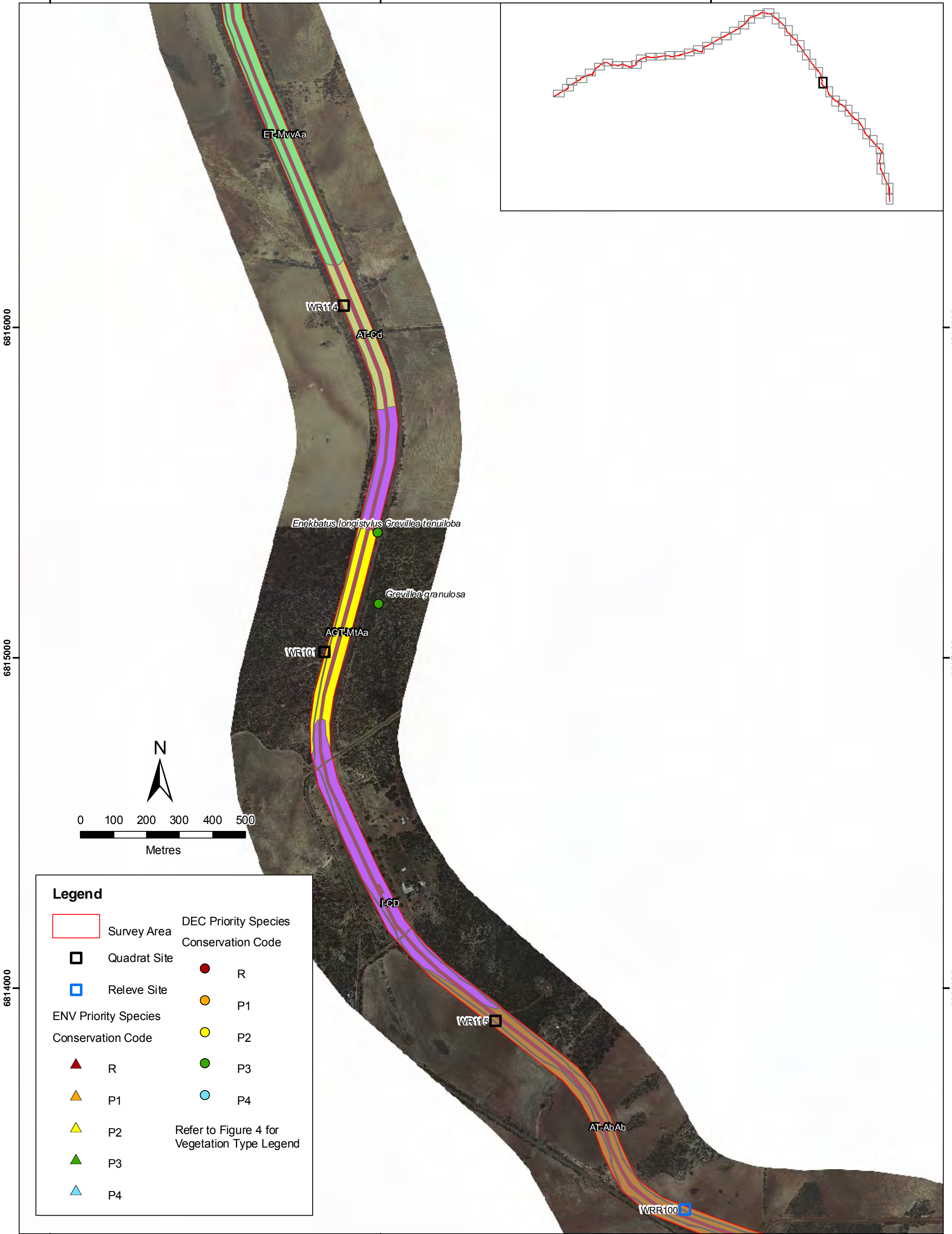
Vegetation Associations with Locations of Priority Flora and Quadrat Sites

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



CLIENT	376000	JOB NO.	
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



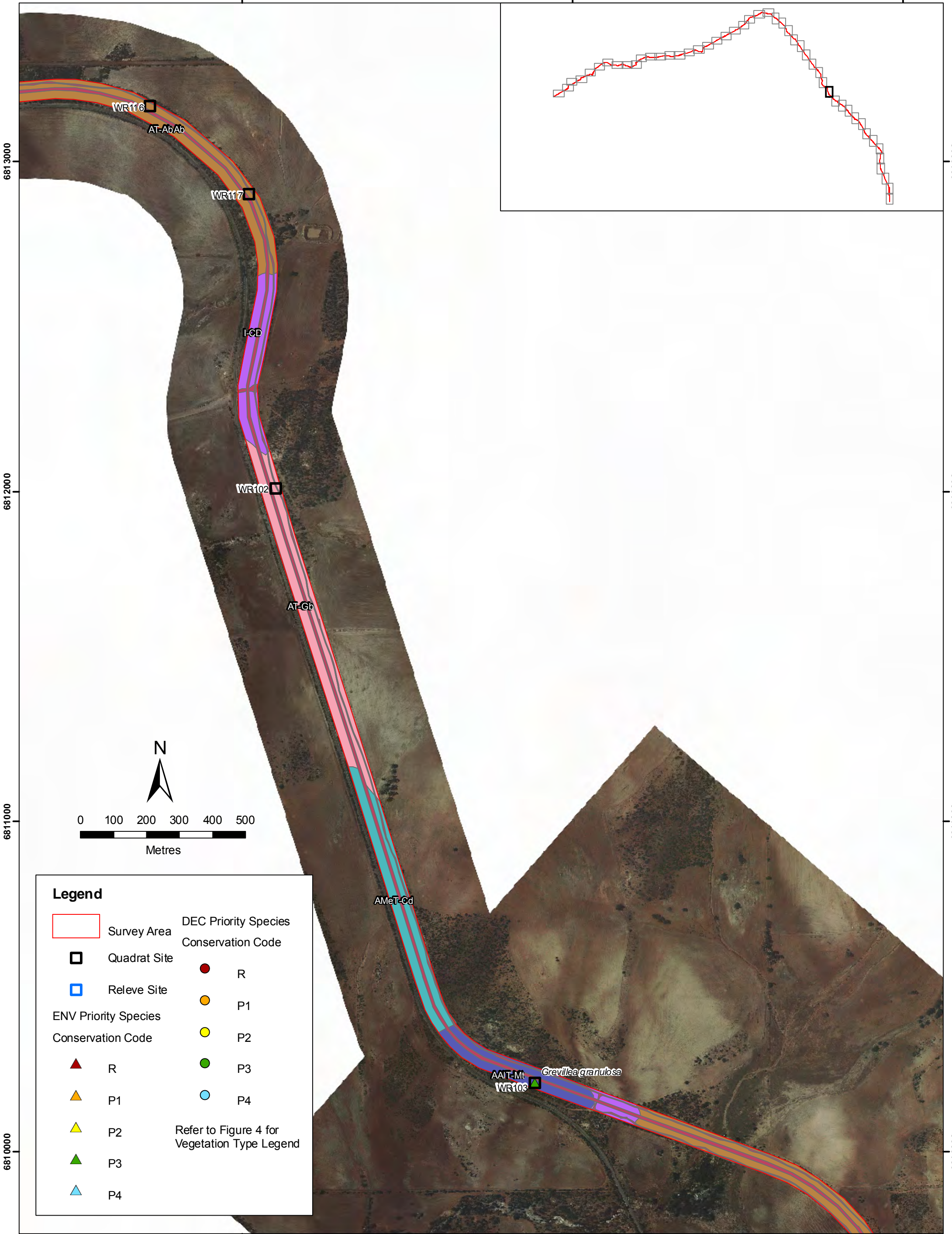
Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Relevé Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



CLIENT	Strategen	JOB NO.	378000
AUTHOR:	L. Trotter	10.159	DATE
DRAWN	S. Rho	14-12-2010	
SCALE	1:10,000 @ A3	PROJECTION	GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



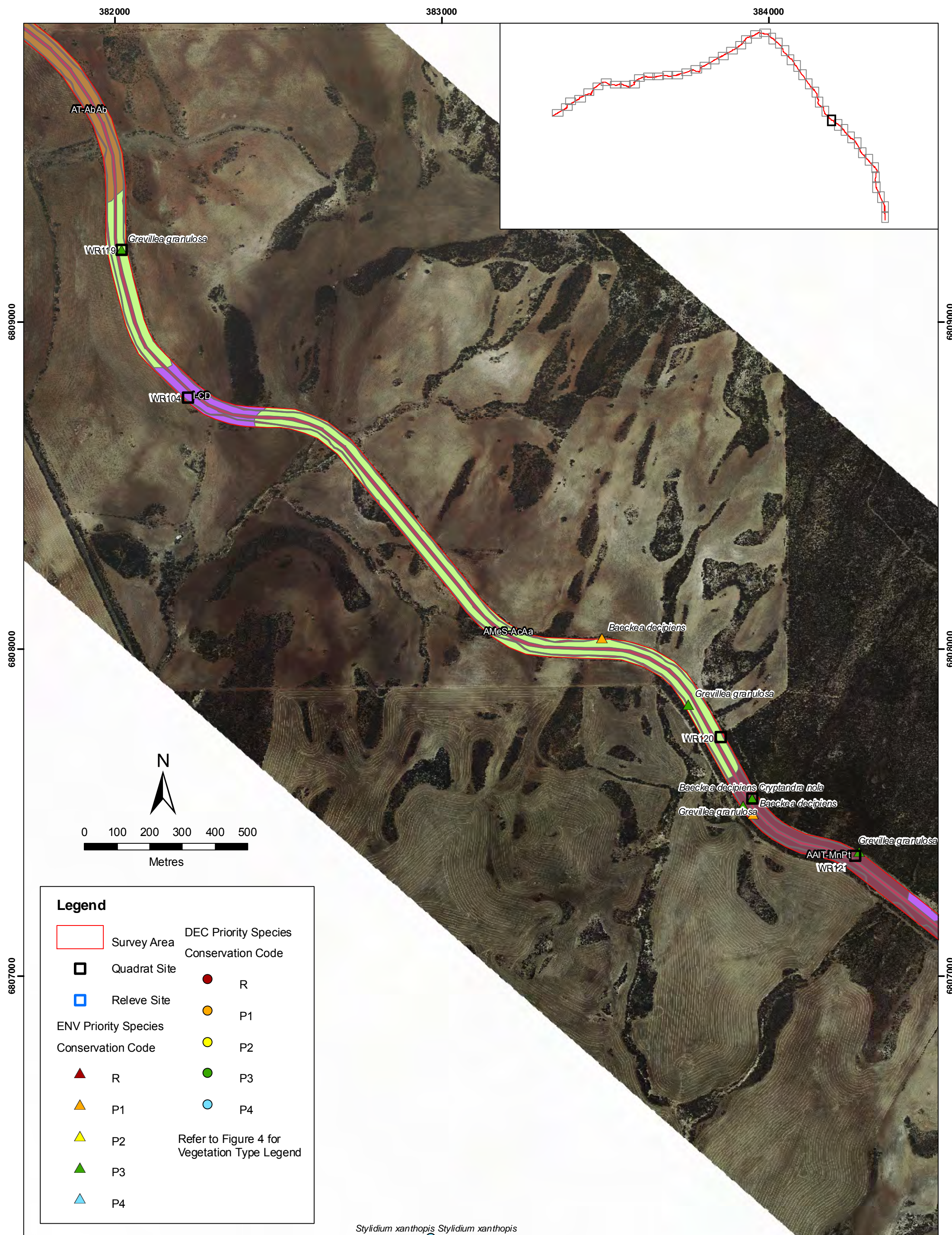
Legend

- | | |
|---|--|
| Survey Area | DEC Priority Species Conservation Code |
| Quadrat Site | ● R |
| Releve Site | ● P1 |
| ENV Priority Species Conservation Code | ● P2 |
| ▲ R | ● P3 |
| ▲ P1 | ● P4 |
| ▲ P2 | Refer to Figure 4 for Vegetation Type Legend |
| ▲ P3 | |
| ▲ P4 | |



CLIENT	380000	JOB NO.	
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

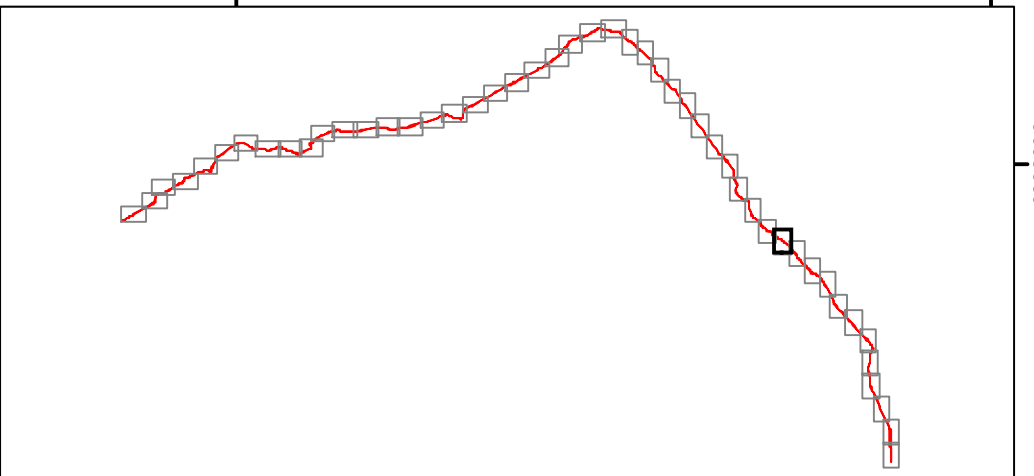
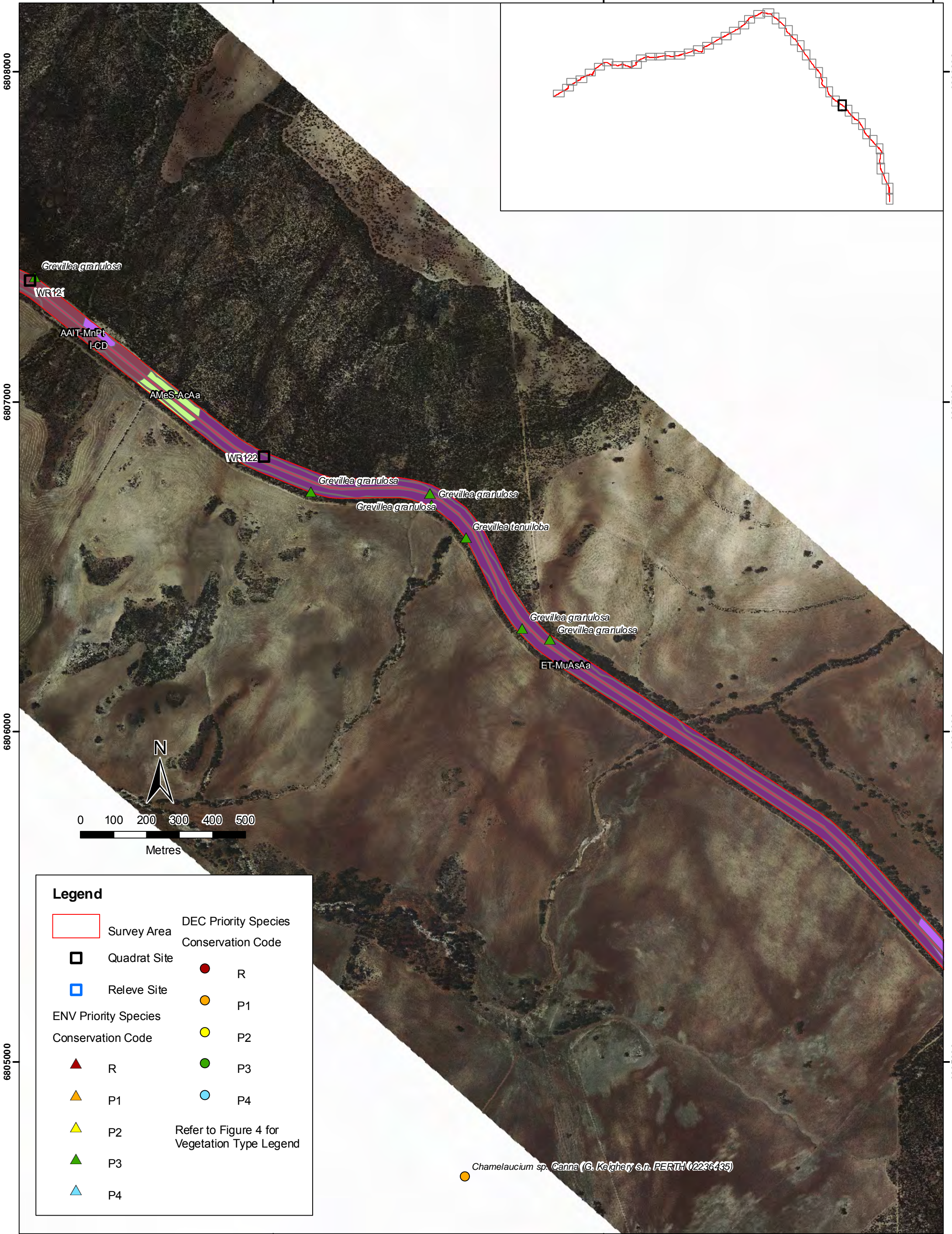
- | | | |
|---|--------------|---|
| | Survey Area | DEC Priority Species Conservation Code |
| | Quadrat Site | R |
| | Releve Site | P1 |
| ENV Priority Species Conservation Code | | P2 |
| | R | P3 |
| | P1 | P4 |
| | P2 | Refer to Figure 4 for Vegetation Type Legend |
| | P3 | |
| | P4 | |



CLIENT: Strategen
 AUTHOR: L. Trotter
 SCALE: 1:10,000 @ A3
 DRAWN: S. Rho
 PROJECTION: GDA 94 MGA 50
 JOB NO.: 10.159
 DATE: 14-12-2010

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 4.36



Legend

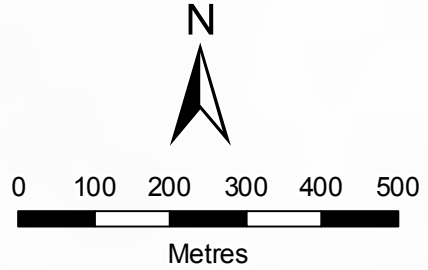
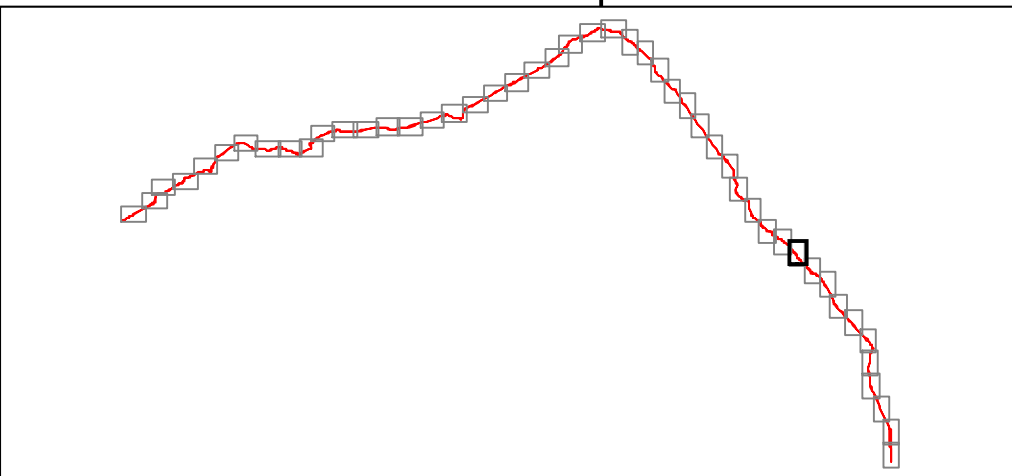
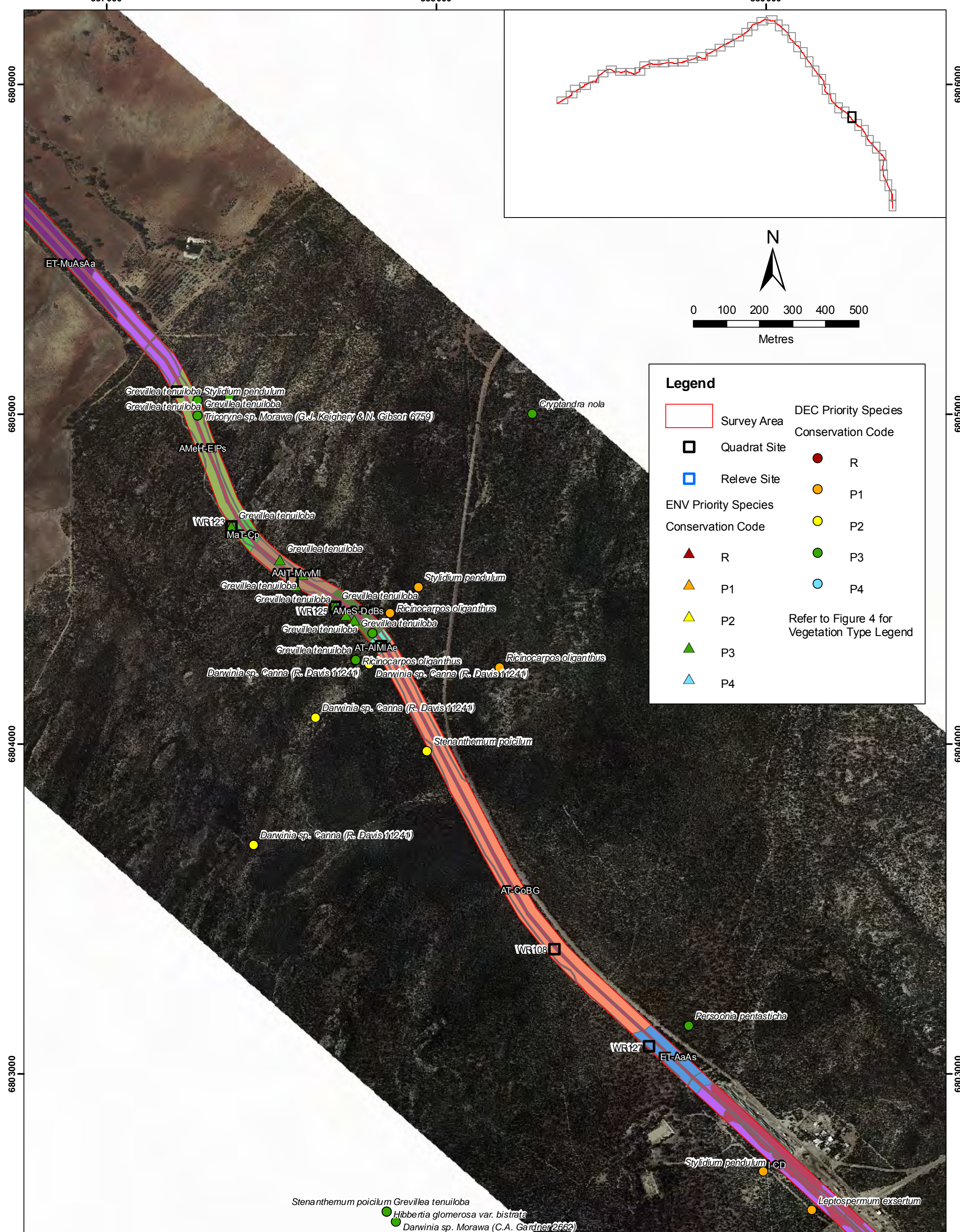
- | | | |
|---|--------------|---|
| | Survey Area | DEC Priority Species Conservation Code |
| | Quadrat Site | R |
| | Releve Site | P1 |
| ENV Priority Species Conservation Code | | P2 |
| | R | P3 |
| | P1 | P4 |
| | P2 | Refer to Figure 4 for Vegetation Type Legend |
| | P3 | |
| | P4 | |

Chamaelaucium sp. *Canna* (G. Kelghery s.n. PERTH 02236435)



CLIENT	385000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

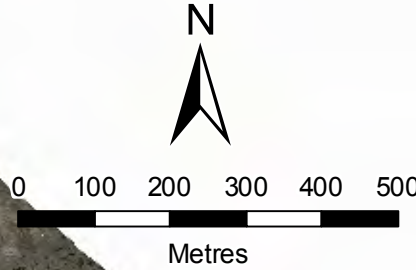
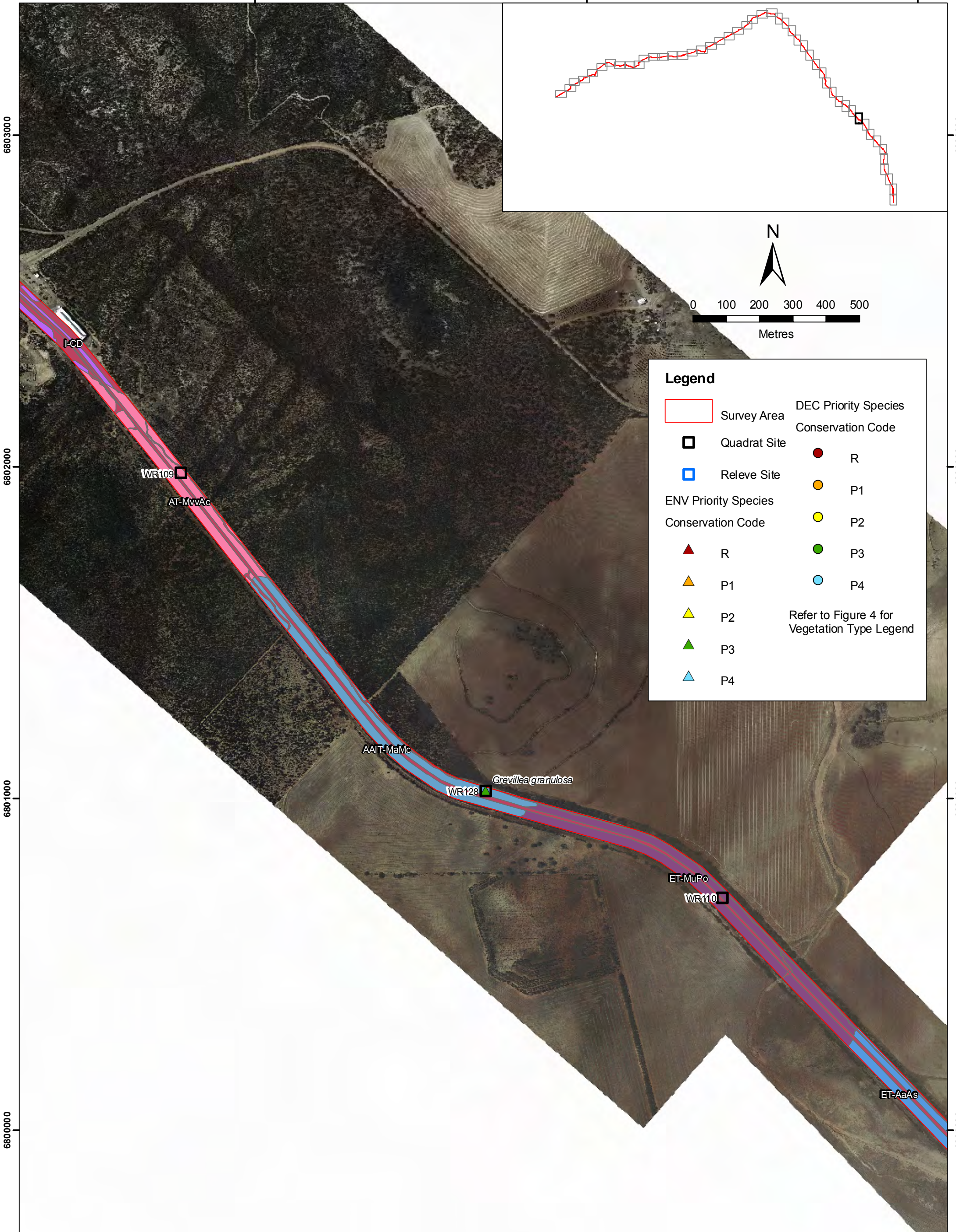
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	Quadrat Site	● R
	Releve Site	● P1
	ENV Priority Species Conservation Code	● P2
▲	R	● P3
▲	P1	● P4
▲	P2	Refer to Figure 4 for Vegetation Type Legend
▲	P3	
▲	P4	



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 4.38



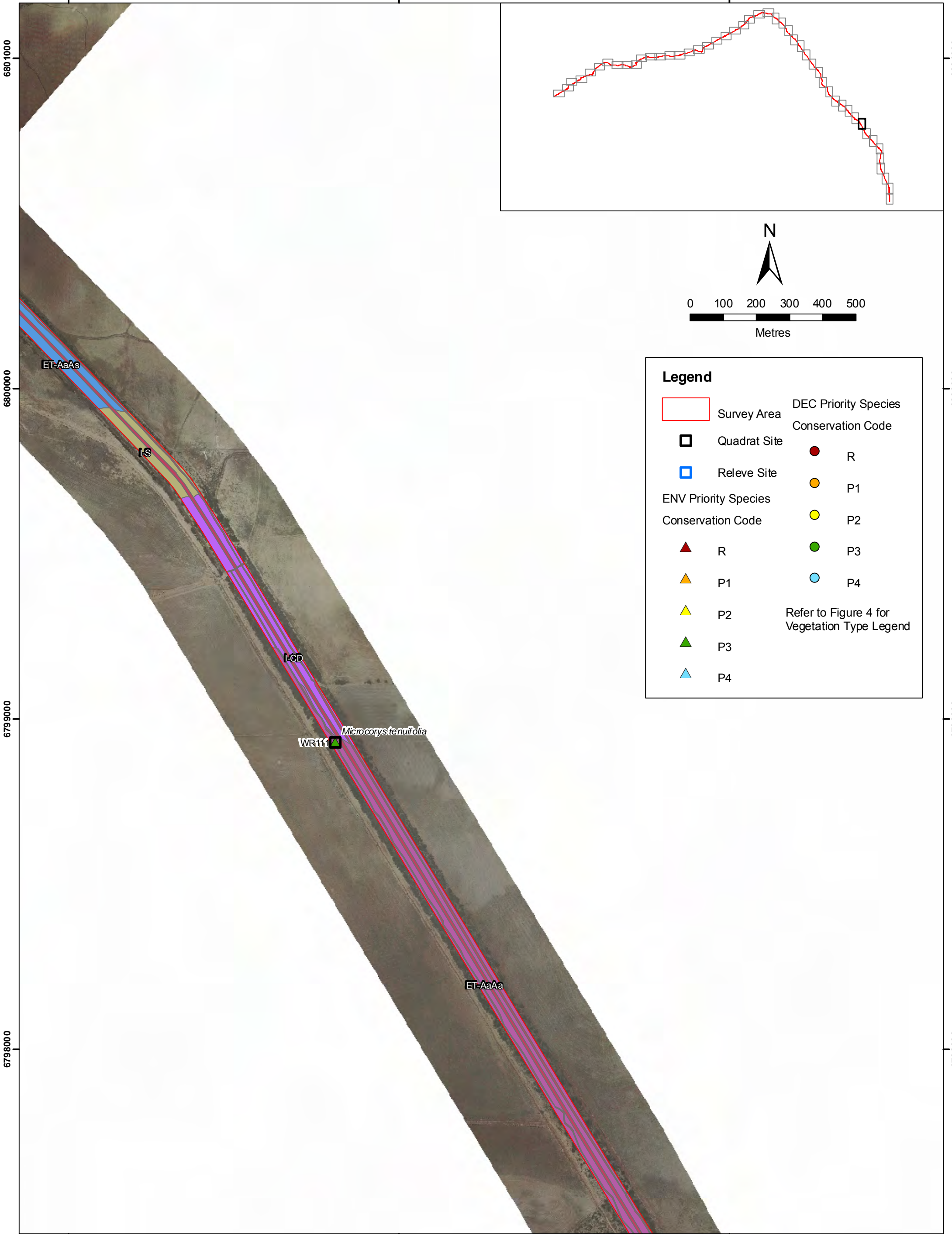
Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Releve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



CLIENT	390000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment FIGURE 4.39



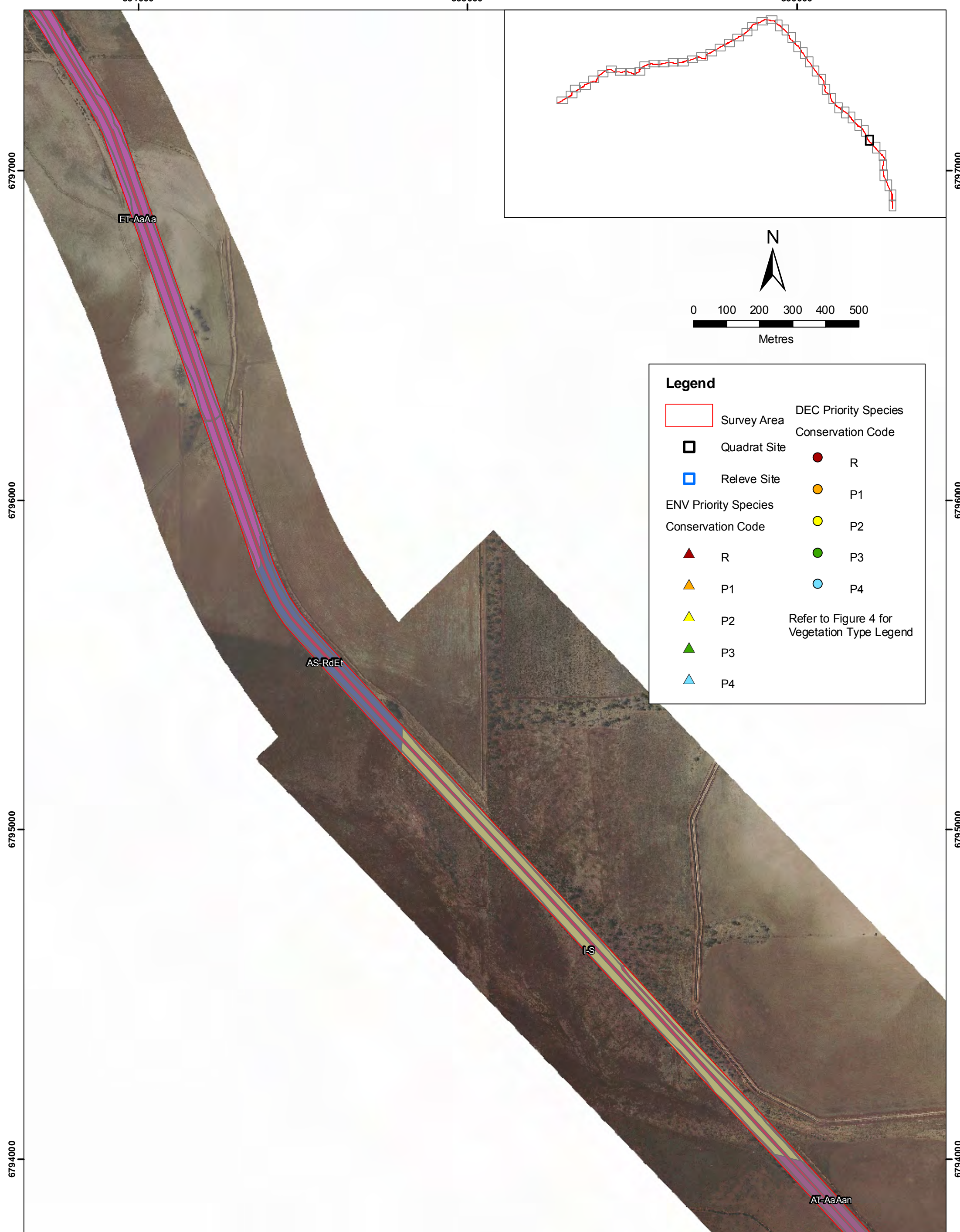
Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Relve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50
DRAWN S. Rho	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment FIGURE **4.40**



6797000
6796000
6795000
6794000

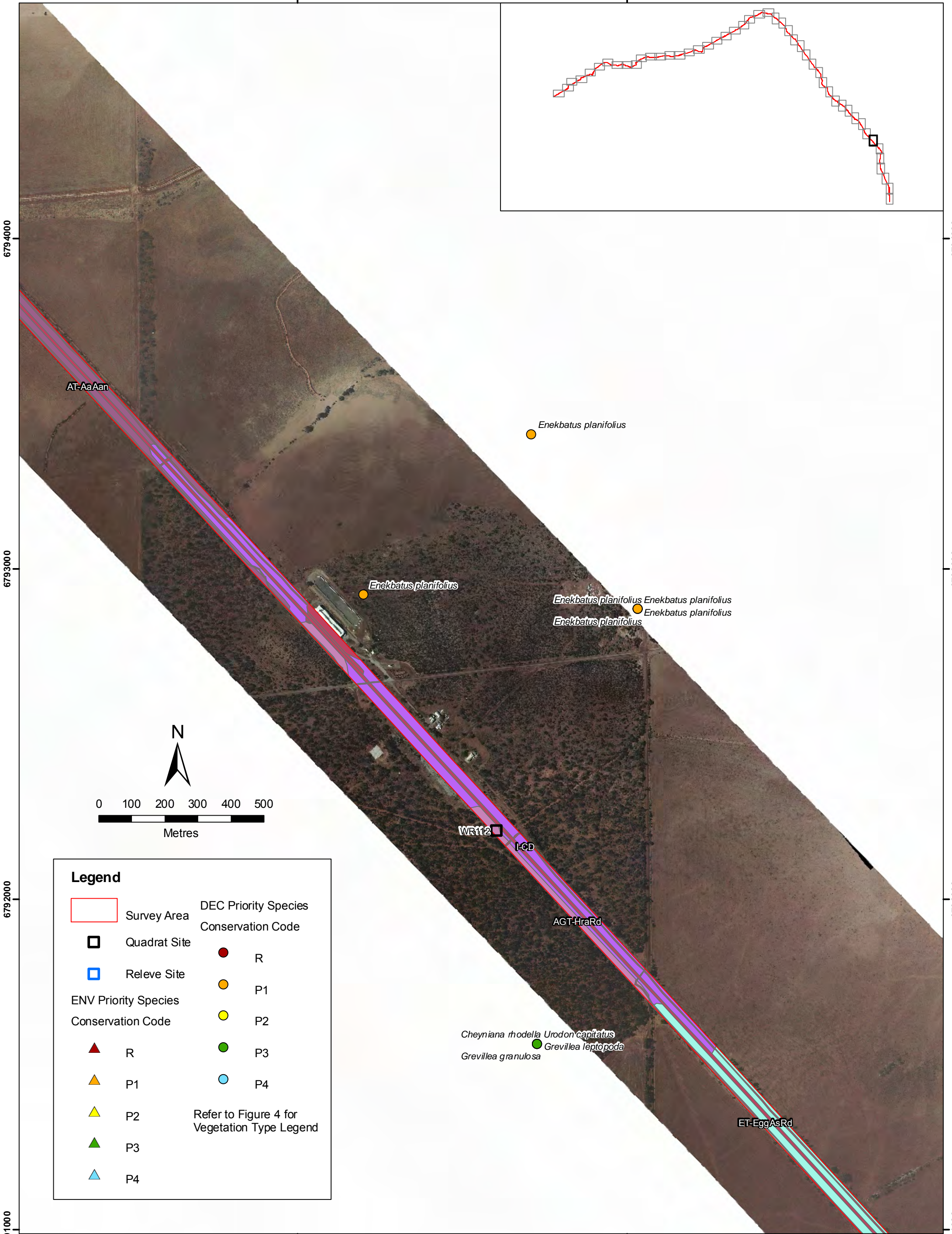
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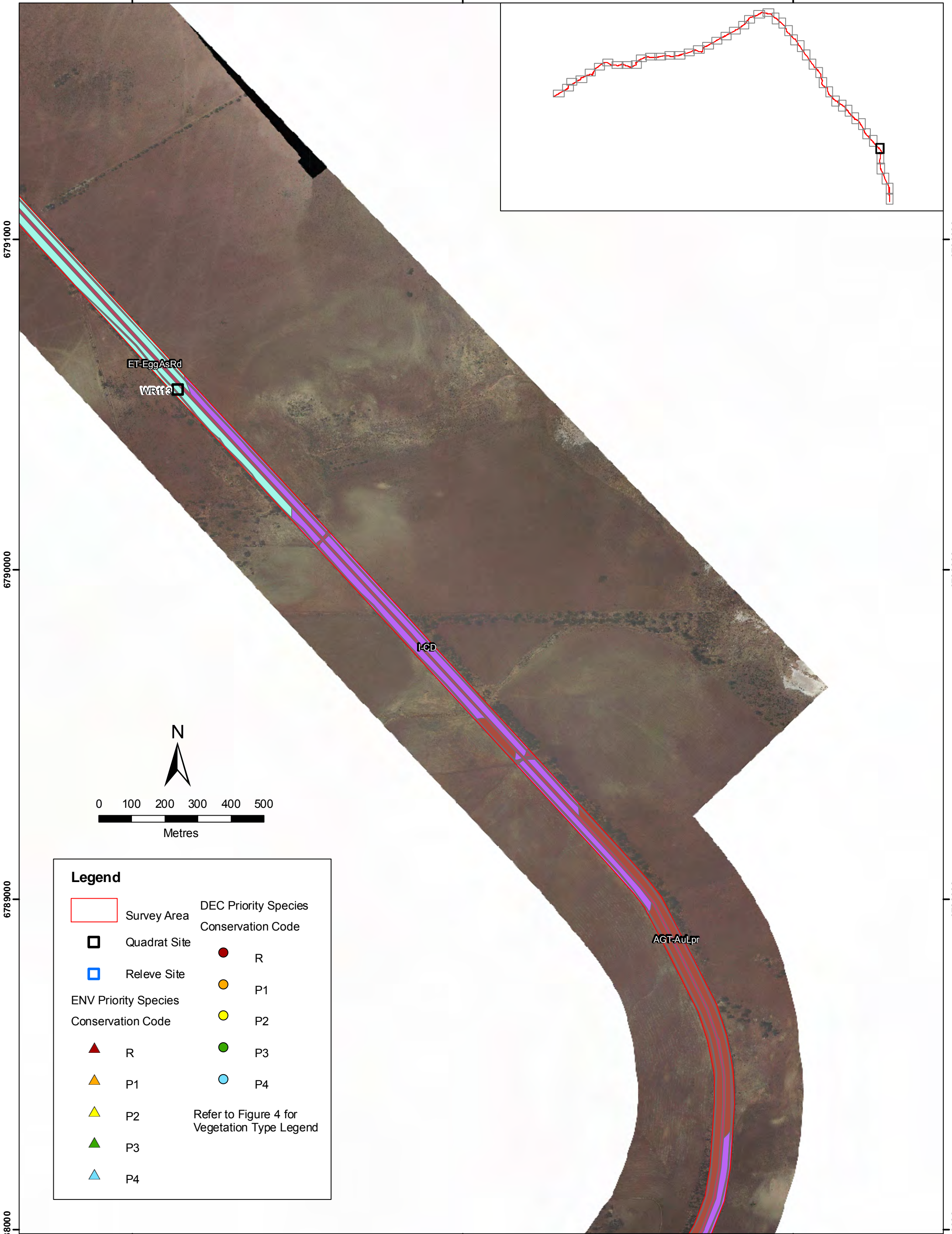
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6796000
6795000
6794000



CLIENT		JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment





6791000
6790000
6789000
6788000

399000
400000
401000

6791000
6790000
6789000
6788000

Legend

	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	

N

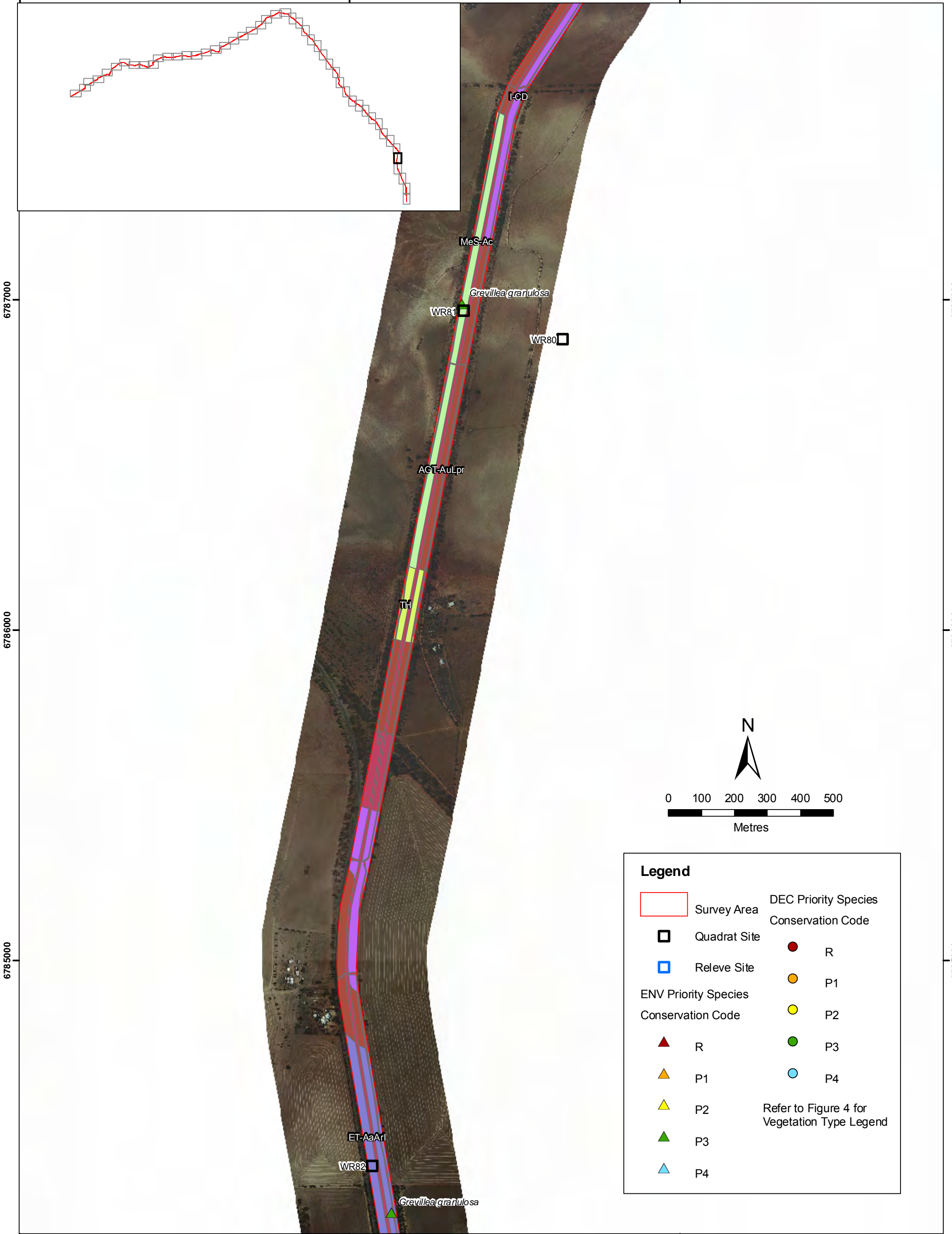
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Metres



COMPONENT		JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

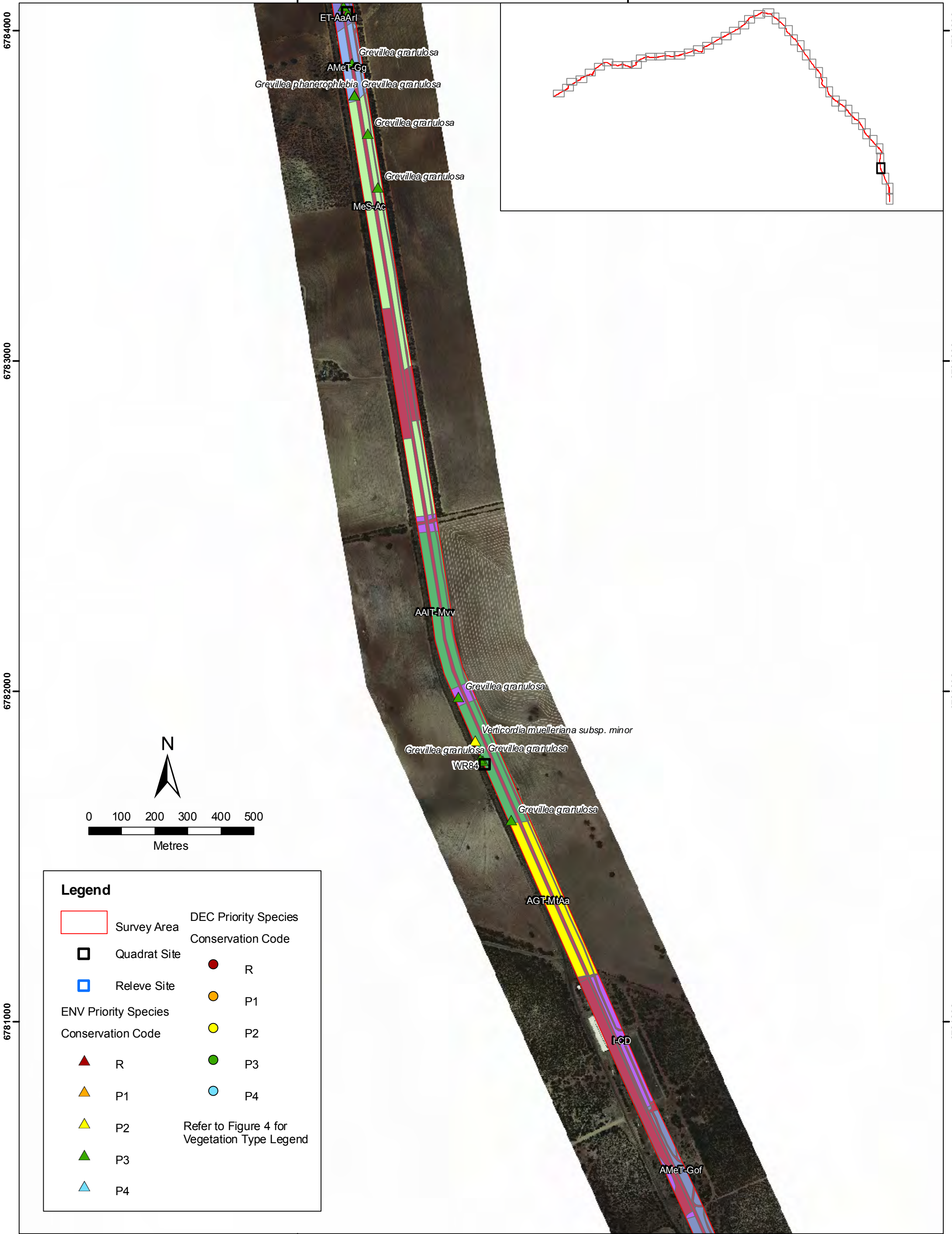
Vegetation Associations with Locations of Priority Flora and Quadrat Sites
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE 4.43



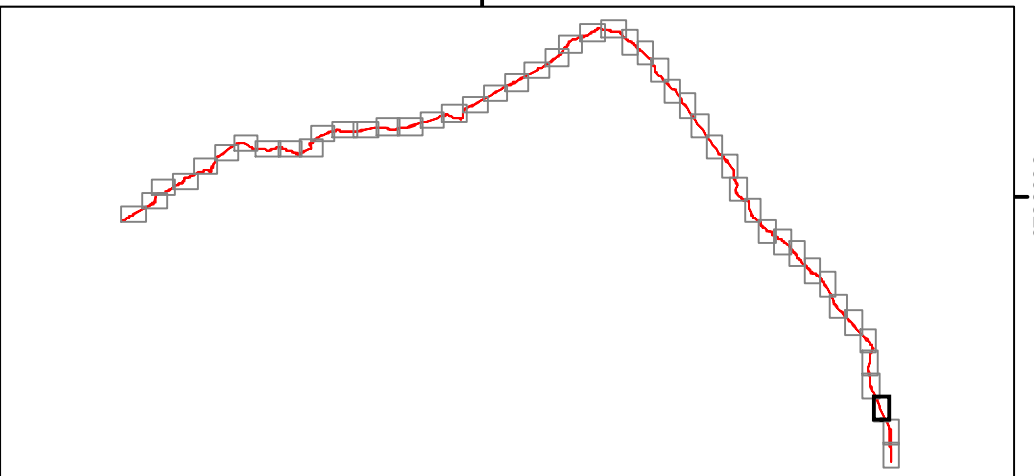
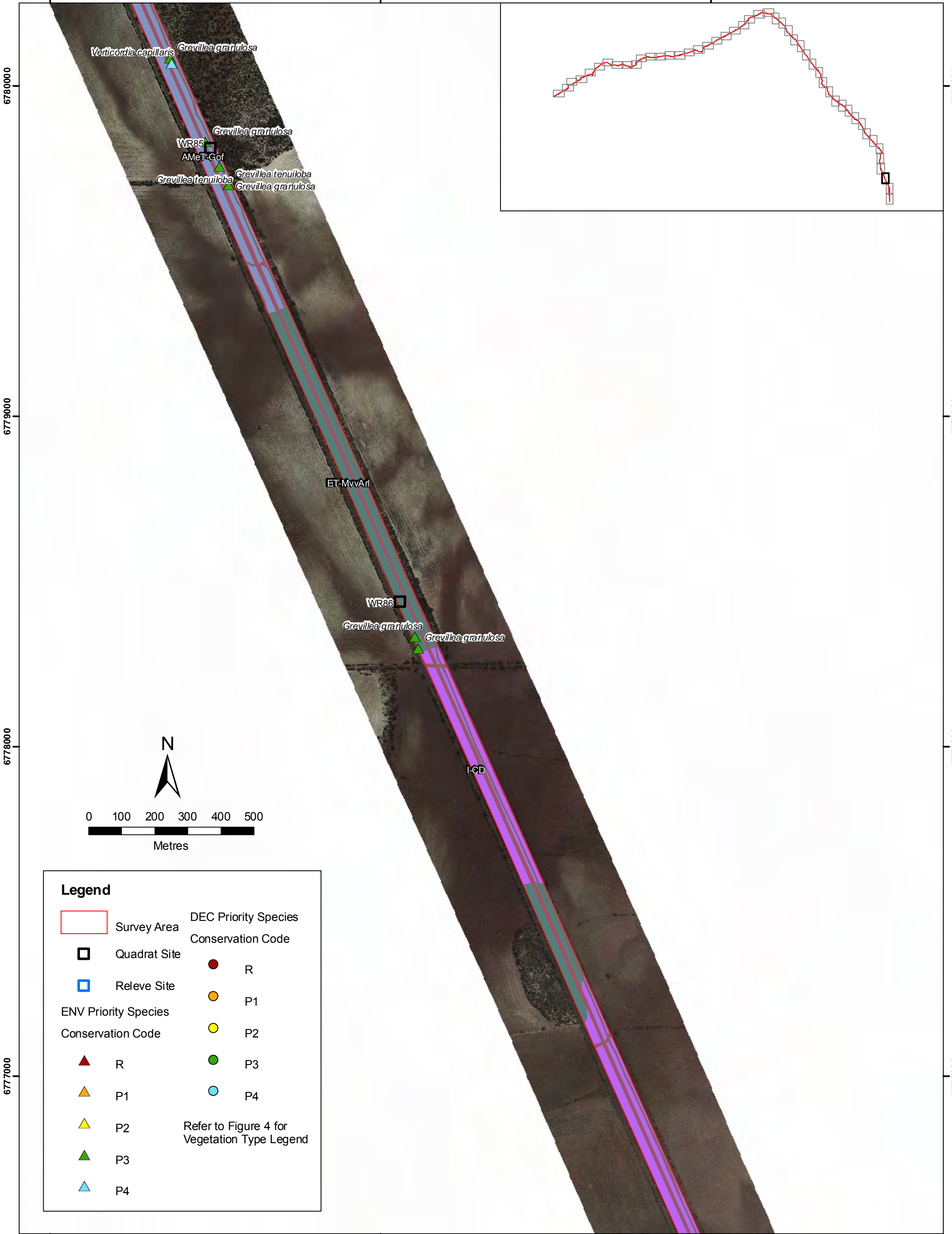
Legend

	Survey Area	DEC Priority Species Conservation Code
	Quadrat Site	R
	Releve Site	P1
ENV Priority Species Conservation Code		P2
	R	P3
	P1	P4
	P2	Refer to Figure 4 for Vegetation Type Legend
	P3	
	P4	



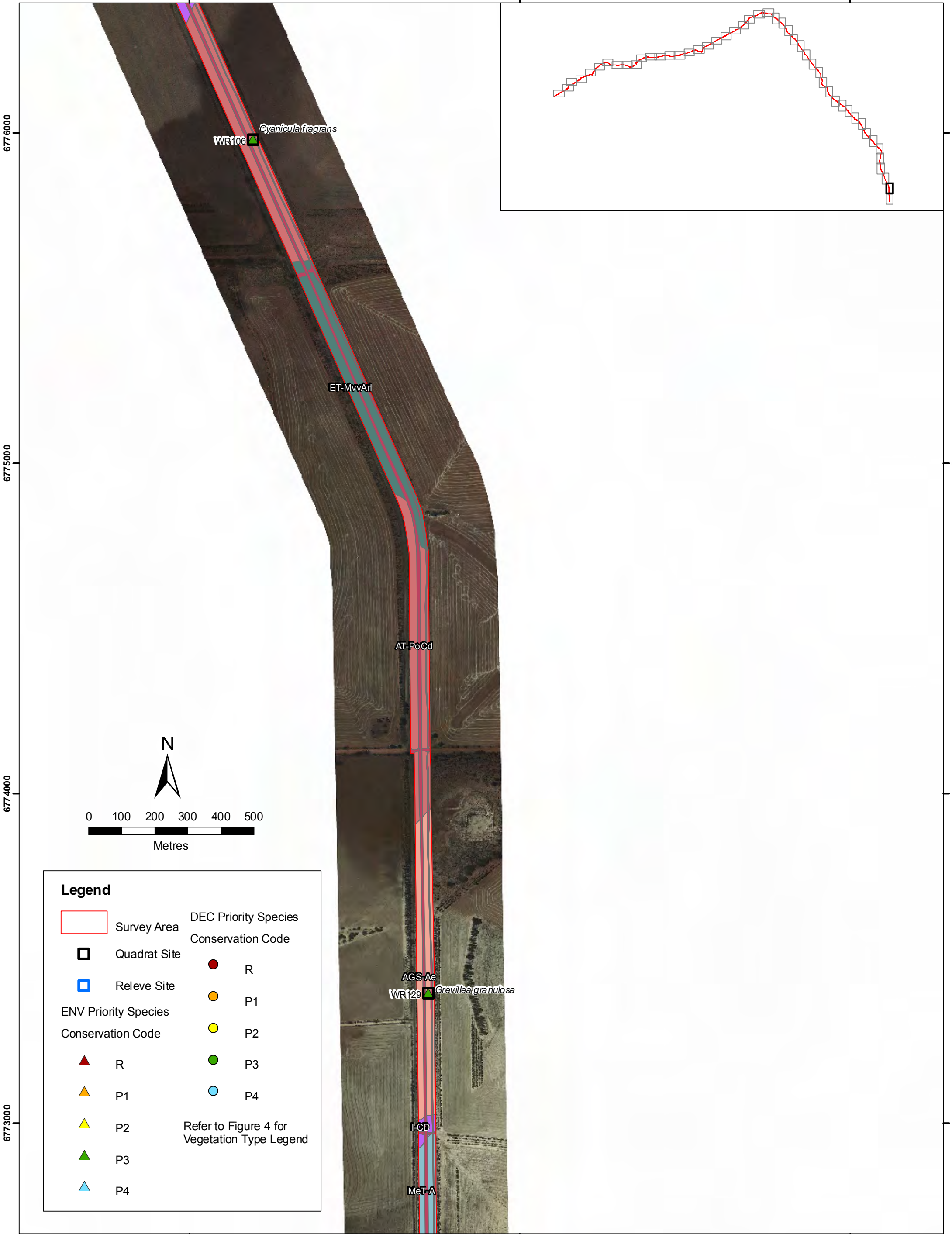
CLIENT	400000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



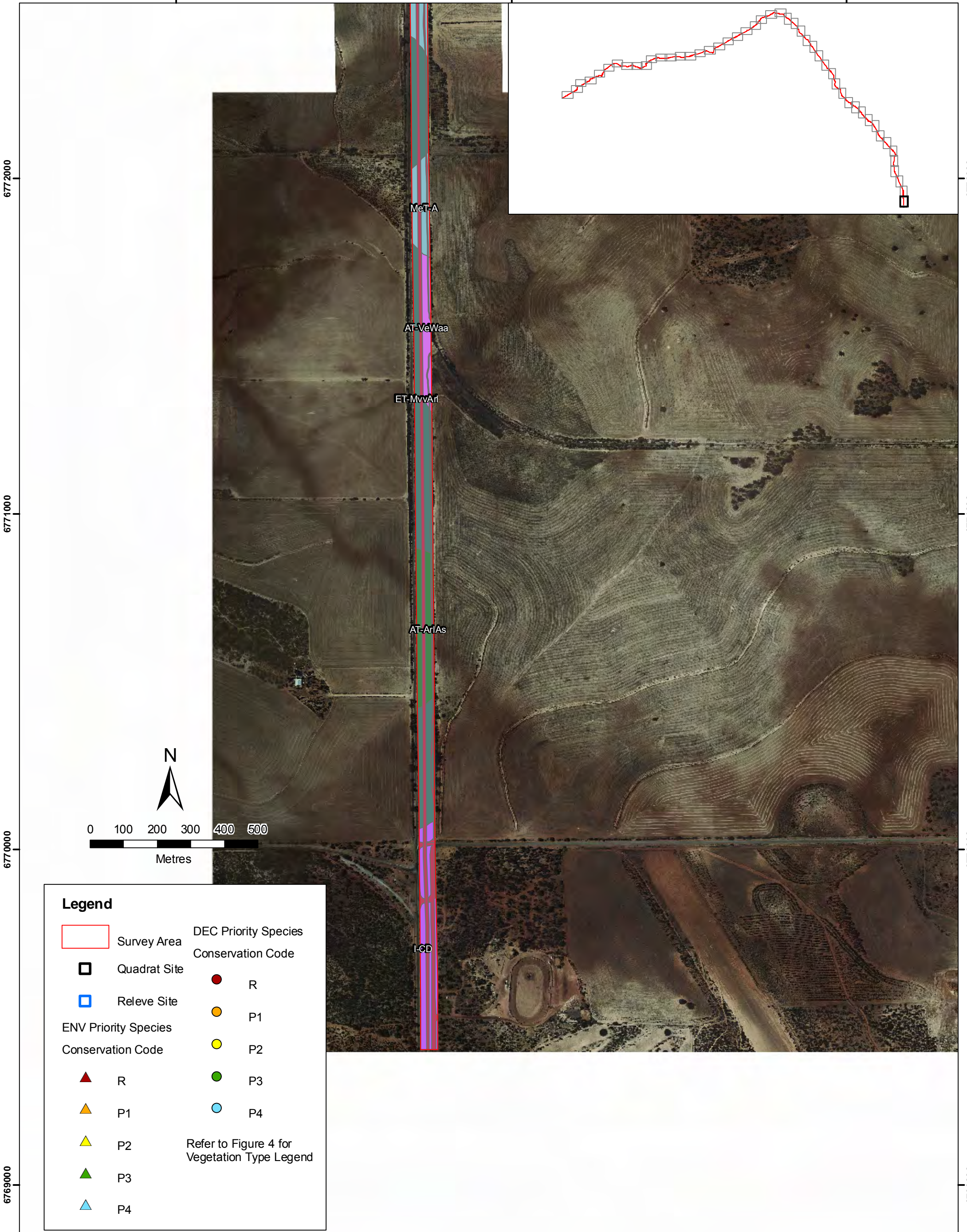
Legend

 Survey Area	DEC Priority Species Conservation Code
 Quadrat Site	● R
 Releve Site	● P1
ENV Priority Species Conservation Code	● P2
▲ R	● P3
▲ P1	● P4
▲ P2	Refer to Figure 4 for Vegetation Type Legend
▲ P3	
▲ P4	



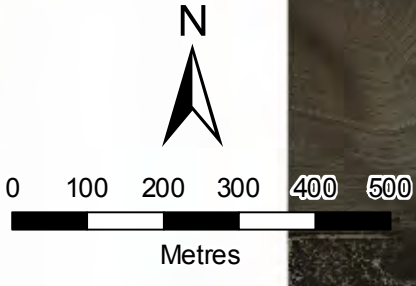
CLIENT	403000	JOB NO.	
	Strategen		10.159
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

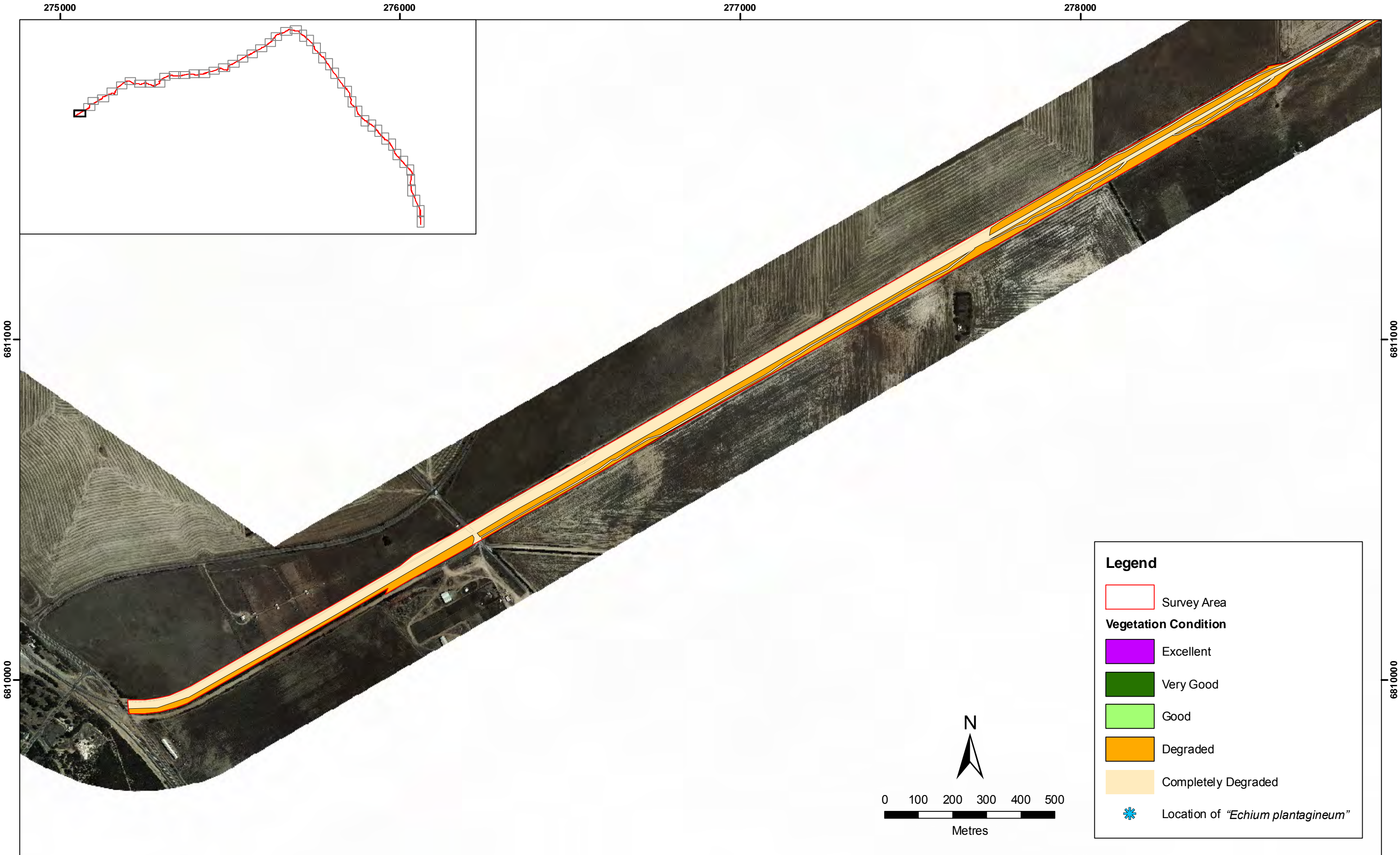
- Survey Area
 - Quadrat Site
 - Relieve Site
 - ENV Priority Species Conservation Code
 - ▲ R
 - ▲ P1
 - ▲ P2
 - ▲ P3
 - ▲ P4
 - DEC Priority Species Conservation Code
 - R
 - P1
 - P2
 - P3
 - P4
- Refer to Figure 4 for Vegetation Type Legend



CLIENT#03000
 Strategen
 AUTHOR: L. Trotter
 SCALE: 1:10,000 @ A3

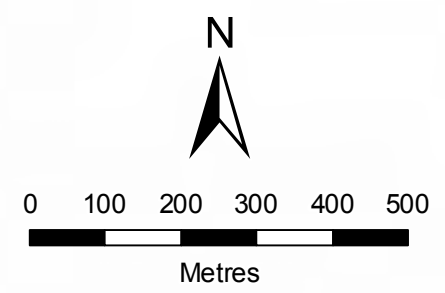
JOB NO. 10.159
 DATE: 14-12-2010
 DRAWN: S. Rho
 PROJECTION: GDA 94 MGA 50

Vegetation Associations with Locations of Priority Flora and Quadrat Sites
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT Strategen	JOB NO. 276000
AUTHOR: L. Trotter	10.159
DRAWN S. Rho	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

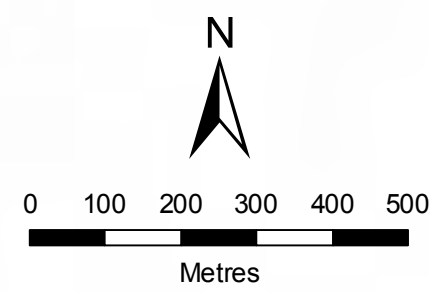
Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.01**



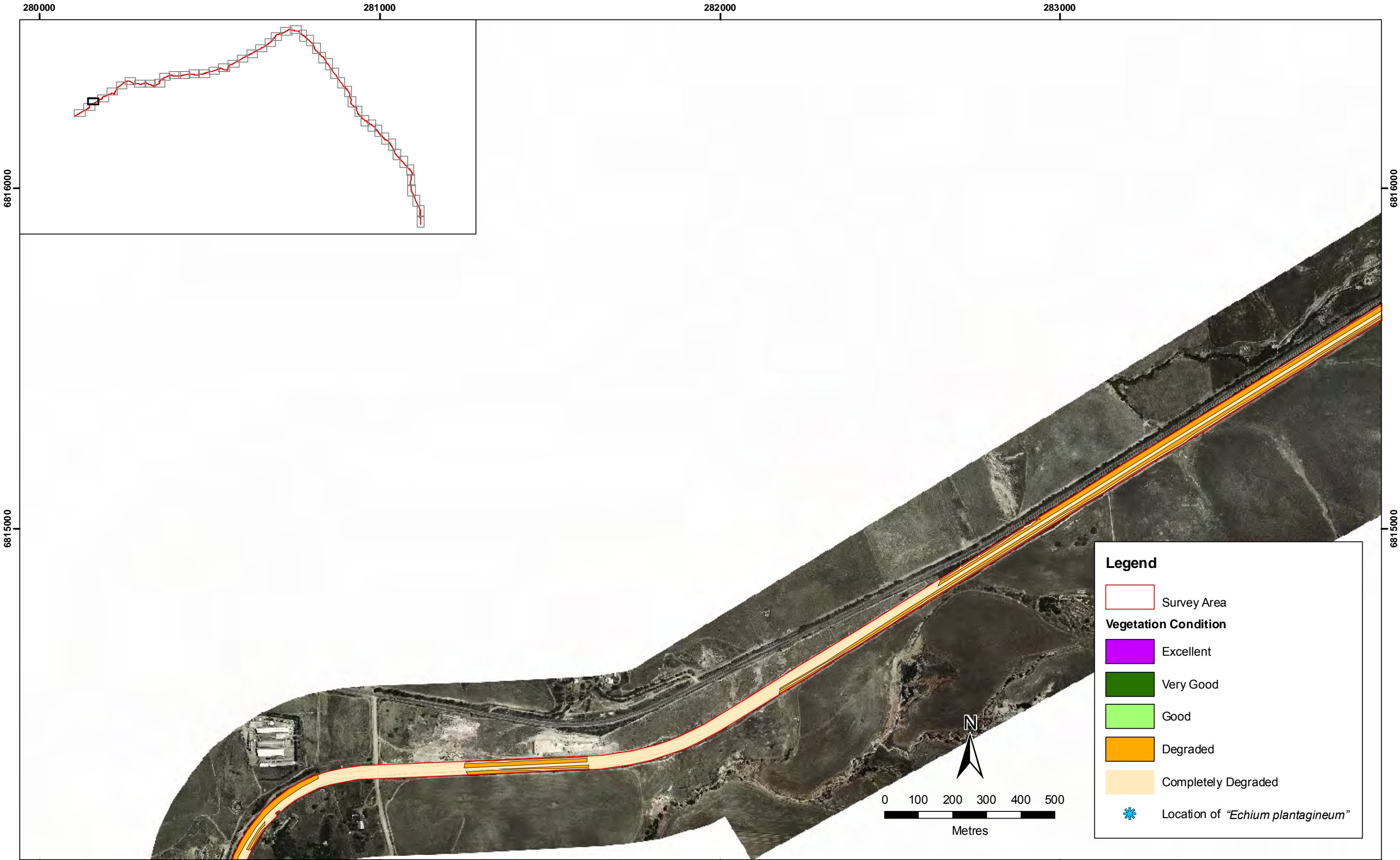
Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"




CLIENT	279000	JOB NO.	280000
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.02**



Legend

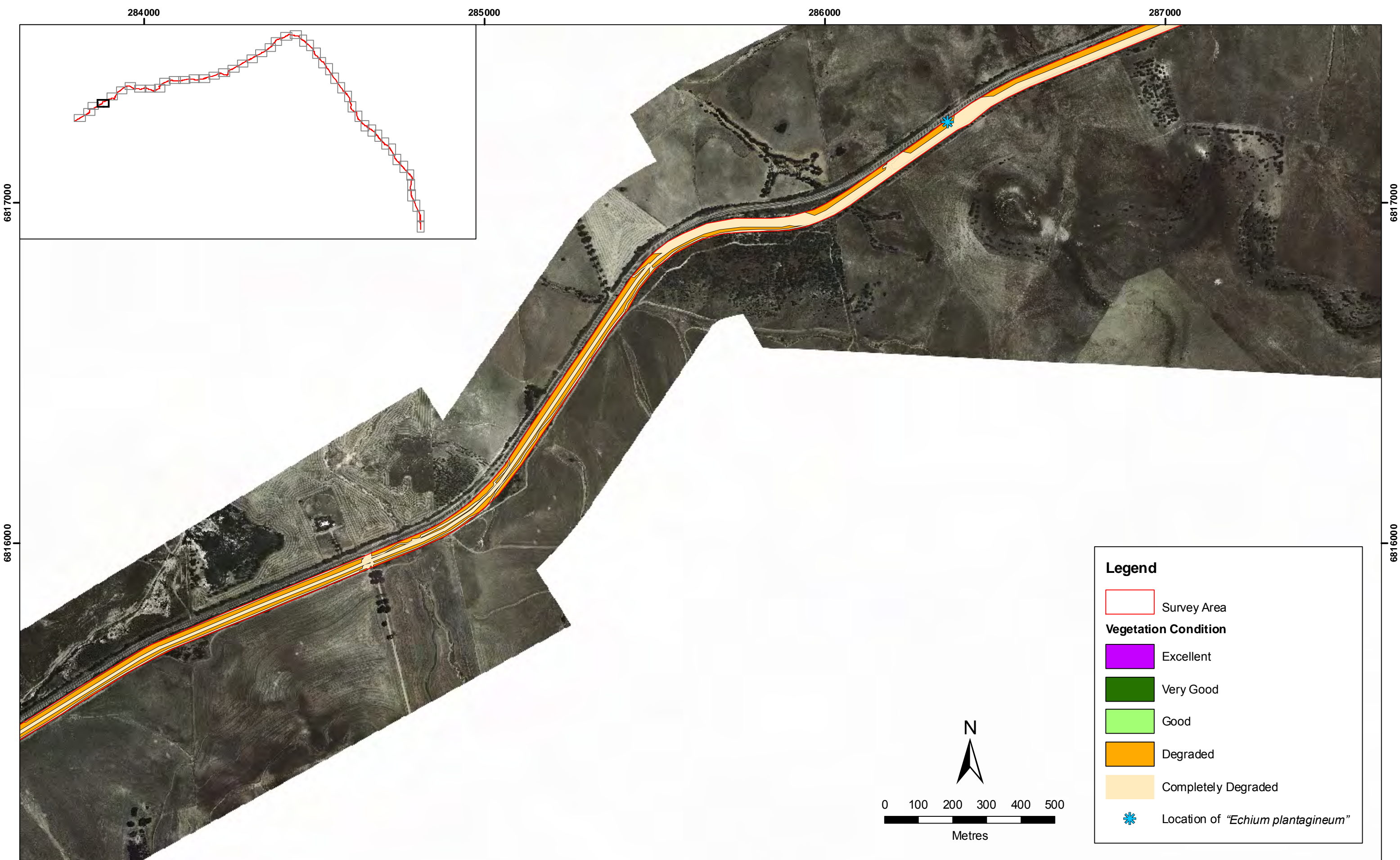
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

	CLIENT	JOB NUMBER
	Strategen	10.159
	AUTHOR:	DATE
	L. Trotter	14-12-2010
	SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

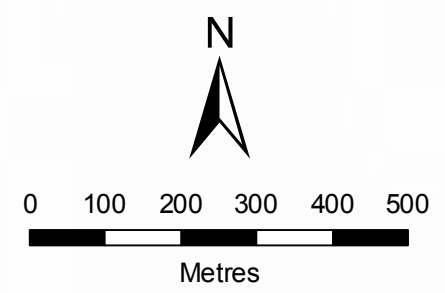
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment

FIGURE **5.03**



Legend

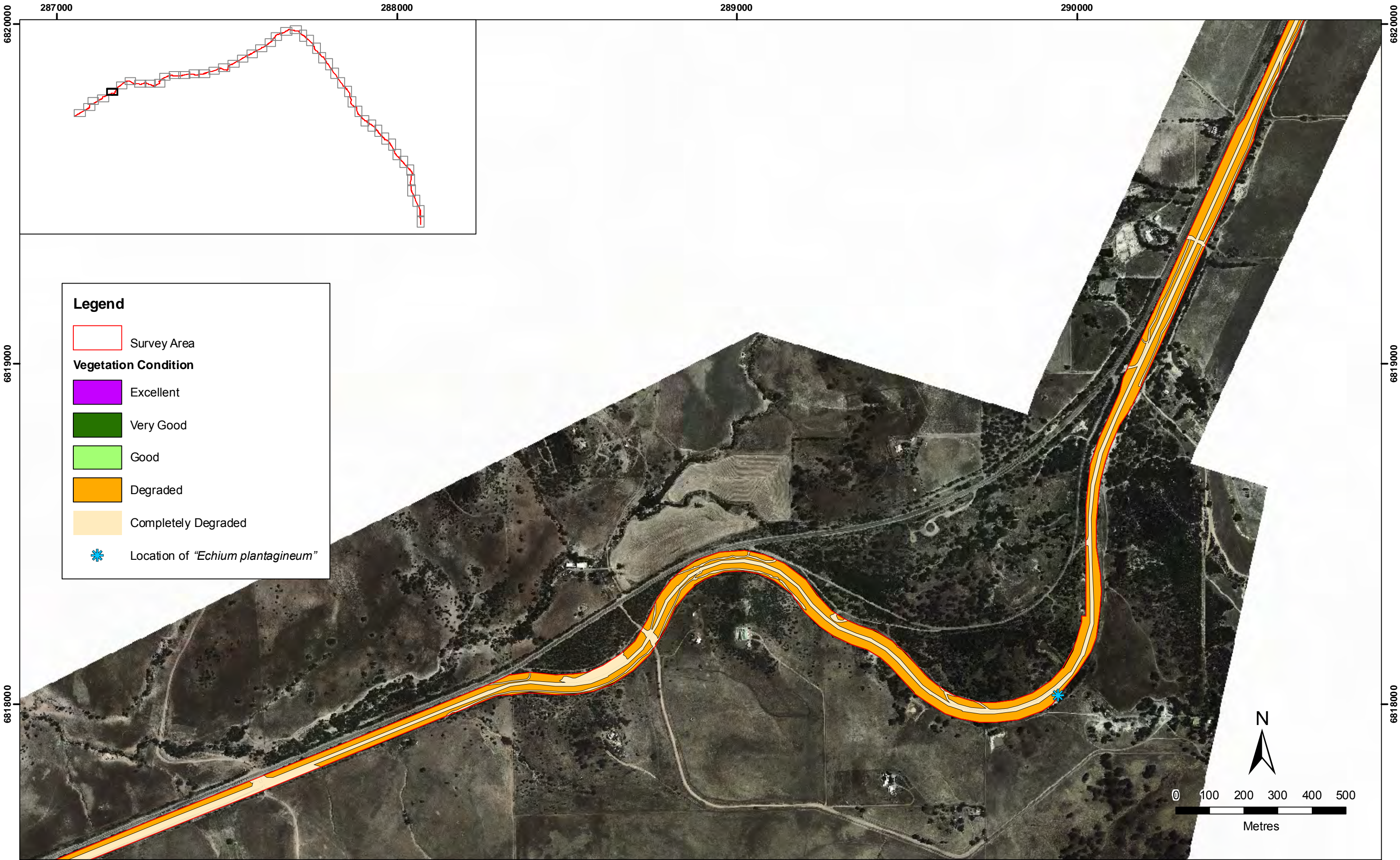
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT		JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

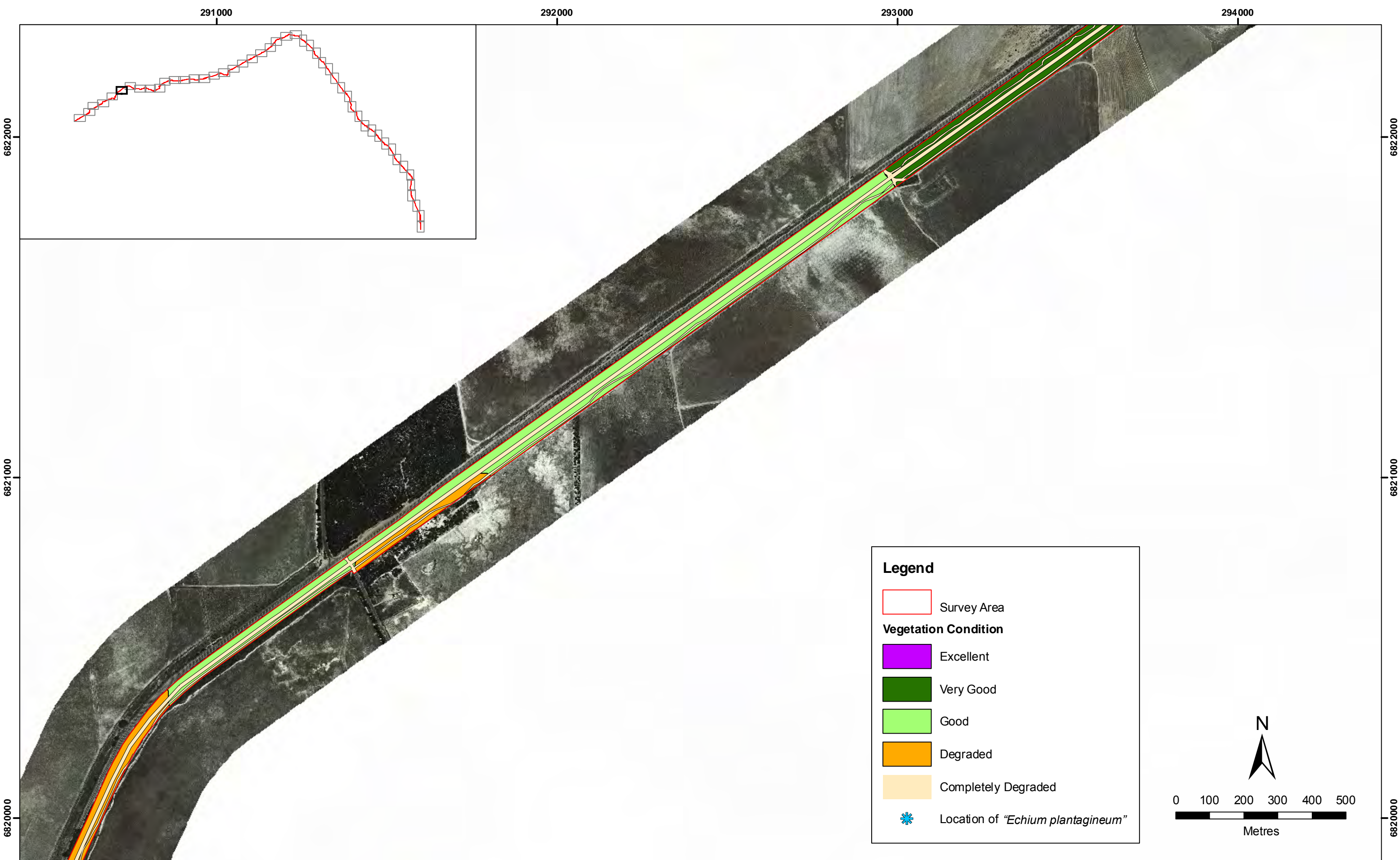
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.04**



CLIENT	Strategen	JOB NO. 288000
AUTHOR:	L. Trotter	10.159
DRAWN	S. Rho	DATE
		14-12-2010
SCALE	1:10,000 @ A3	PROJECTION
		GDA 94 MGA 50

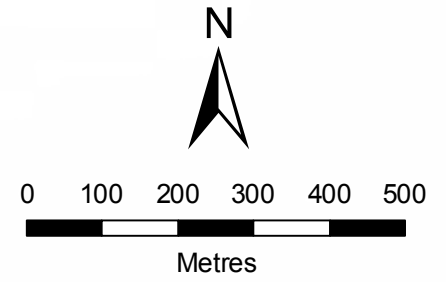
Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"



CLIENT	291000	JOB NO.	292000
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

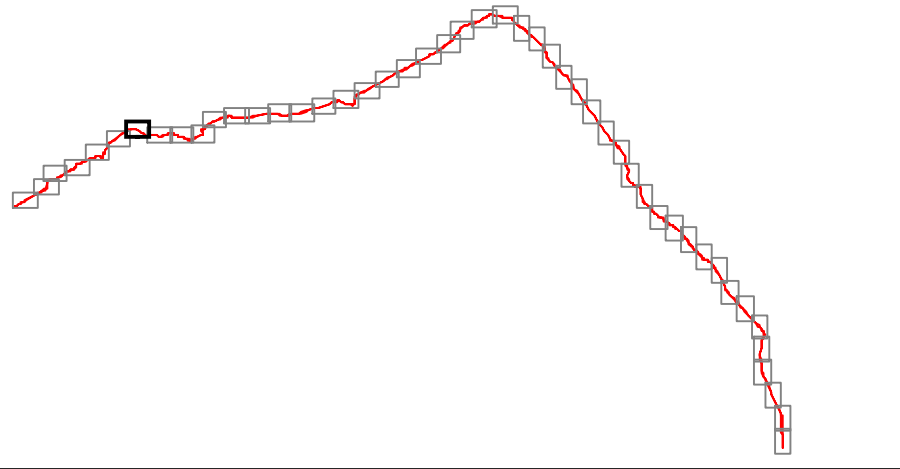
Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.06**

294000

295000

296000

297000

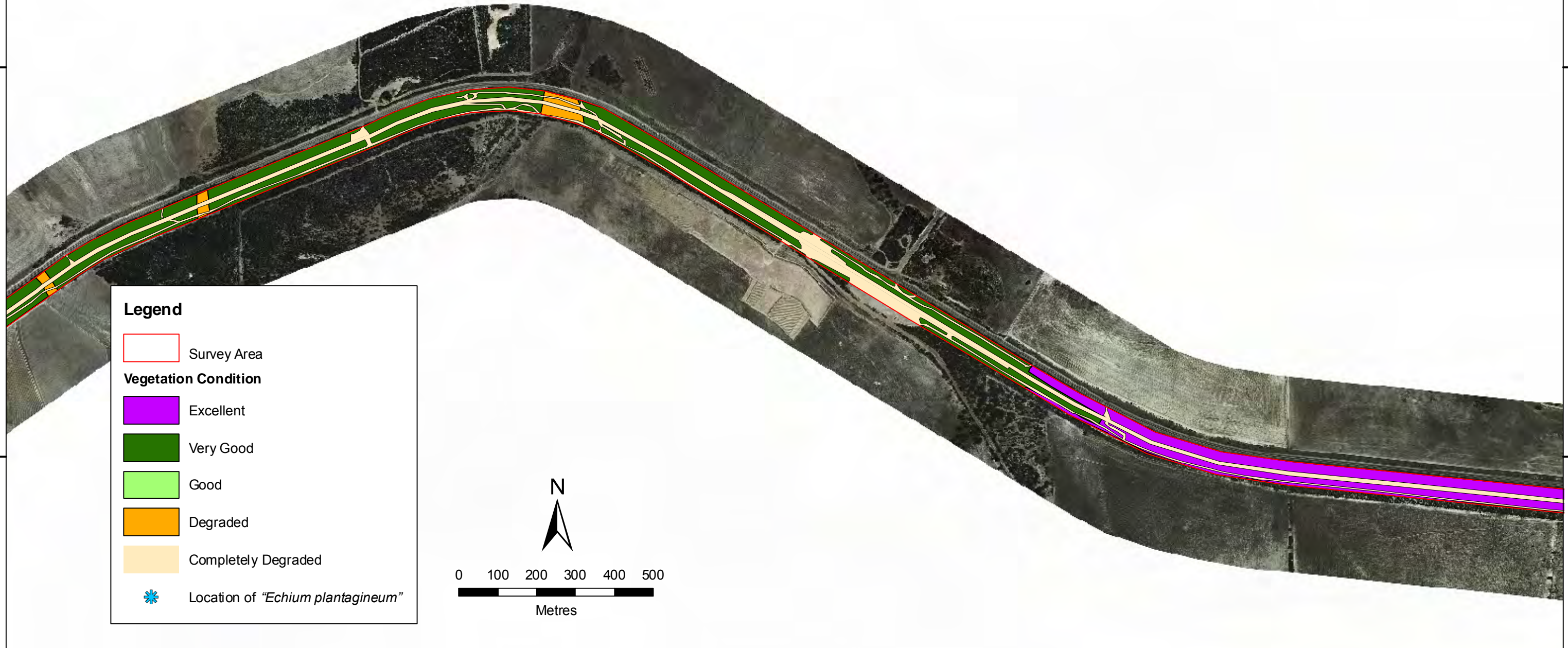


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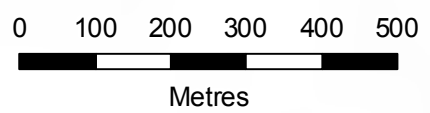
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Legend

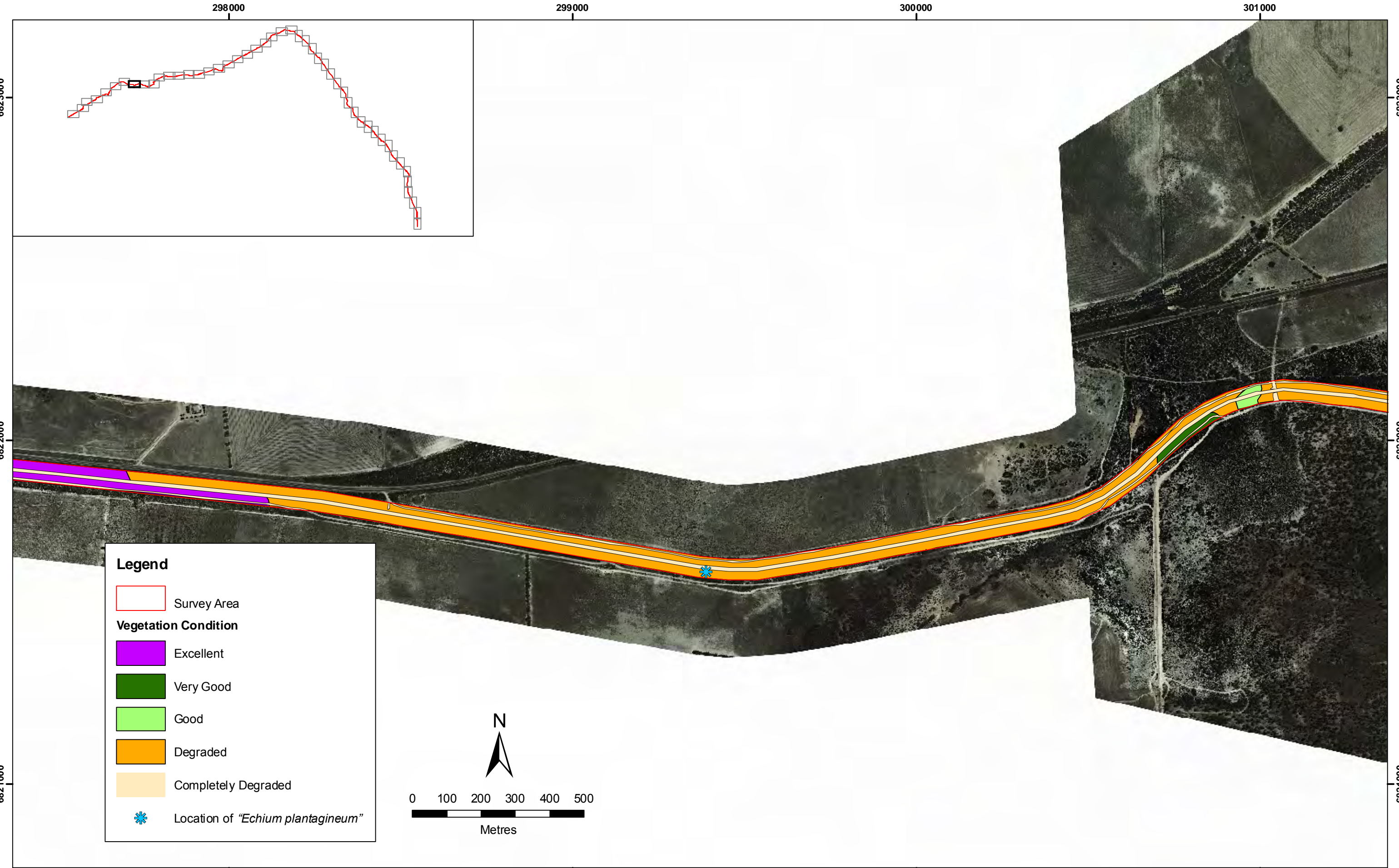
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	JOB NO.
Strategen	10.159
AUTHOR:	DATE
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"

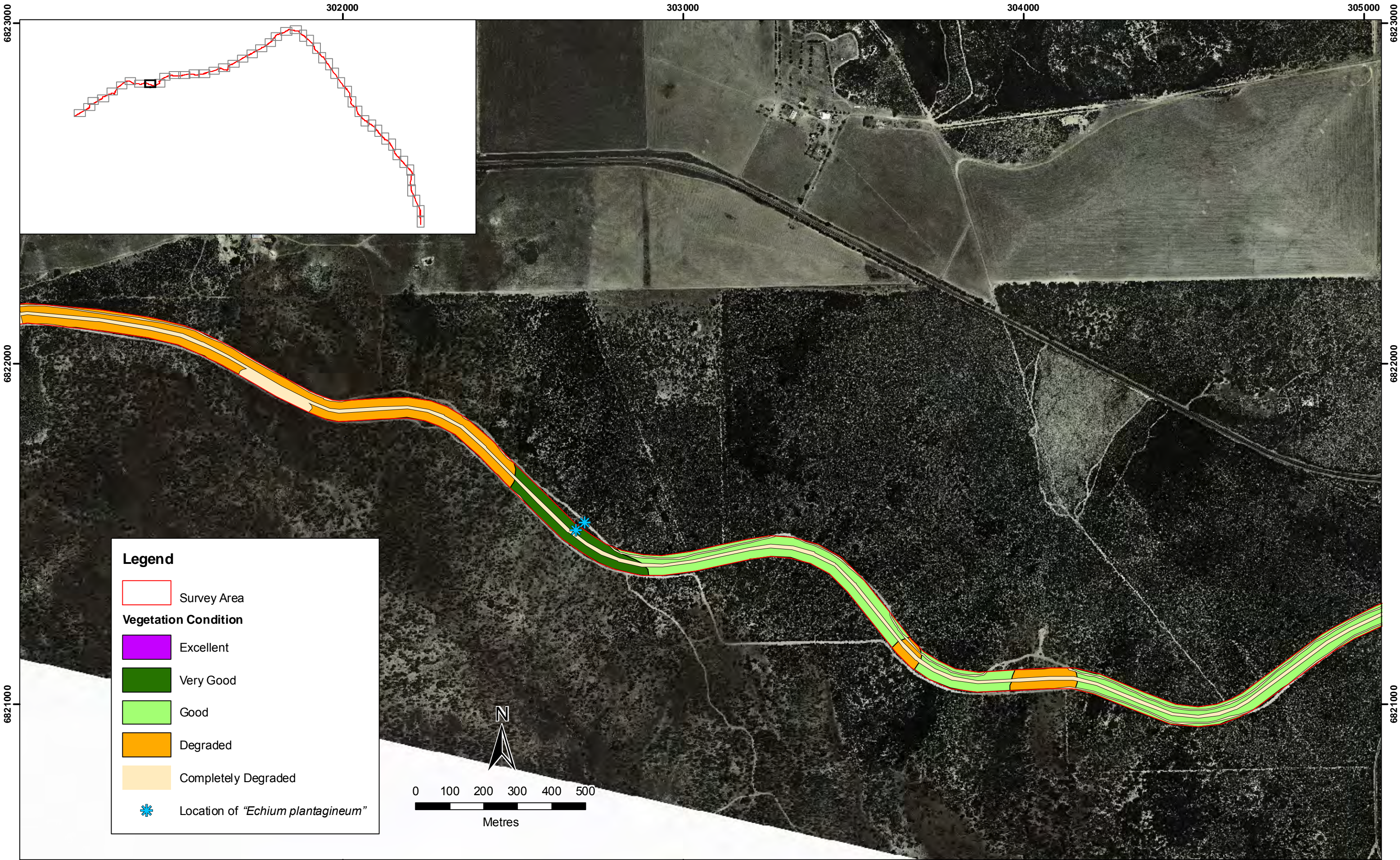
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



CLIENT	298000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



CLIENT	NO.
Strategen	10.159
AUTHOR:	DRAWN
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



305000	306000	307000	308000
JOB NO. 10.159		DATE 14-12-2010	
AUTHOR: Strategen		DRAWN: S. Rho	
L. Trotter		S. Rho	
SCALE 1:10,000 @ A3		PROJECTION GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.10**



CLIENT	JOB NO.
Strategen	10.159
AUTHOR:	DRAWN
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50
DATE	
14-12-2010	

Vegetation Condition and Locations of "*Echium plantagineum*"

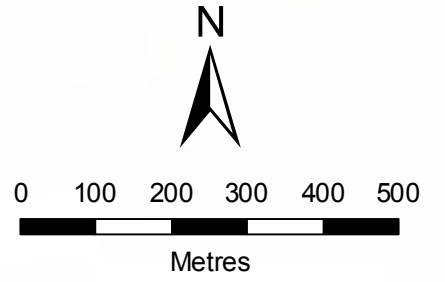
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment

FIGURE **5.11**



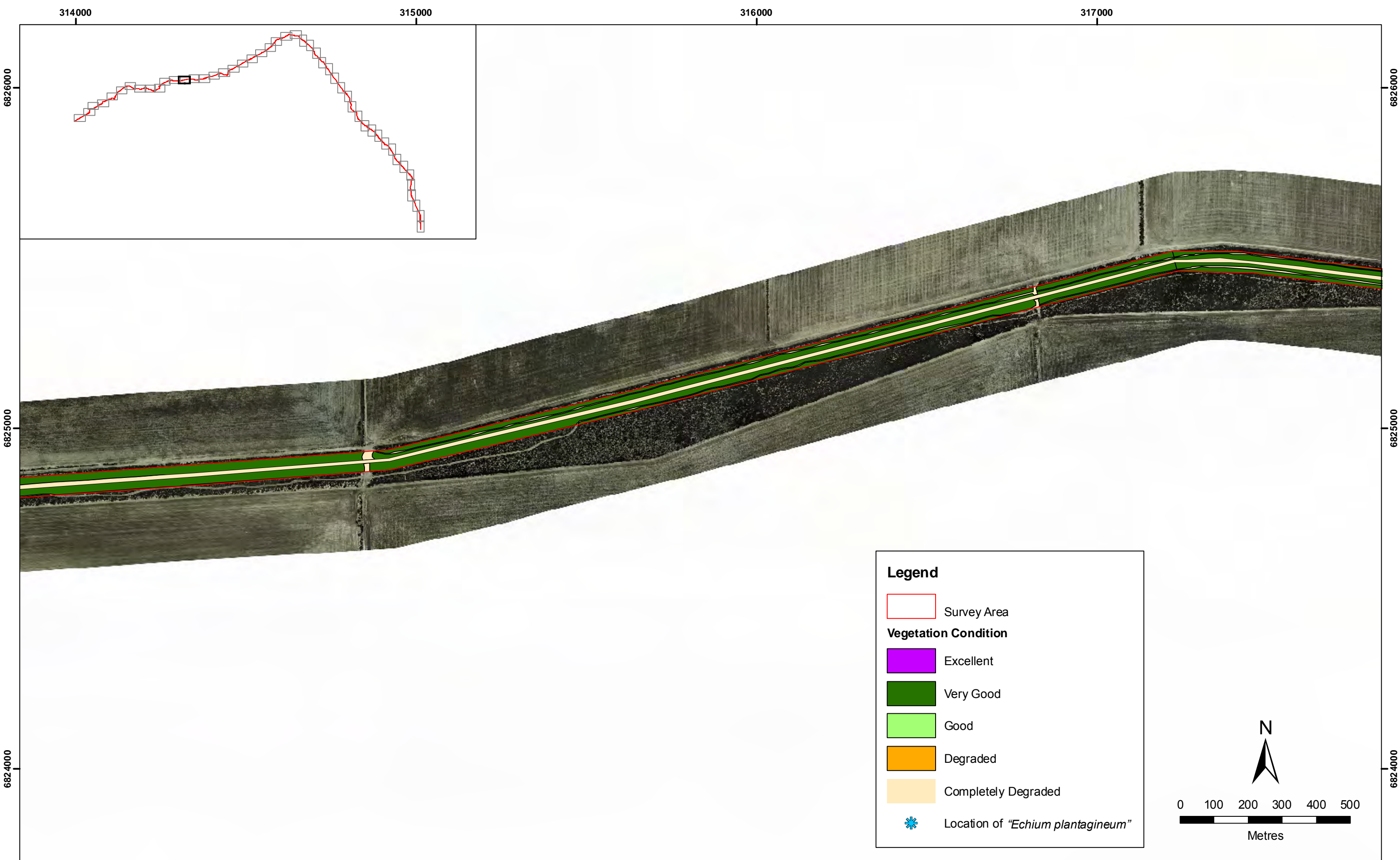
Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	311000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.12**



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment

318000

319000

320000

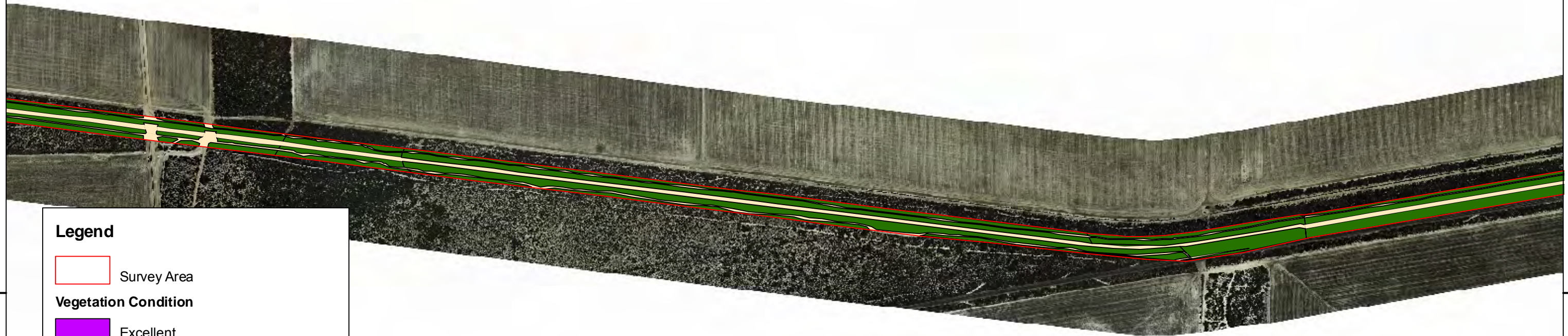
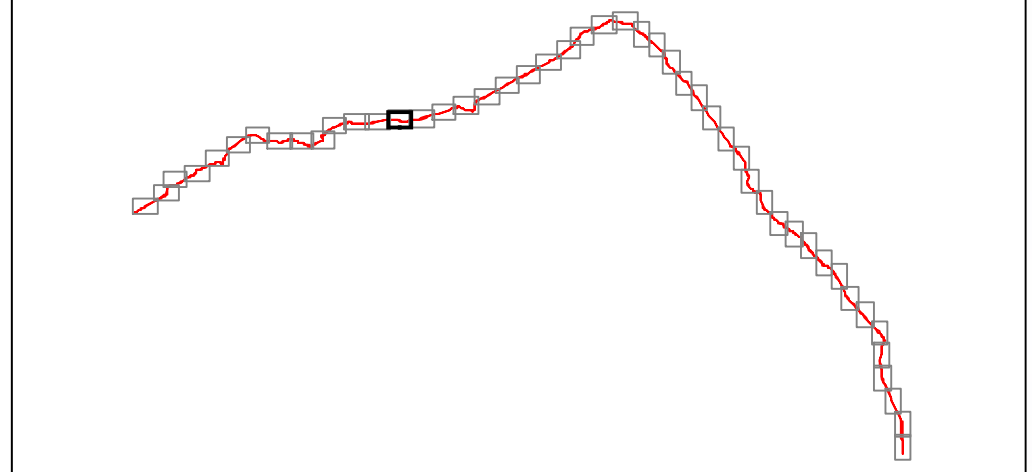
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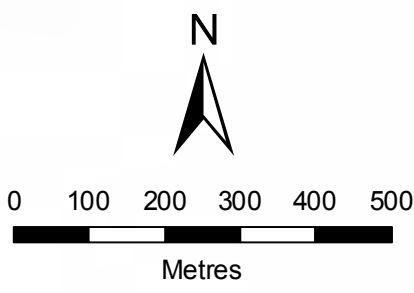
6825000

6825000



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT		JOB NO.	
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

319000

320000

321000

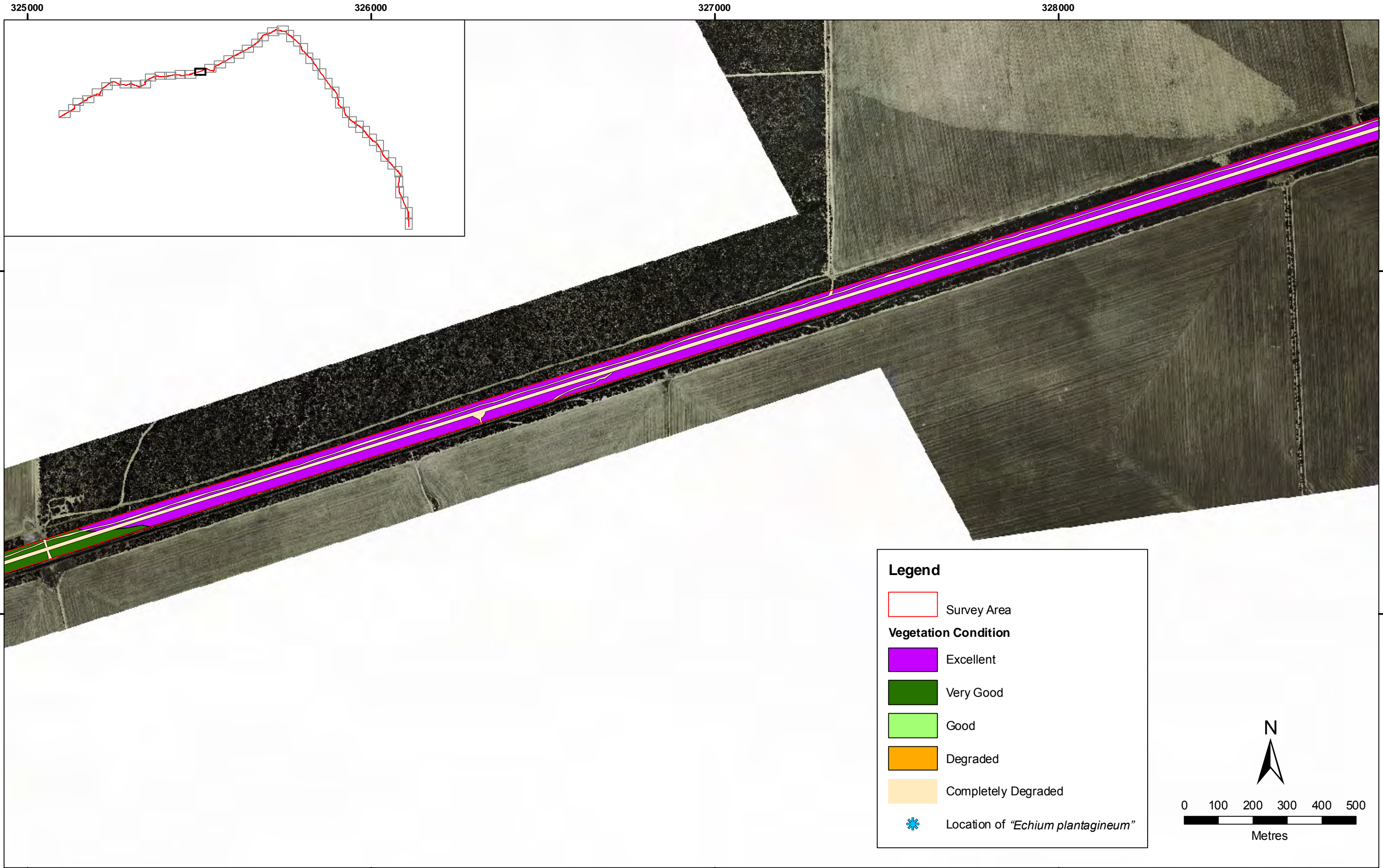
Vegetation Condition and Locations of "*Echium plantagineum*"

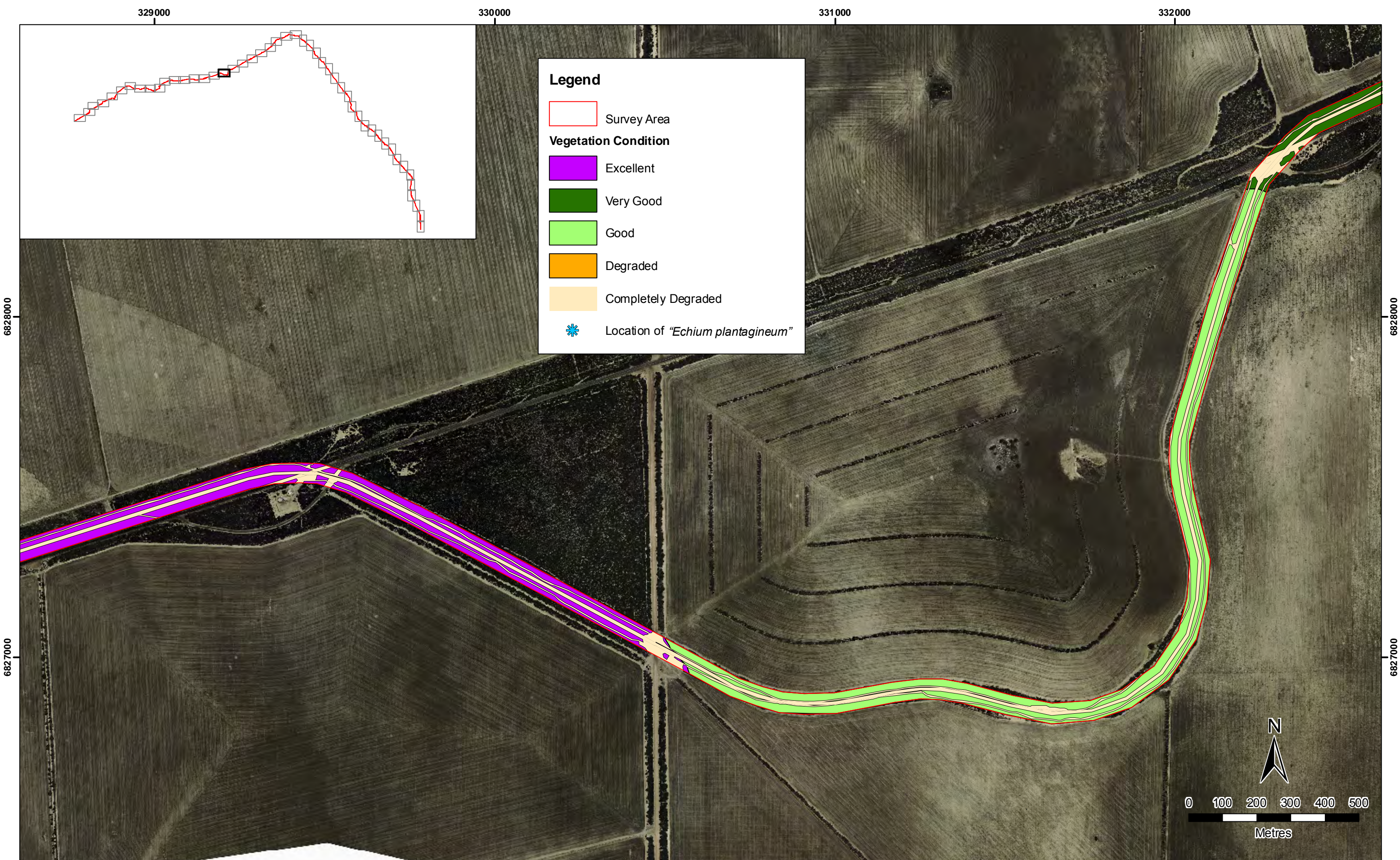
WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



CLIENT	322000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.15**



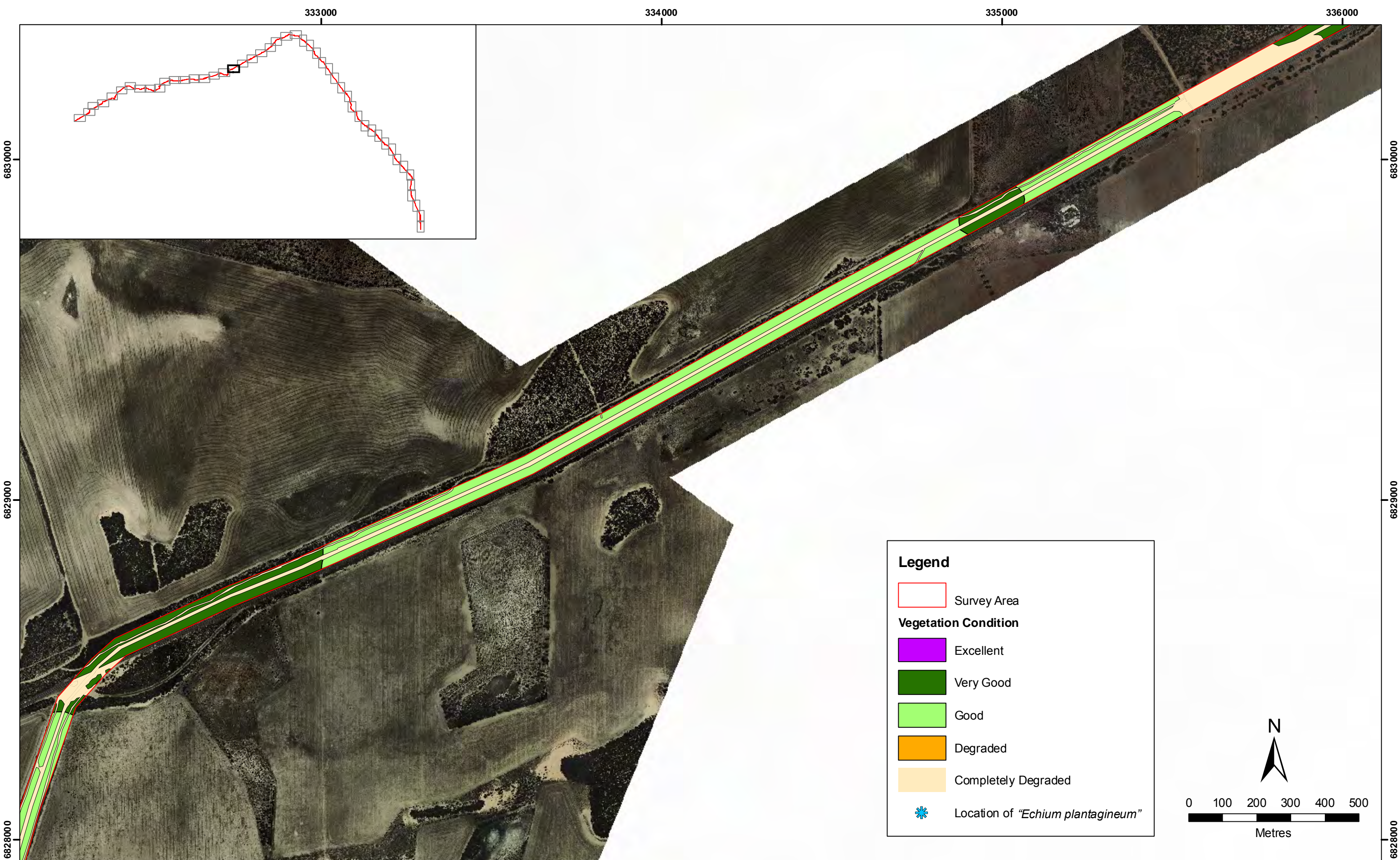


CREATED	JOB NO.
Strategen	10.159
AUTHOR:	DRAWN
L. Trotter	S. Rho
SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50
	DATE
	14-12-2010

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment

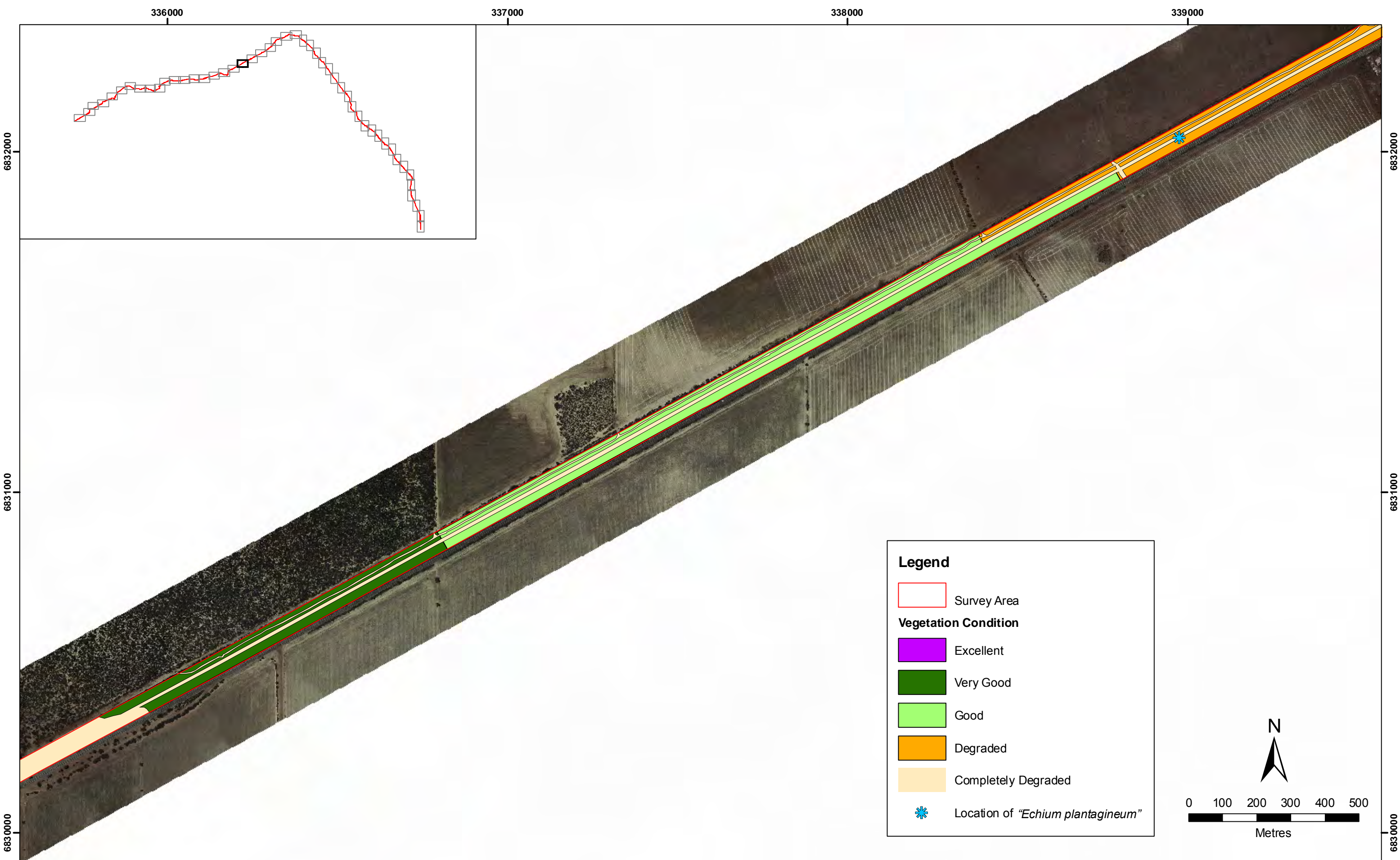
FIGURE **5.17**



CLIENT	333000/OJB NO.	
Strategen	10.159	
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

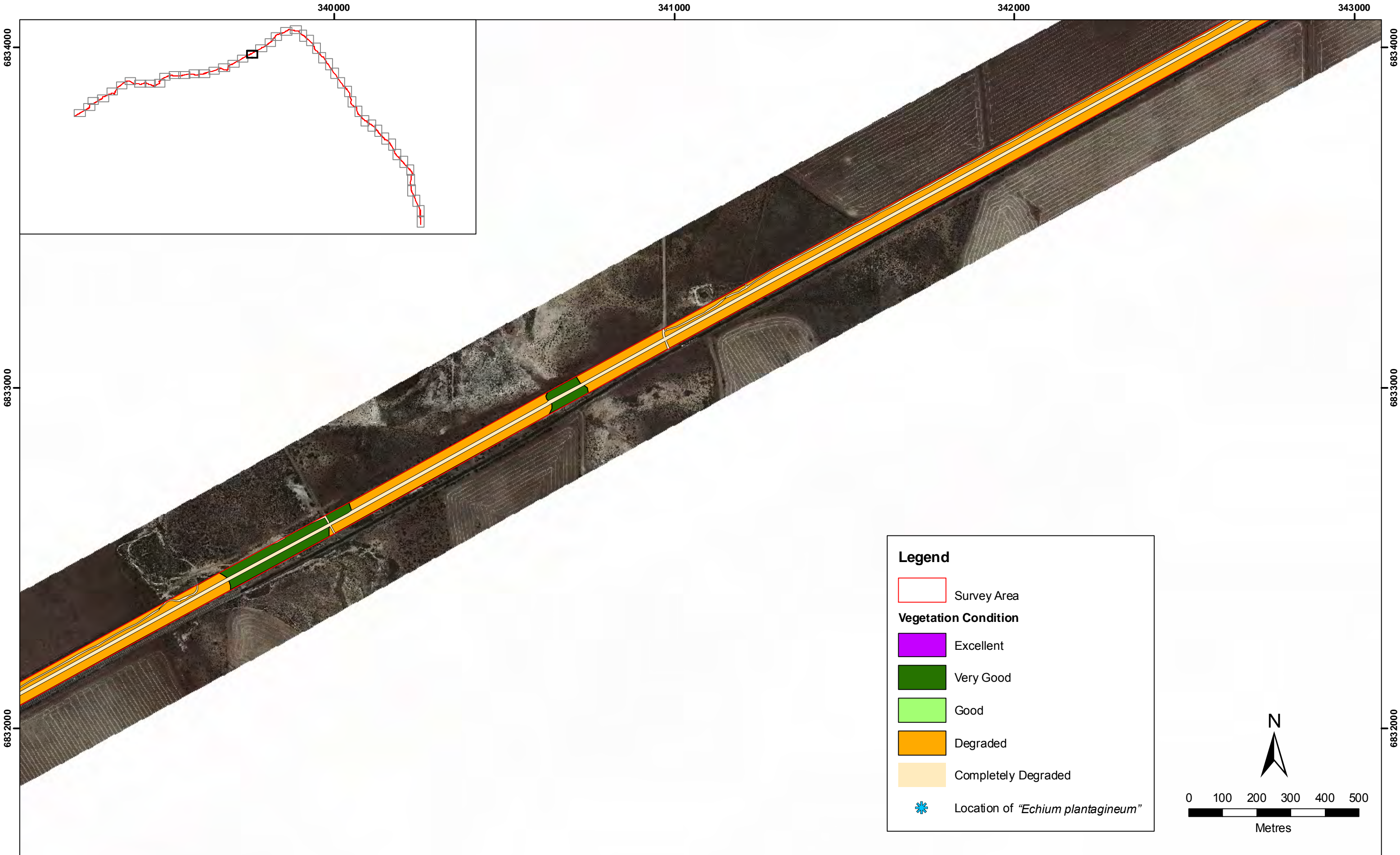
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Metres



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
PROJECTION	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

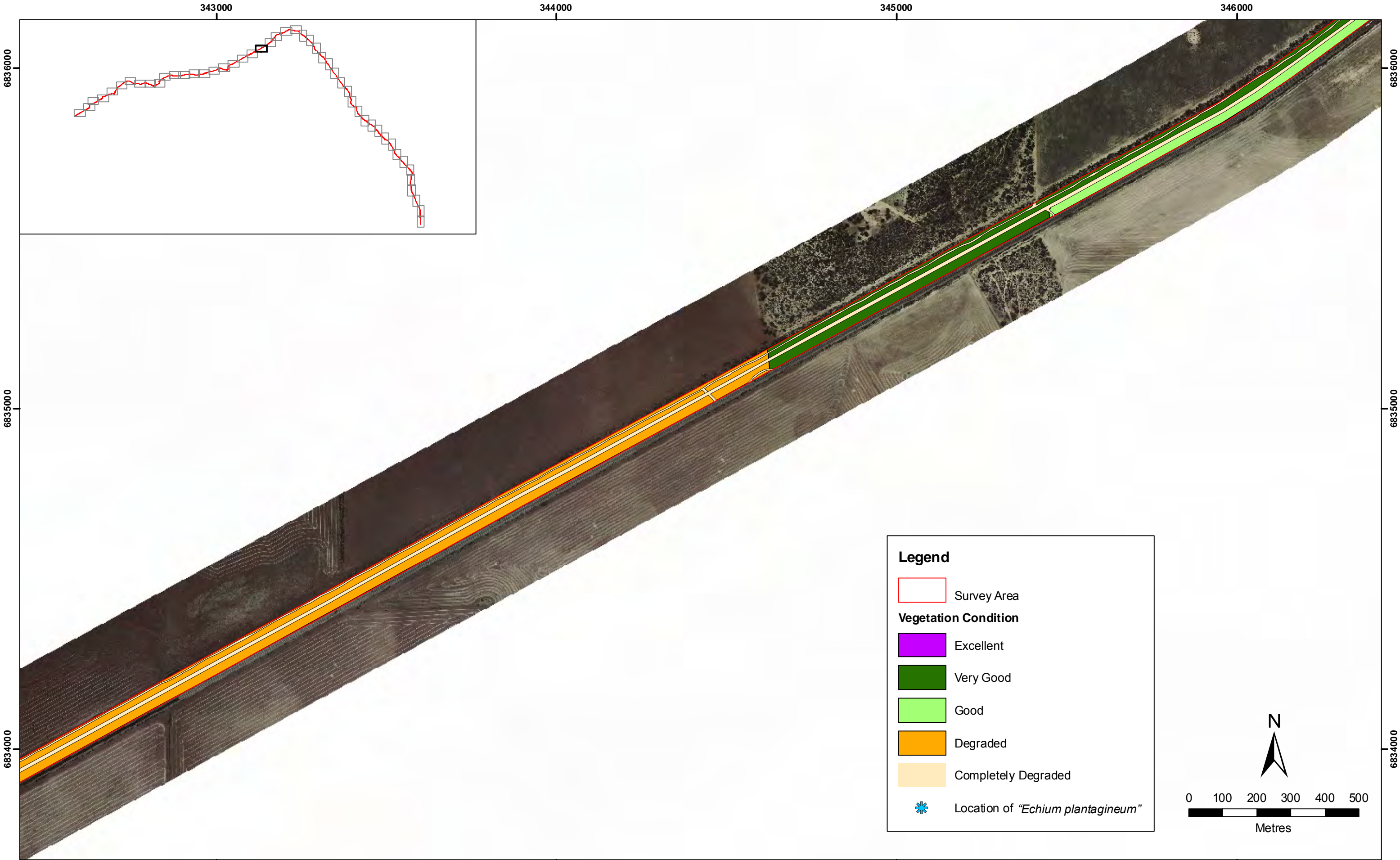
Metres



CLIENT	340000B NO.	
Strategen	10.159	
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

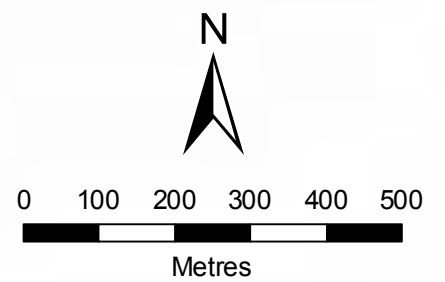
Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

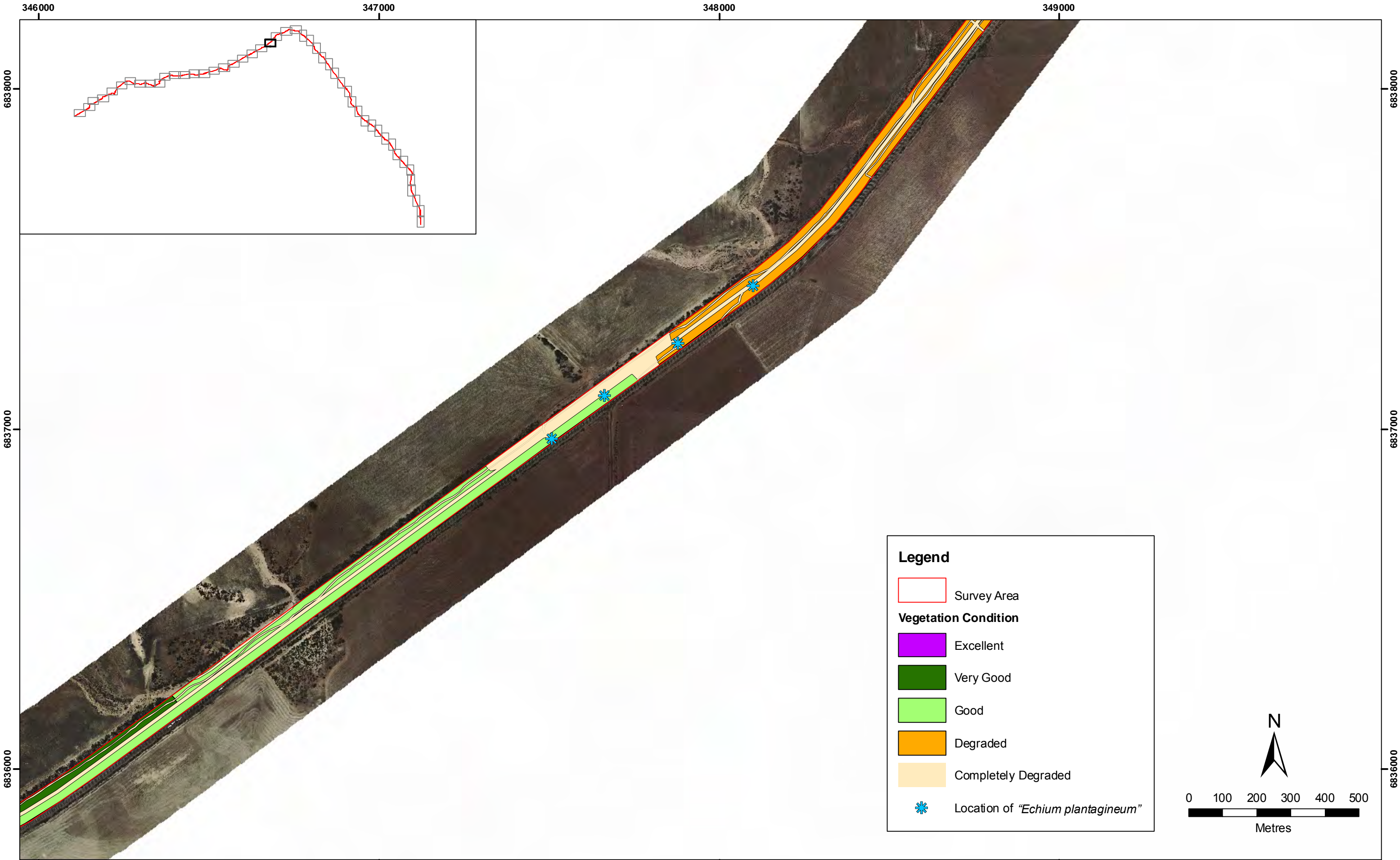
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	343000	JOB NO.	344000
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

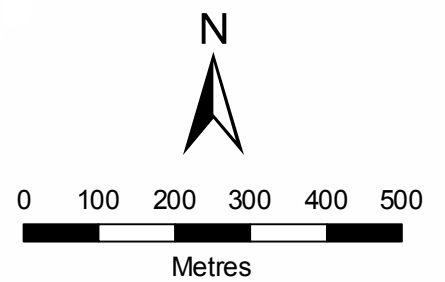
Vegetation Condition and Locations of "*Echium plantagineum*"


WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

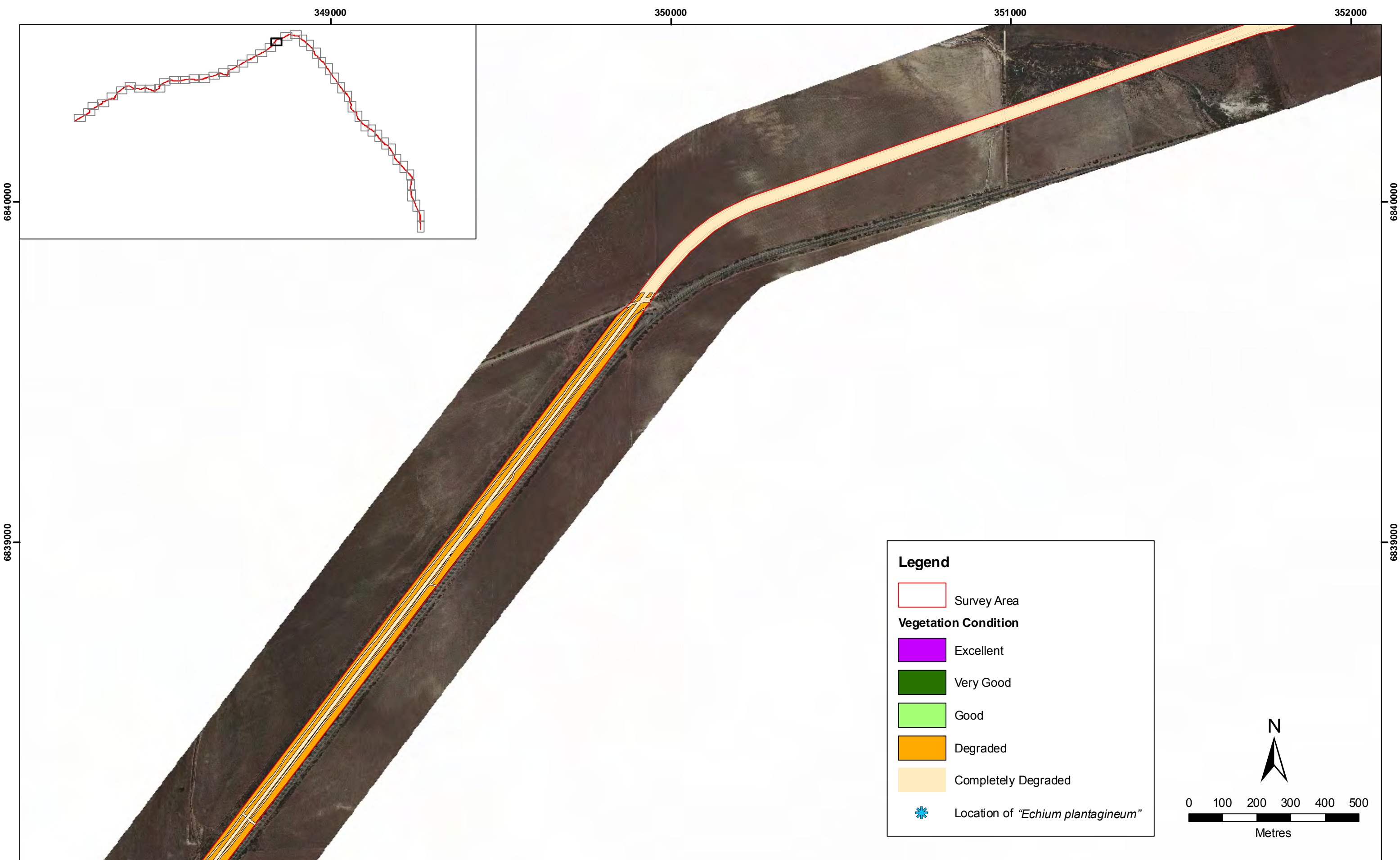
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"



	CLIENT	JOB NUMBER
	Strategen	10.159
	AUTHOR:	DATE
	L. Trotter	14-12-2010
	SCALE	PROJECTION
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



CLIENT	Strategen	DB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
		DATE	14-12-2010
SCALE	1:10,000 @ A3	PROJECTION	GDA 94 MGA 50

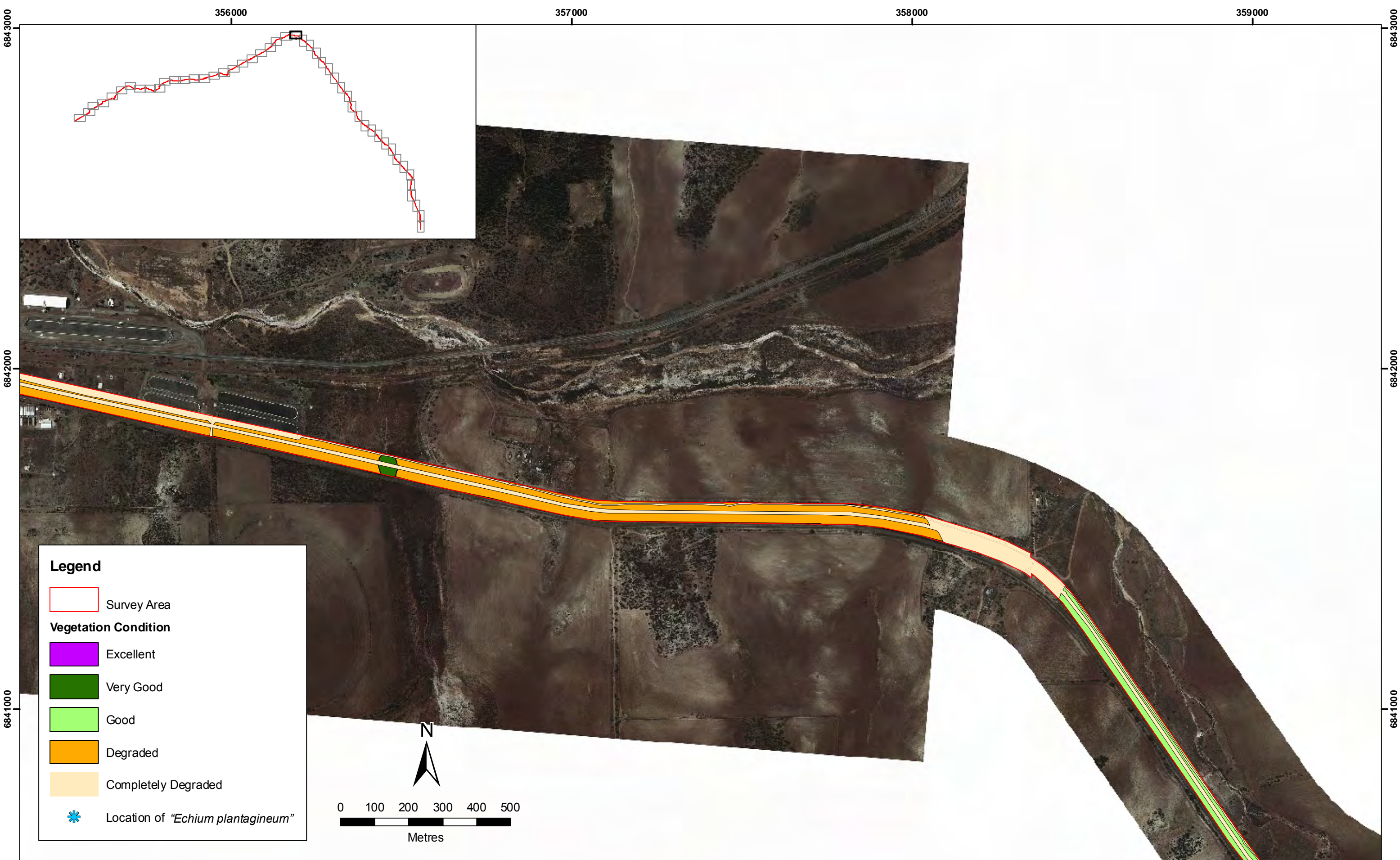
Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade –
 Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.23**



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
PROJECTION	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

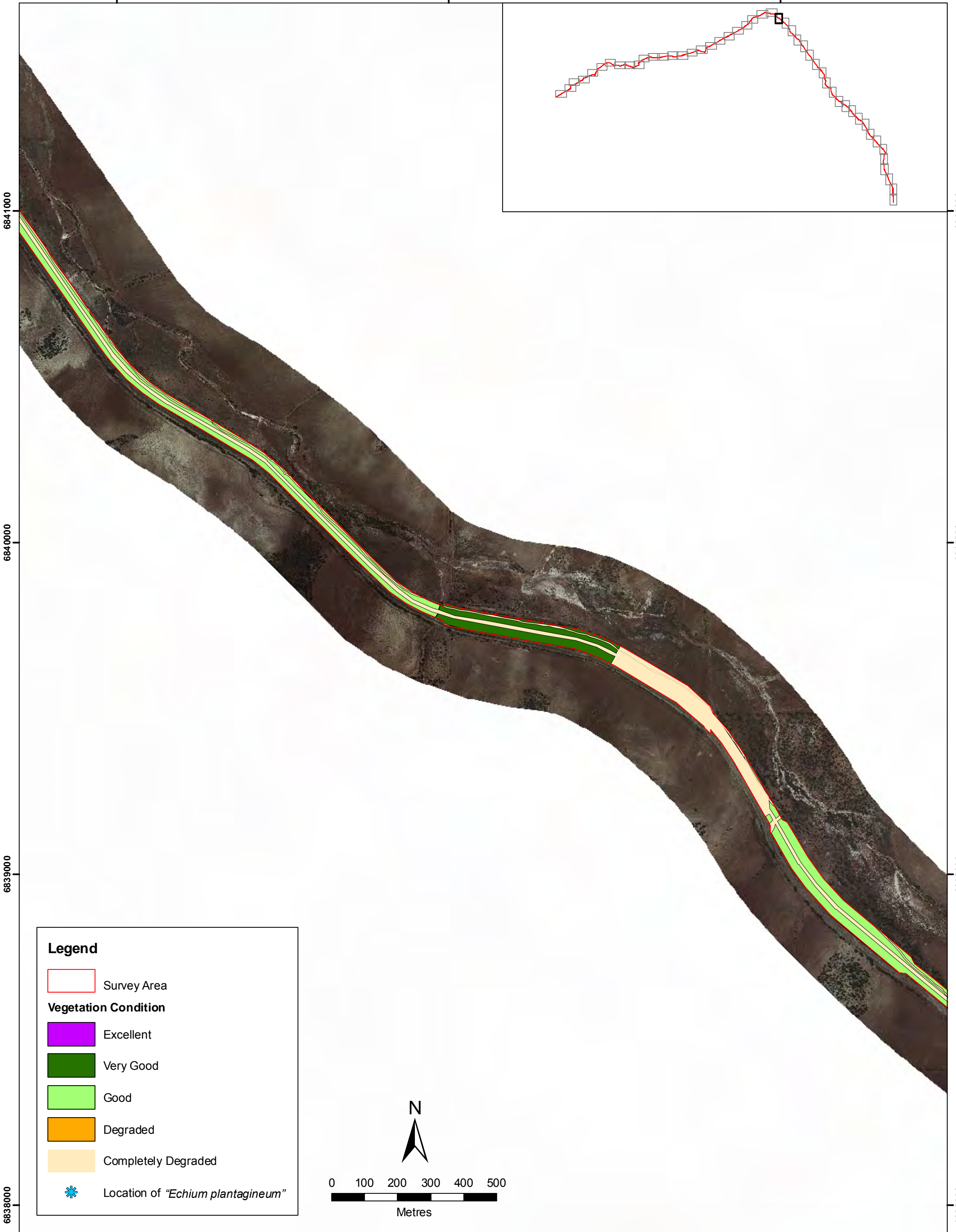
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CLIENT	356000	JOB NO.	357000
	Strategen		10.159
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment **FIGURE 5.25**



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

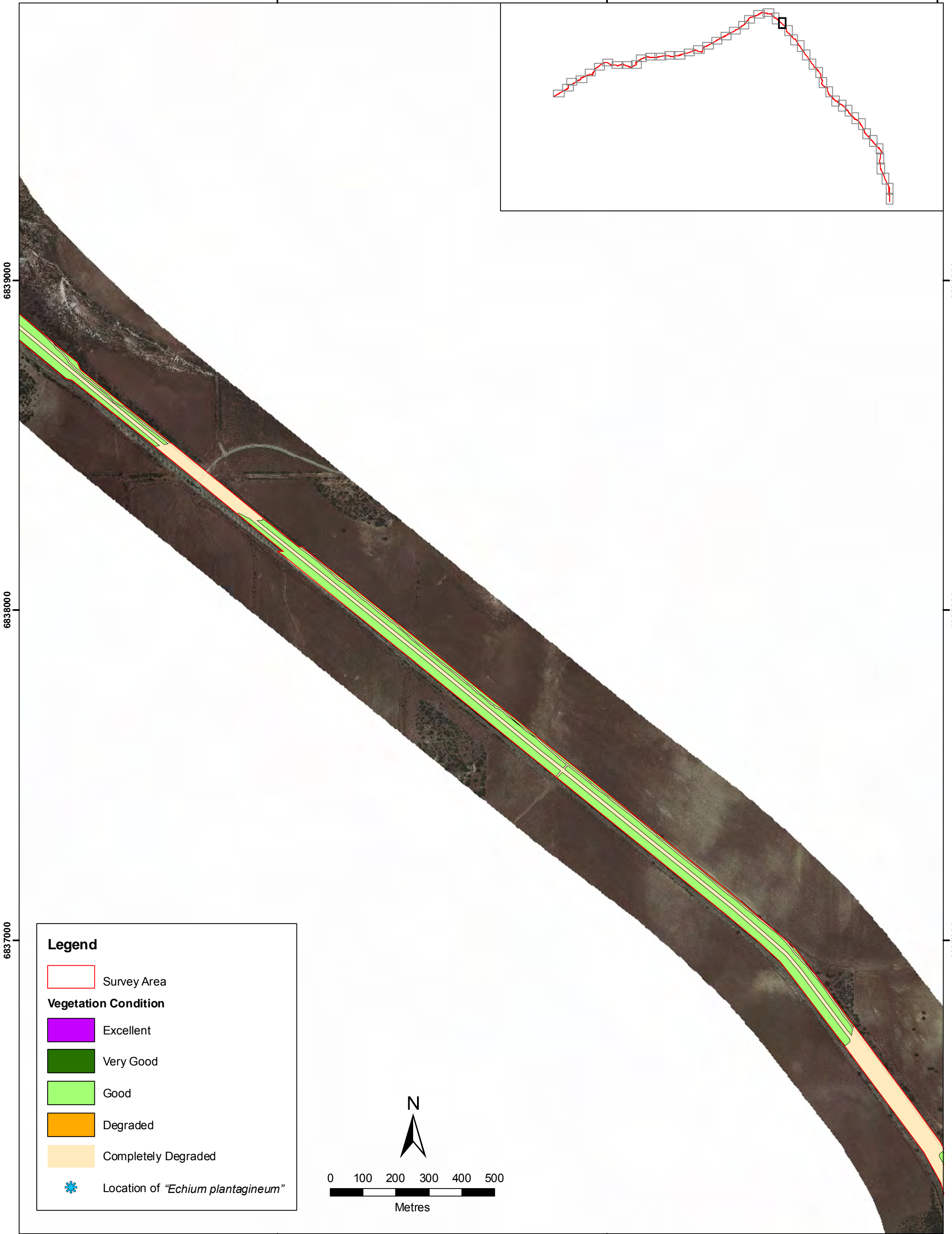
Metres



CLIENT		JOB NO.
Stratagen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

**Vegetation Condition and Locations of
"*Echium plantagineum*"**

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

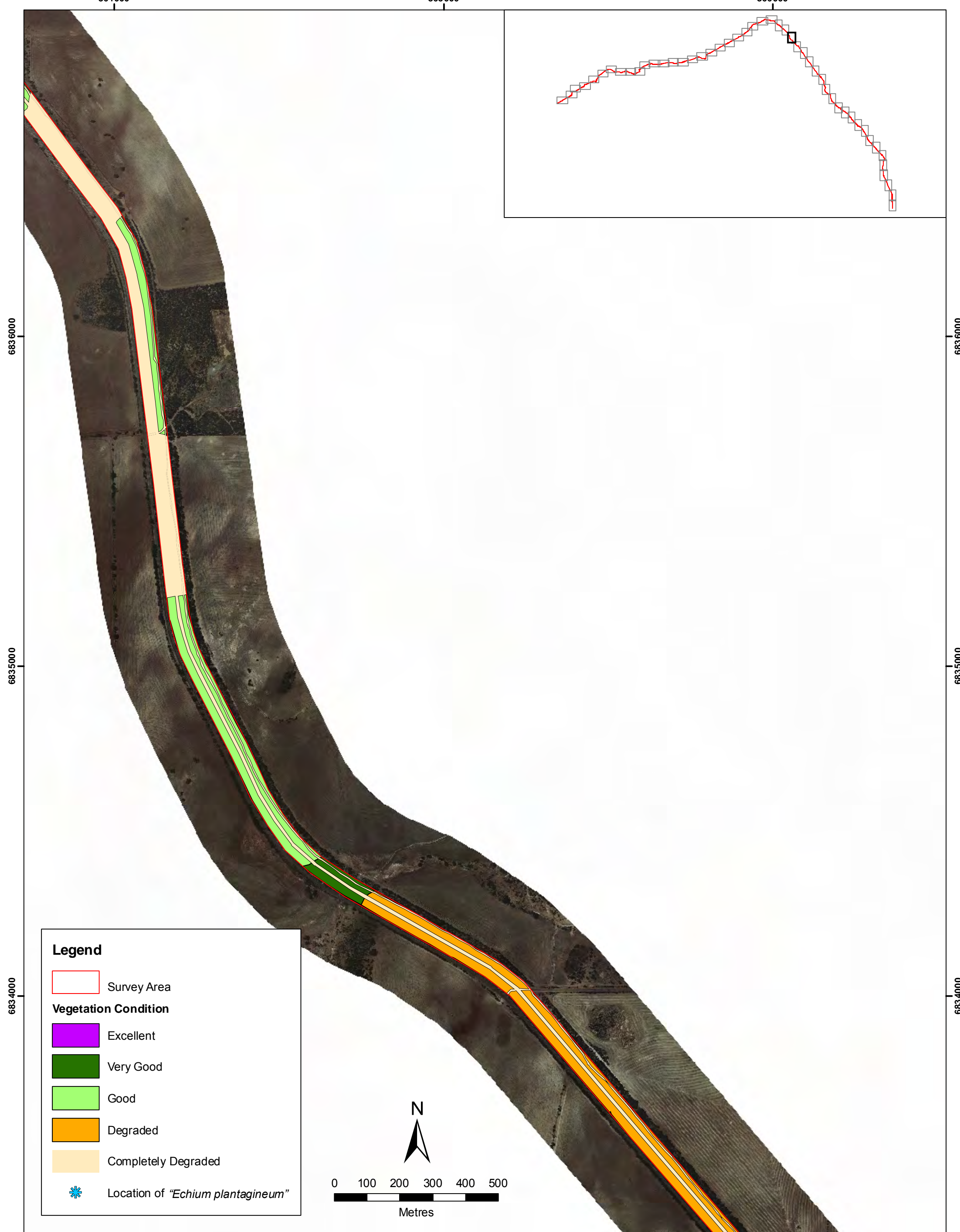
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0 100 200 300 400 500
Metres



CLIENT	362000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

Metres

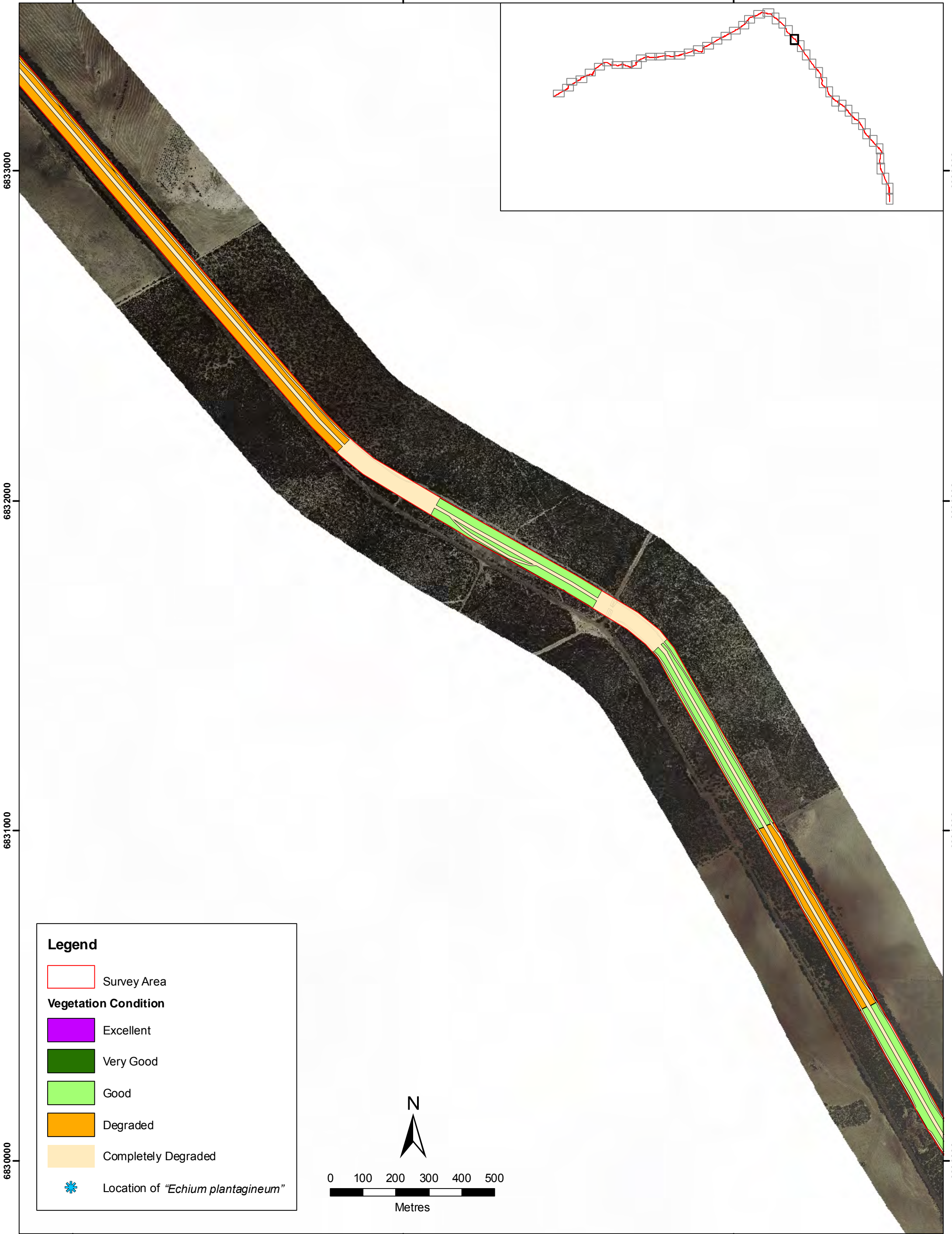


CLIENT	JOB NO.	
Strategen	10.159	
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

**Vegetation Condition and Locations of
"*Echium plantagineum*"**

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE 5.28



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

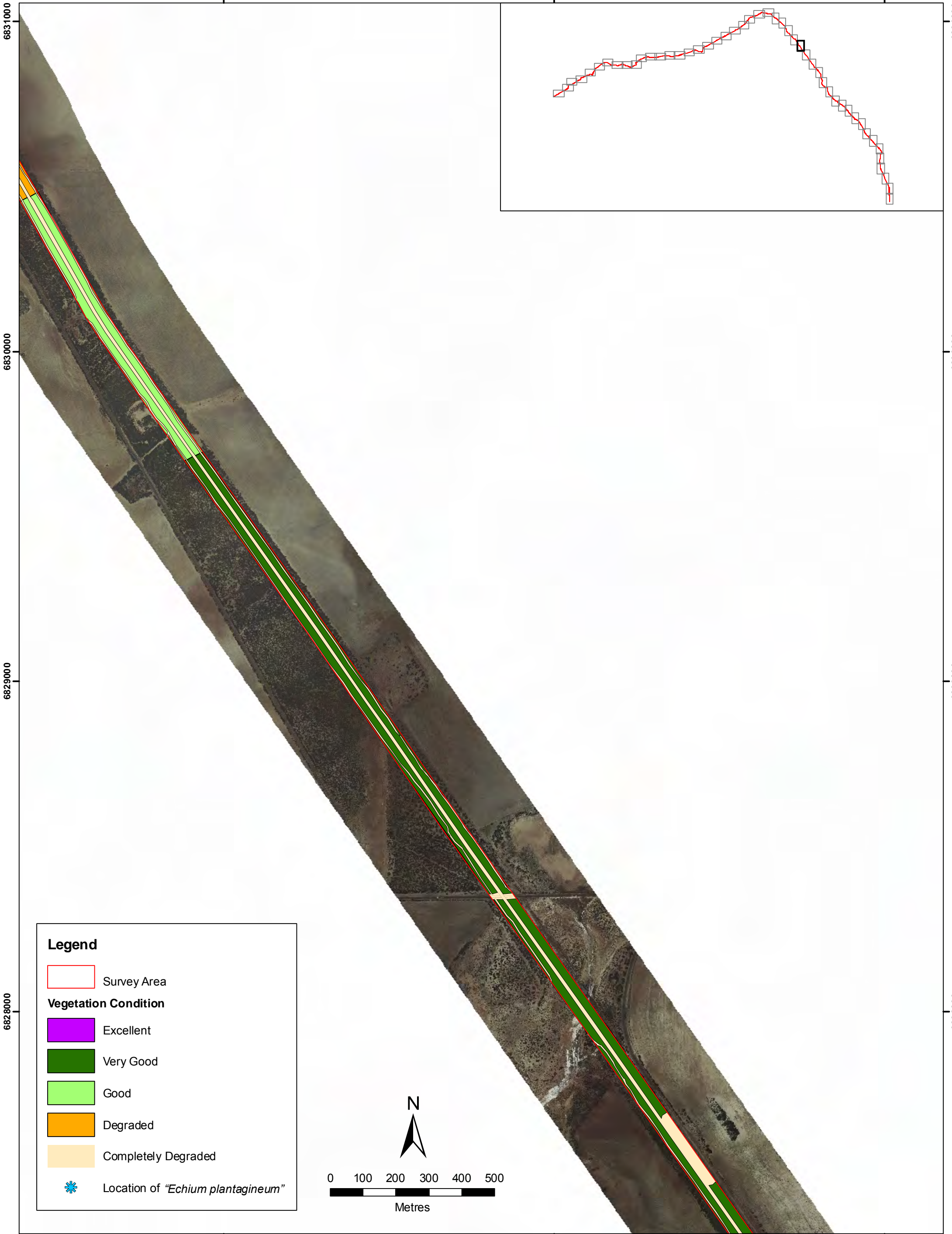
0 100 200 300 400 500
Metres



CLIENT Strategen	JOB NO. 10.159	367000
AUTHOR: L. Trotter	DRAWN S. Rho	368000
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50	
	DATE 14-12-2010	

**Vegetation Condition and Locations of
"*Echium plantagineum*"**
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE 5.29



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

0 100 200 300 400 500
Metres



CLIENT 369000	JOB NO. 10.159
Stratagen	
AUTHOR: L. Trotter	DRAWN: S. Rho
SCALE: 1:10,000 @ A3	DATE: 14-12-2010
PROJECTION: GDA 94 MGA 50	

**Vegetation Condition and Locations of
"*Echium plantagineum*"**
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE 5.30

371000

372000

373000

6827000

6827000

6826000

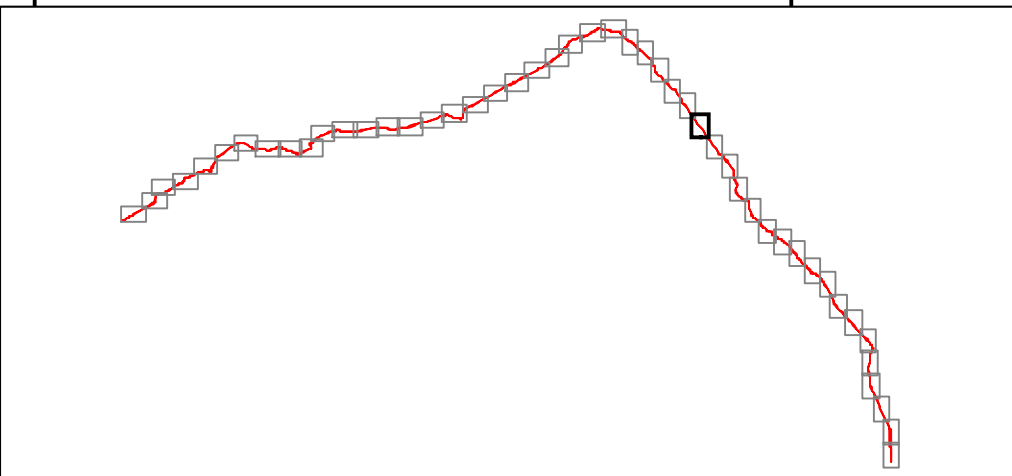
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6825000

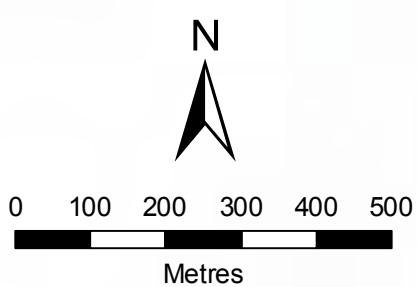
6824000

6824000



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

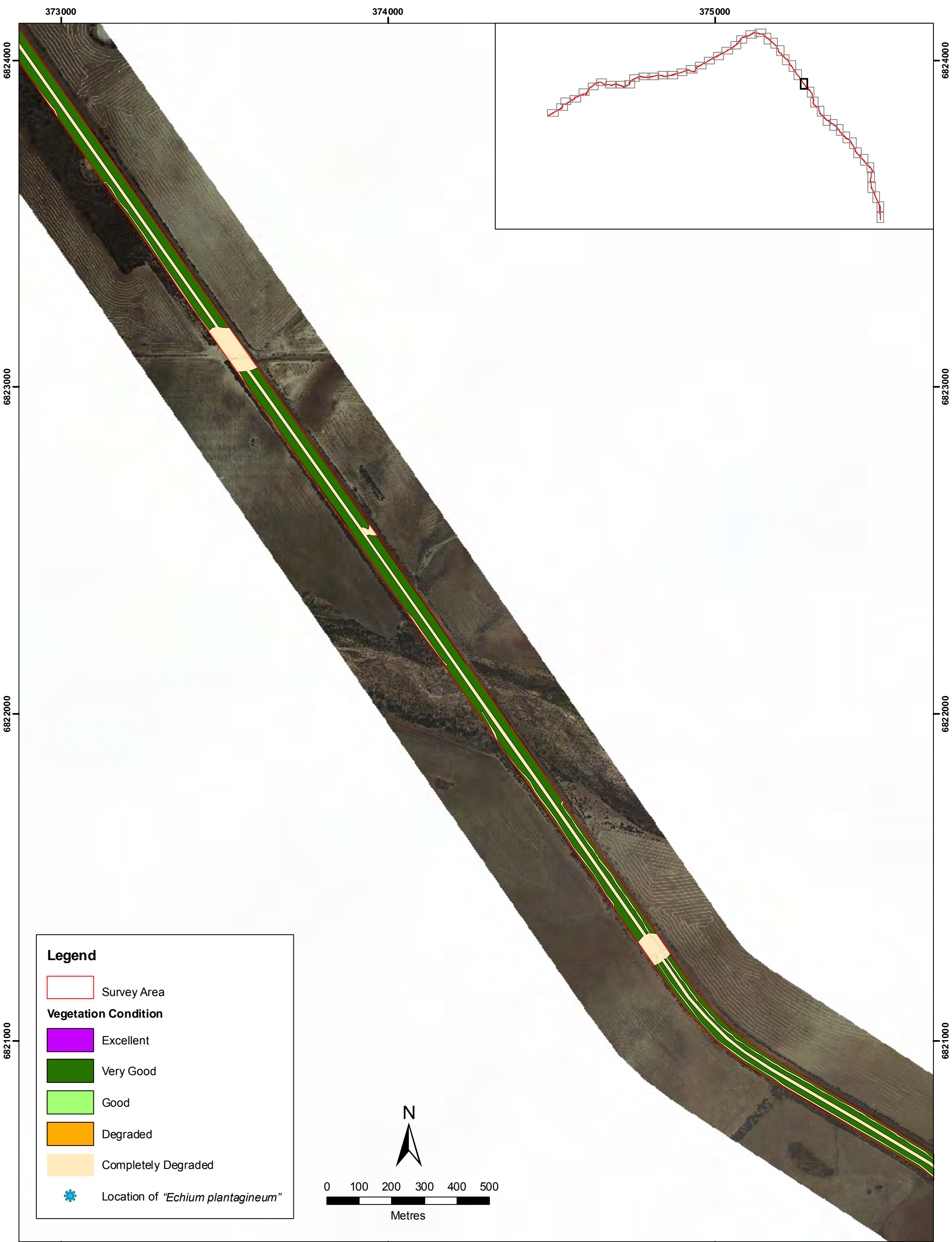


CLIENT	371000	JOB NO.	
	Strategen		10.159
AUTHOR:		DRAWN	
	L. Trotter		S. Rho
SCALE		DATE	
	1:10,000 @ A3		14-12-2010
		PROJECTION	
			GDA 94 MGA 50

**Vegetation Condition and Locations of
"*Echium plantagineum*"**

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE **5.31**



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

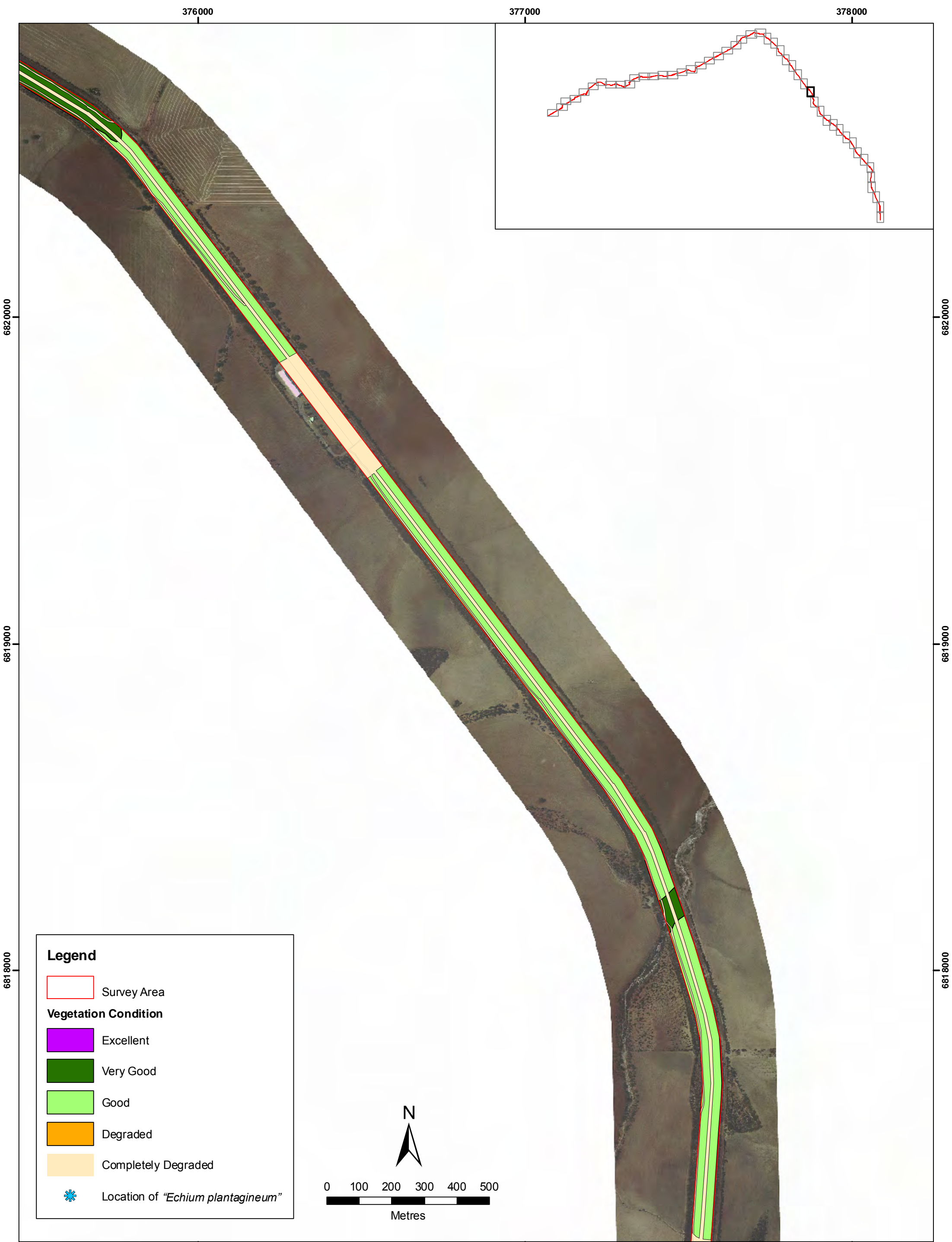
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0 100 200 300 400 500
Metres



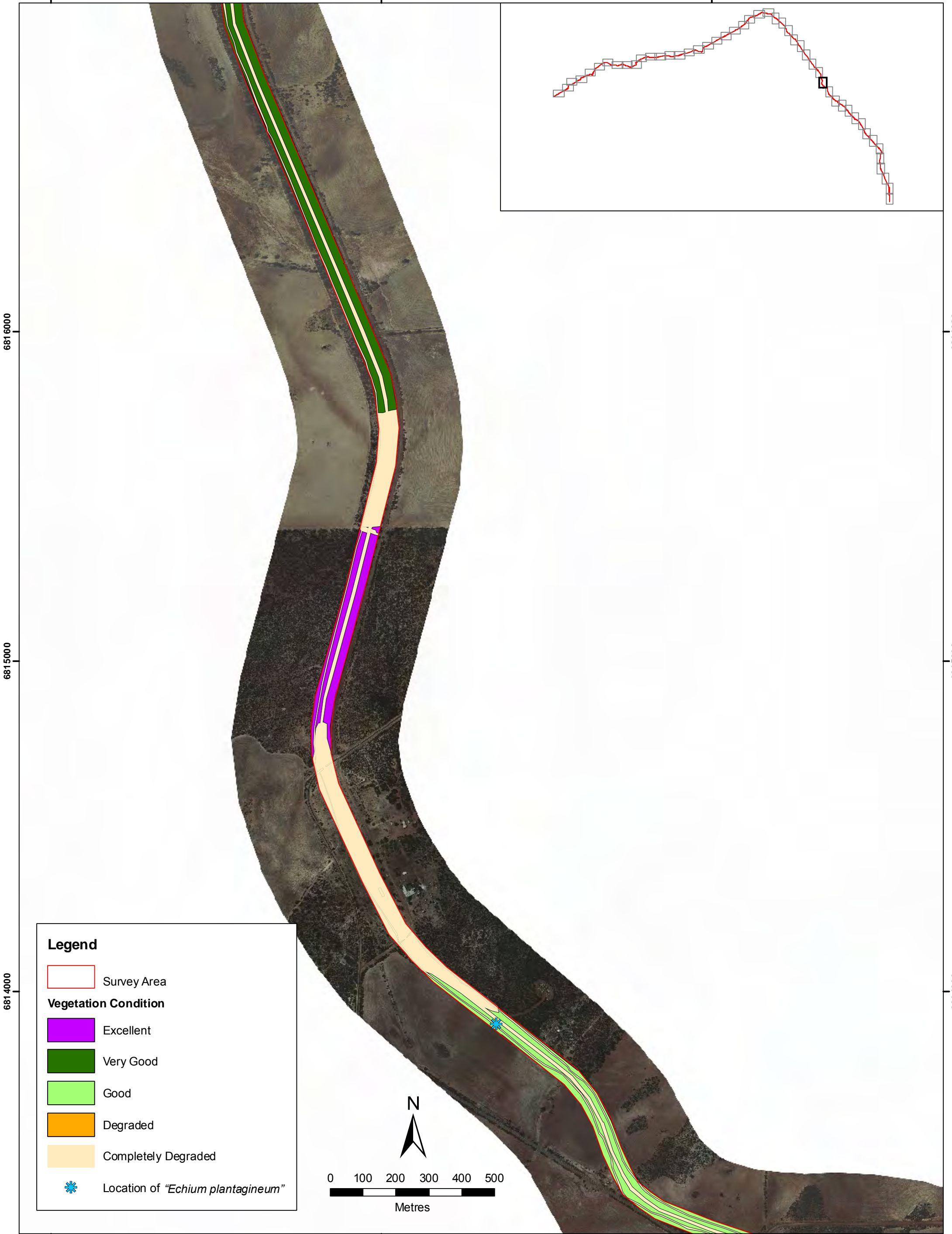
CLIENT Strategen	JOB NO. 374000
AUTHOR: L. Trotter	10.159
DRAWN S. Rho	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



CLIENT	376000	JOB NO.	10.159
Strategen		14-12-2010	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho		
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

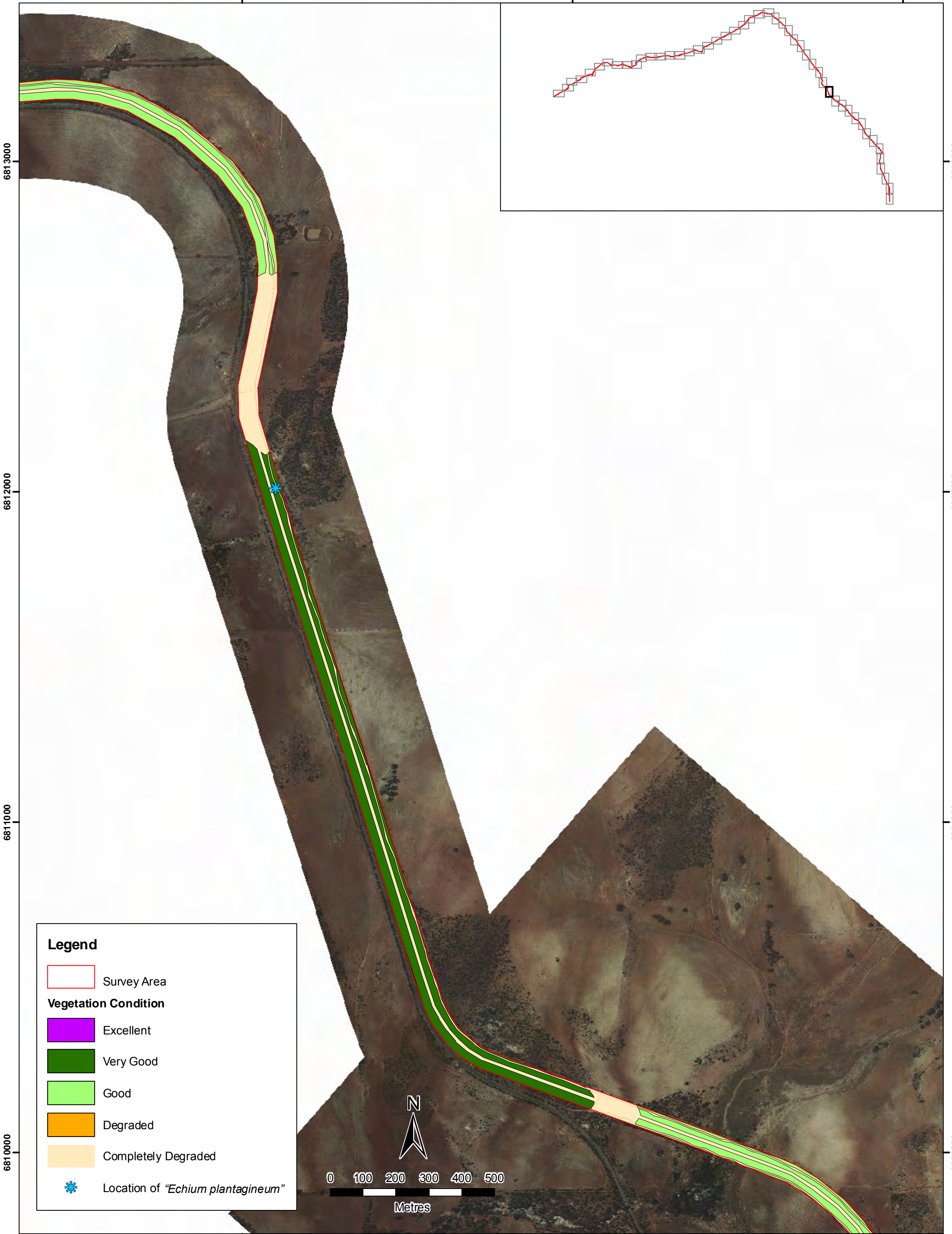
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0 100 200 300 400 500
Metres



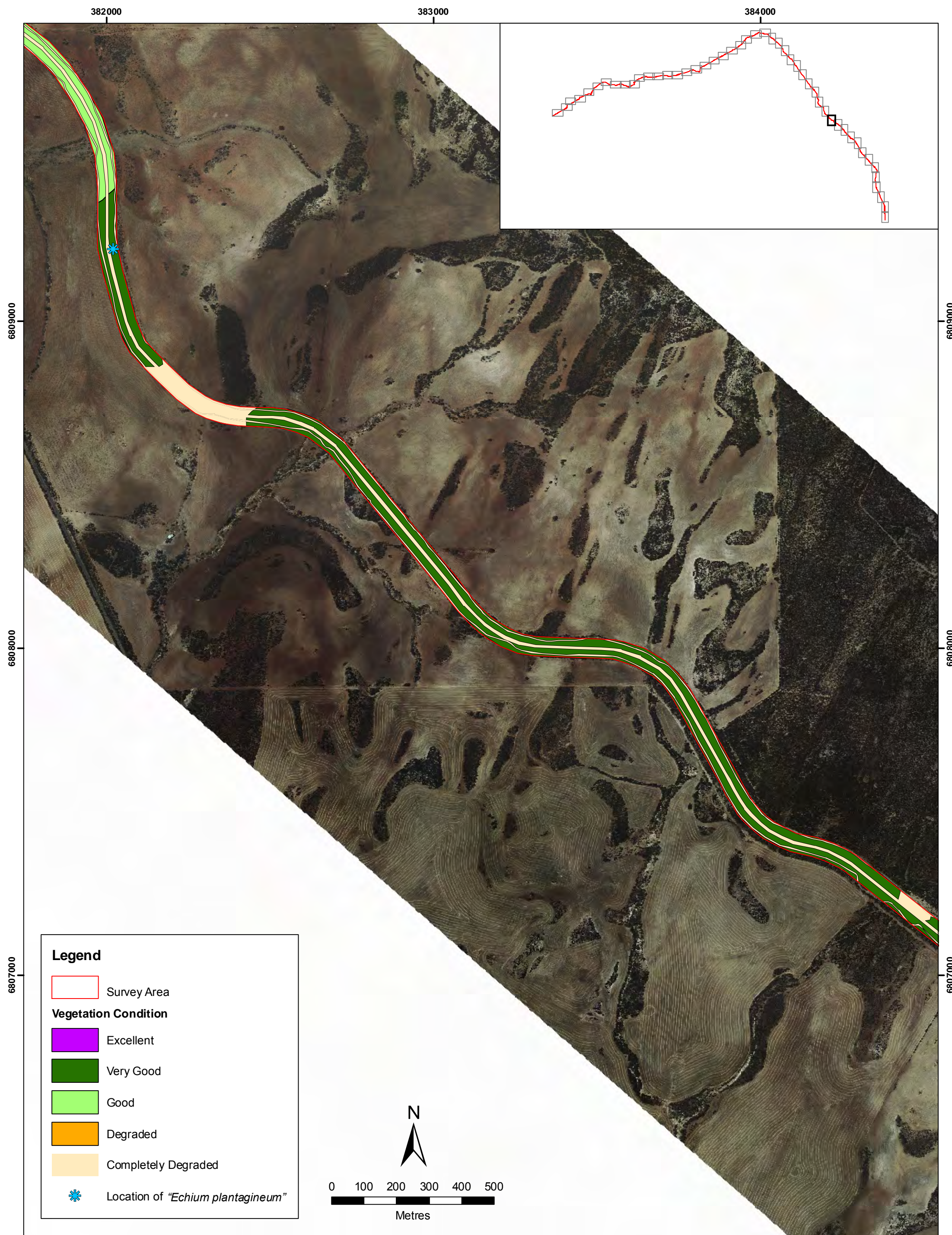
CLIENT Strategen	JOB NO. 378000
AUTHOR: L. Trotter	10.159
SCALE 1:10,000 @ A3	DATE 14-12-2010
PROJECTION GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



CLIENT	380000	JOB NO.	
Strategen		10.159	
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

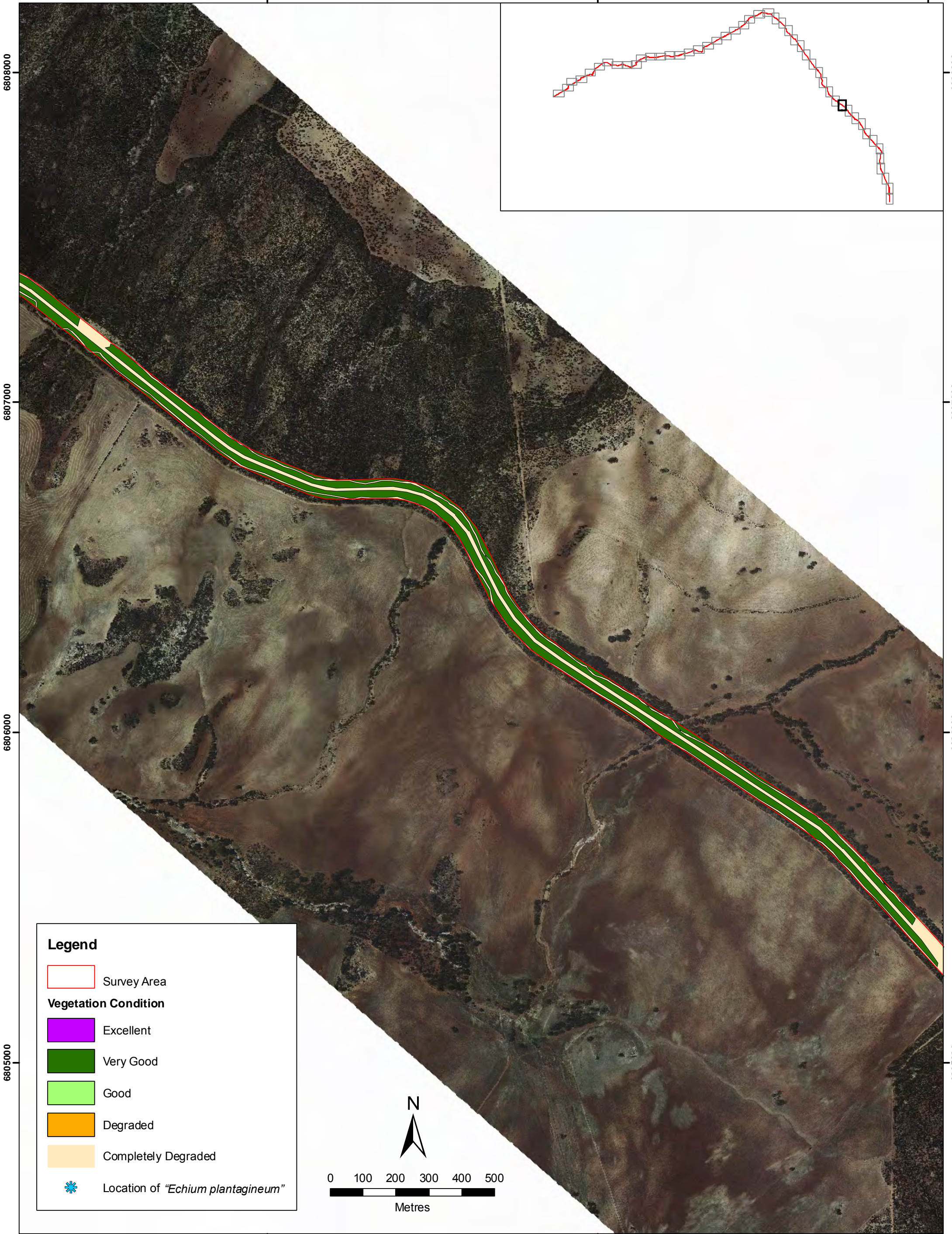
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CLIENT	JOB NO.	
Strategen	10.159	
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of
"*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE 5.36



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

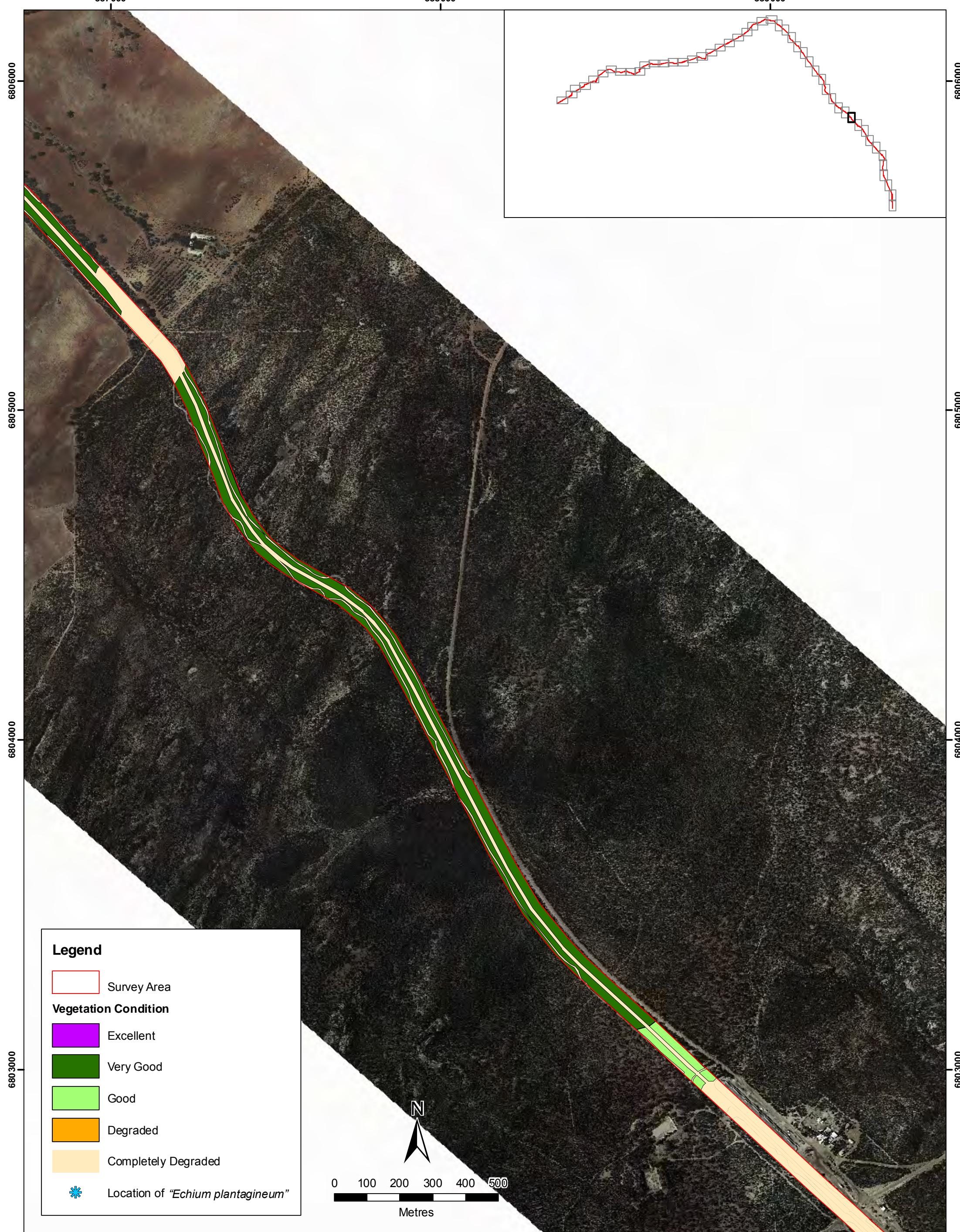
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Metres



CLIENT	385000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

Metres



CLIENT	Strategen	JOB NO.	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
	PROJECTION		GDA 94 MGA 50

**Vegetation Condition and Locations of
"*Echium plantagineum*"**

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE **5.38**



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

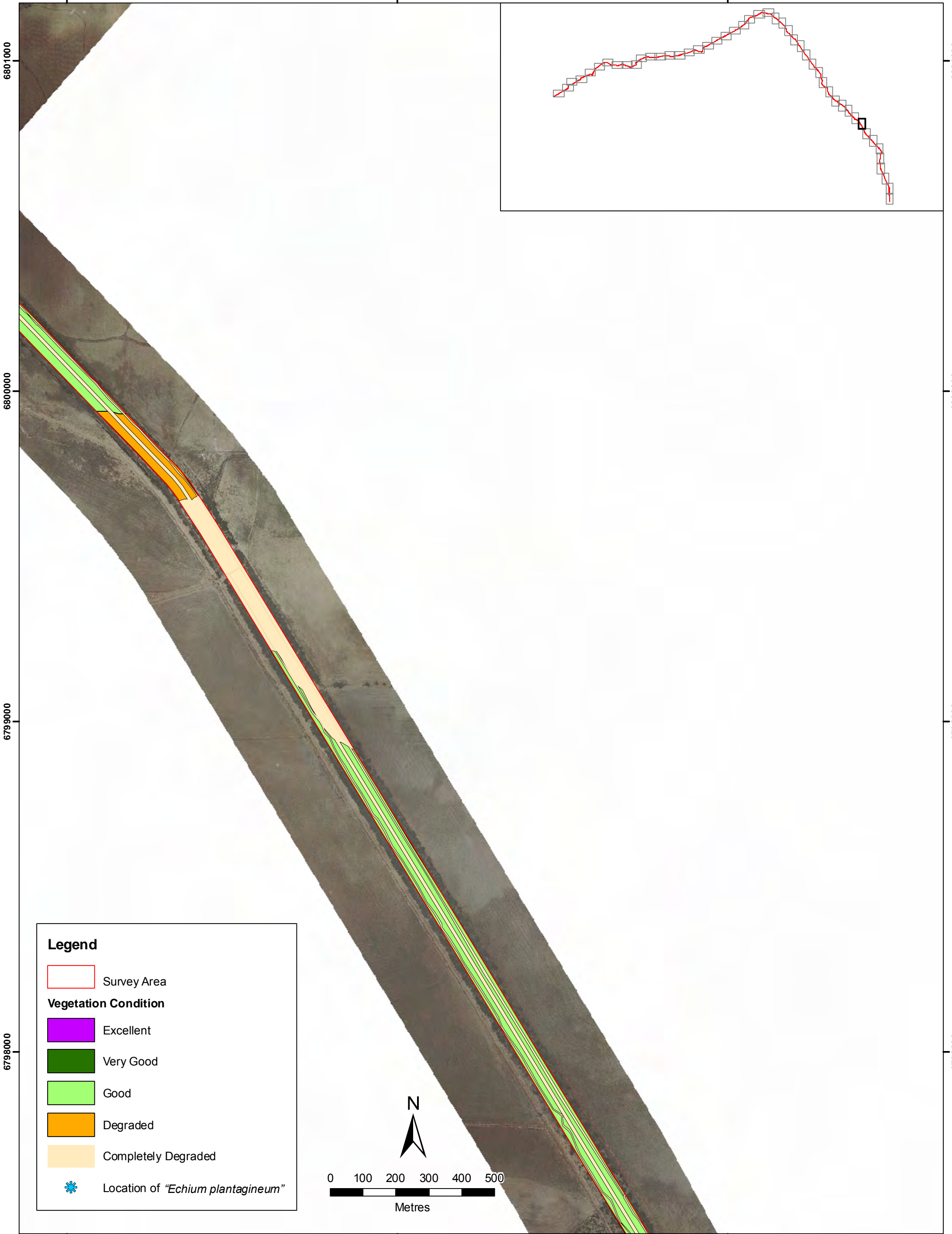
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0 100 200 300 400 500
Metres



CLIENT	390000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- * Location of "*Echium plantagineum*"

N

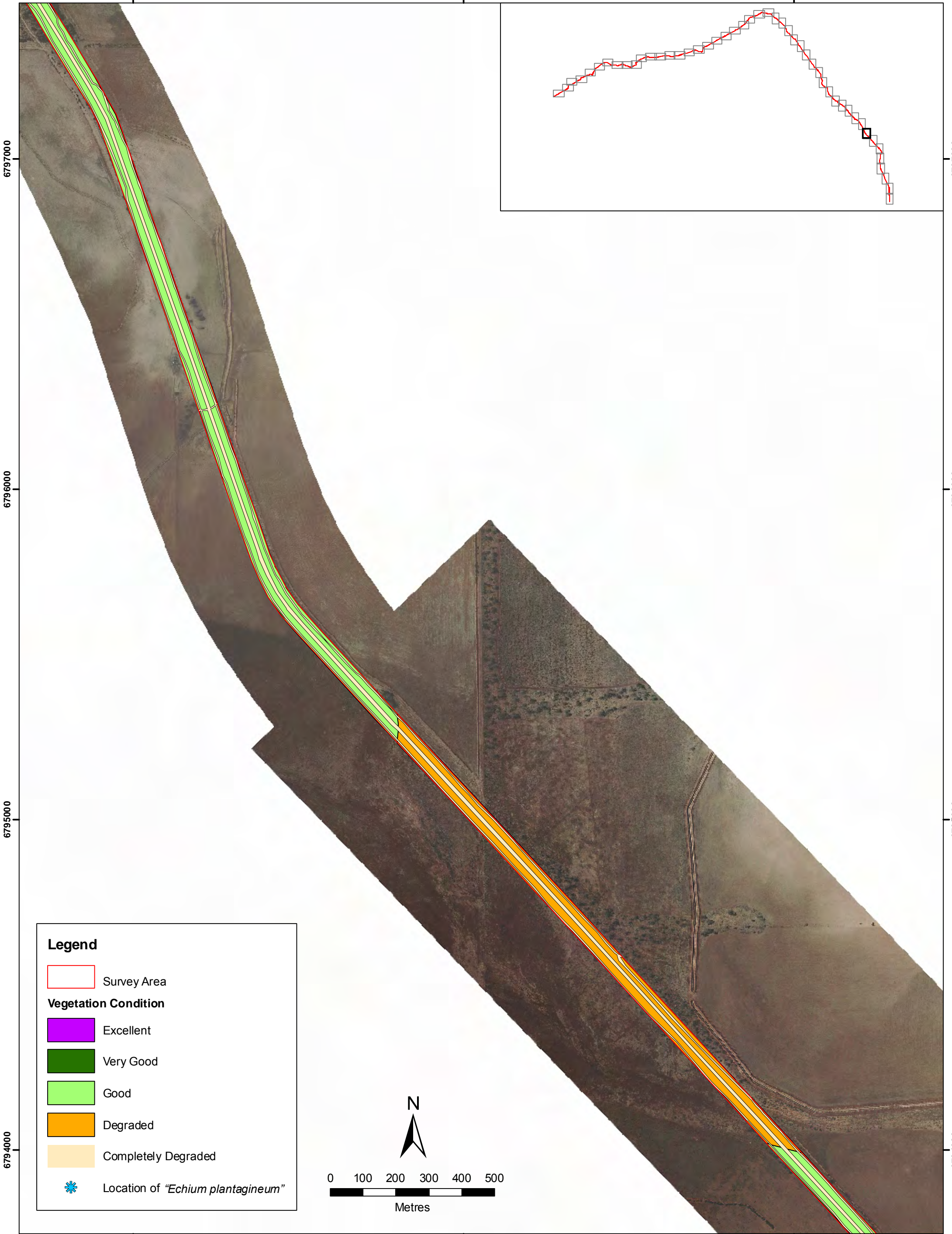
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Metres



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

N

0 100 200 300 400 500
Metres

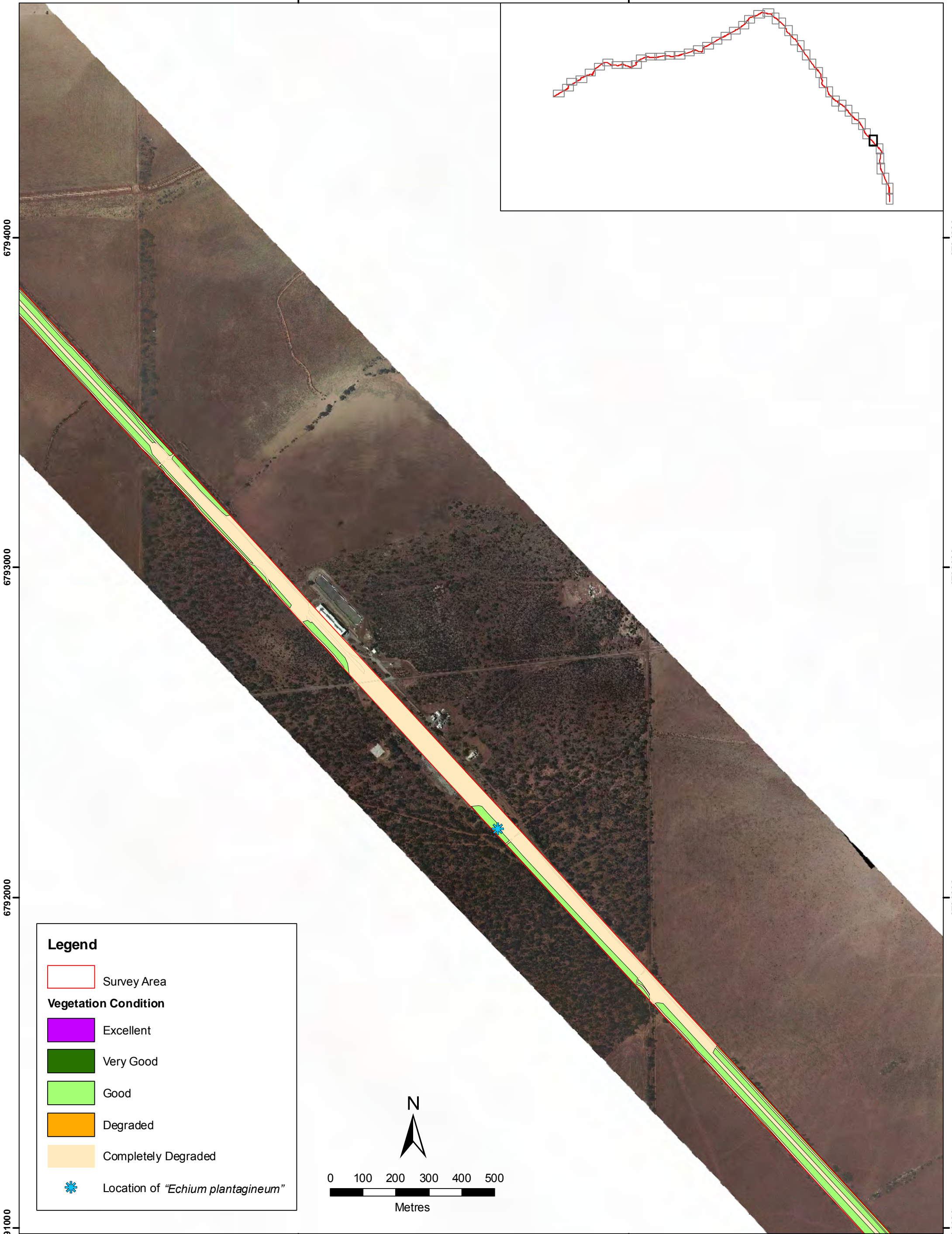


CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50
DRAWN S. Rho	

**Vegetation Condition and Locations of
"*Echium plantagineum*"**

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment

FIGURE 5.41



Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"

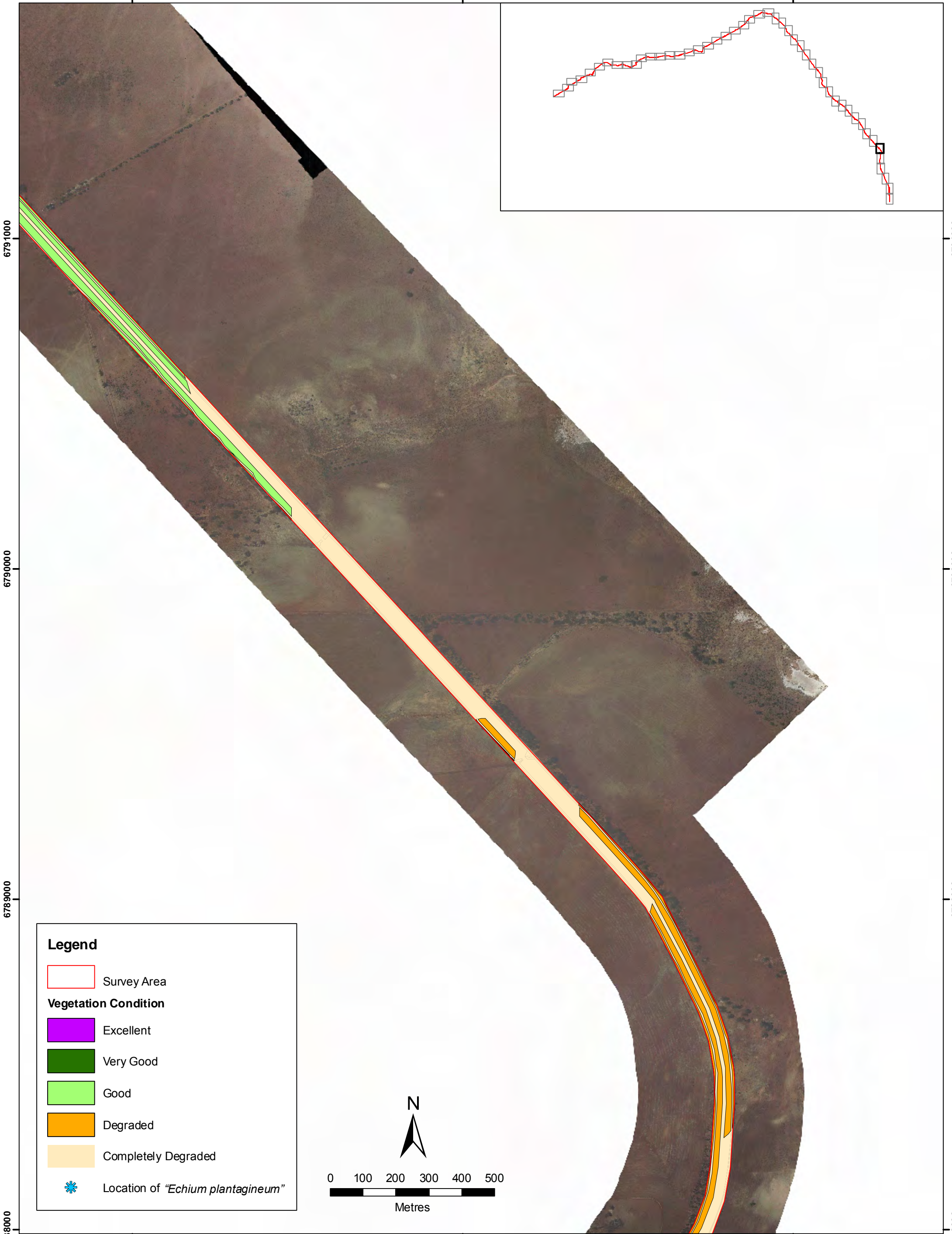
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0 100 200 300 400 500
Metres



CLIENT Strategen	JOB NO. 10.159	
AUTHOR: L. Trotter	DRAWN S. Rho	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
Flora and Vegetation Assessment



Legend

Survey Area

Vegetation Condition

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

Location of "*Echium plantagineum*"

N

0 100 200 300 400 500

Metres

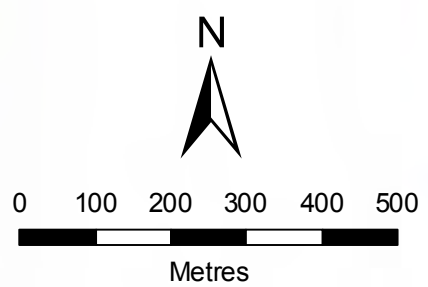
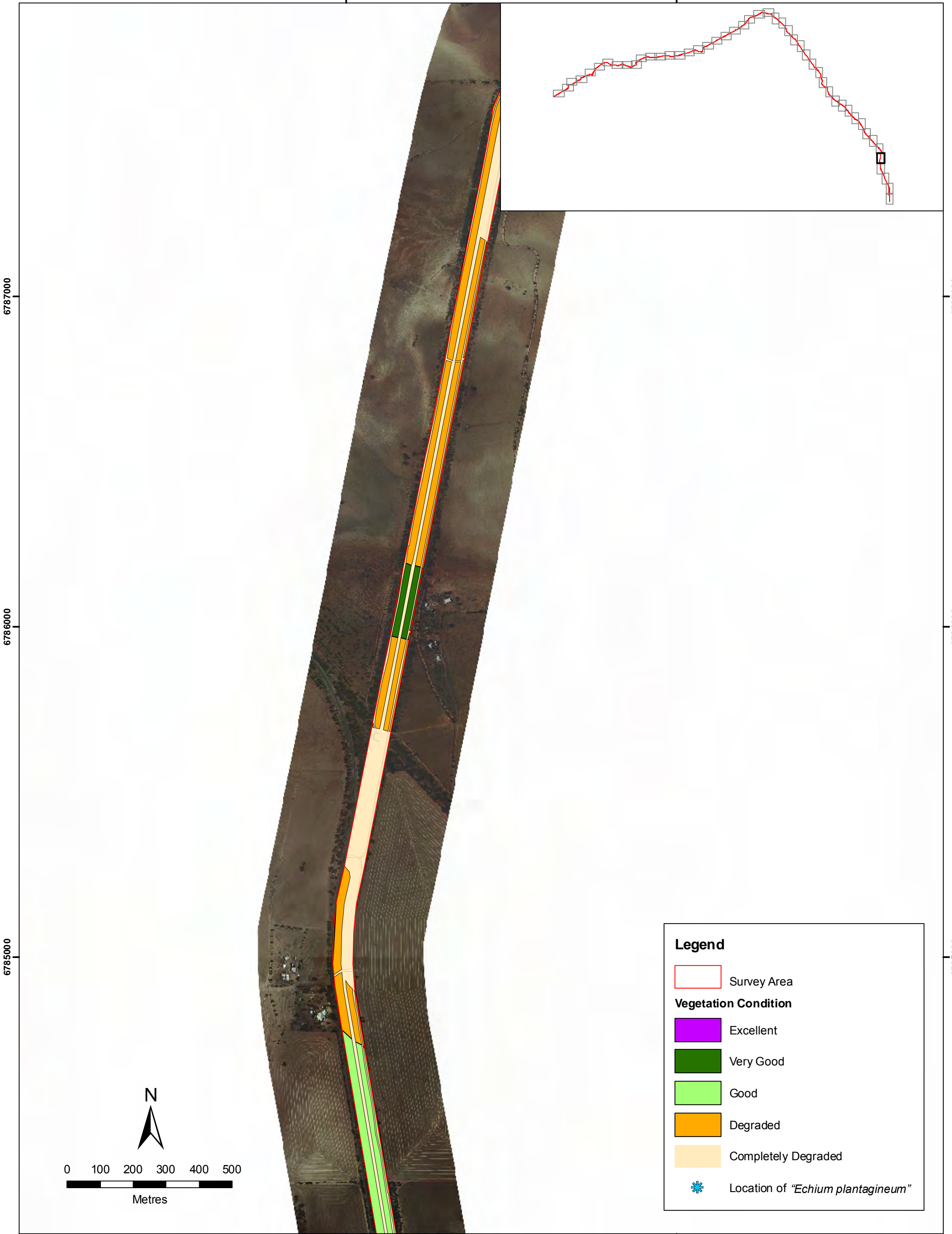


COMPONENT		JOB NO.
Stratagen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"

WestNet Rail Upgrade – Narngulu to Tilley (Morawa)

Flora and Vegetation Assessment



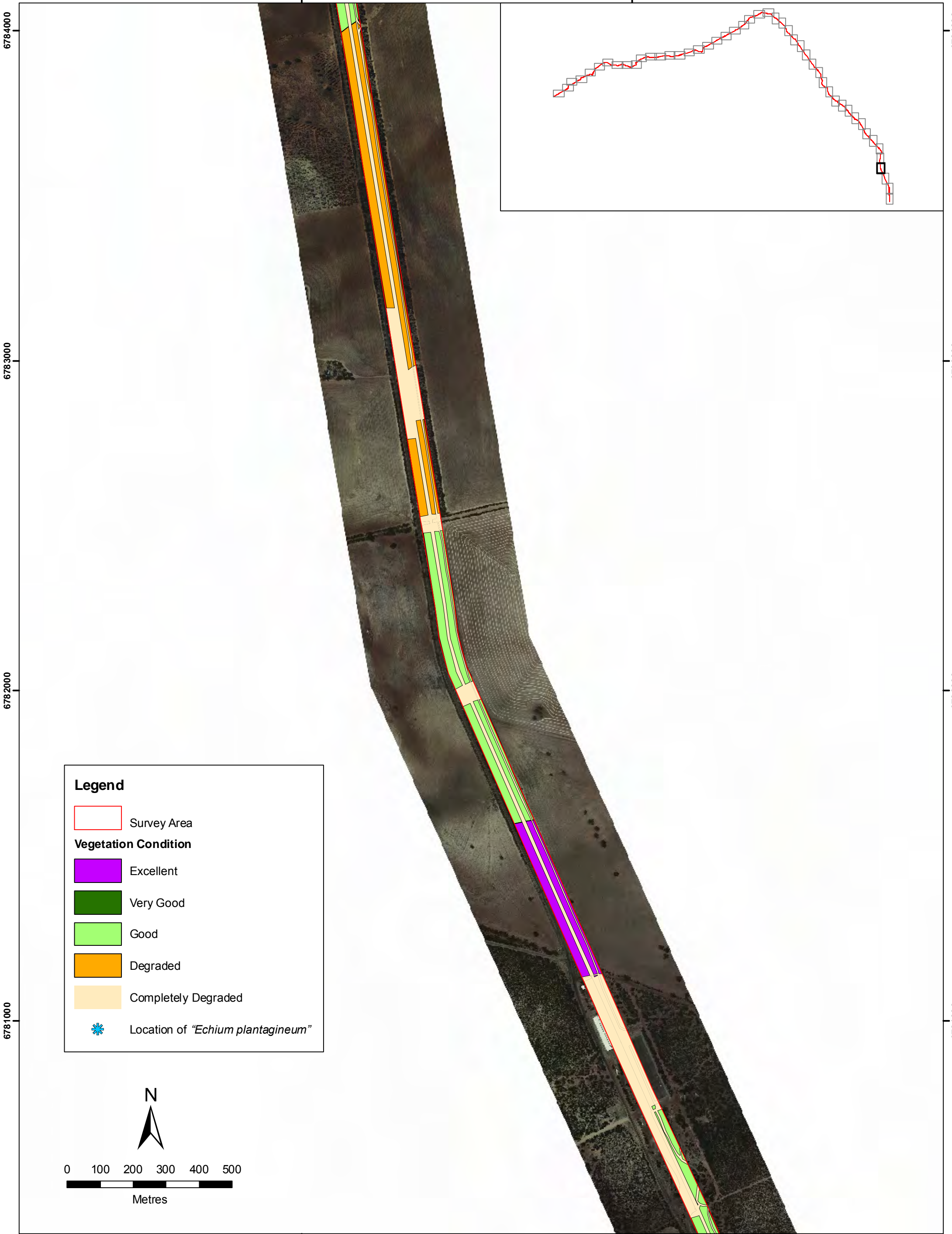
Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



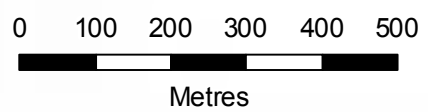
CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DATE 14-12-2010
SCALE 1:10,000 @ A3	PROJECTION GDA 94 MGA 50
DRAWN S. Rho	

Vegetation Condition and Locations of "*Echium plantagineum*"
WestNet Rail Upgrade – Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



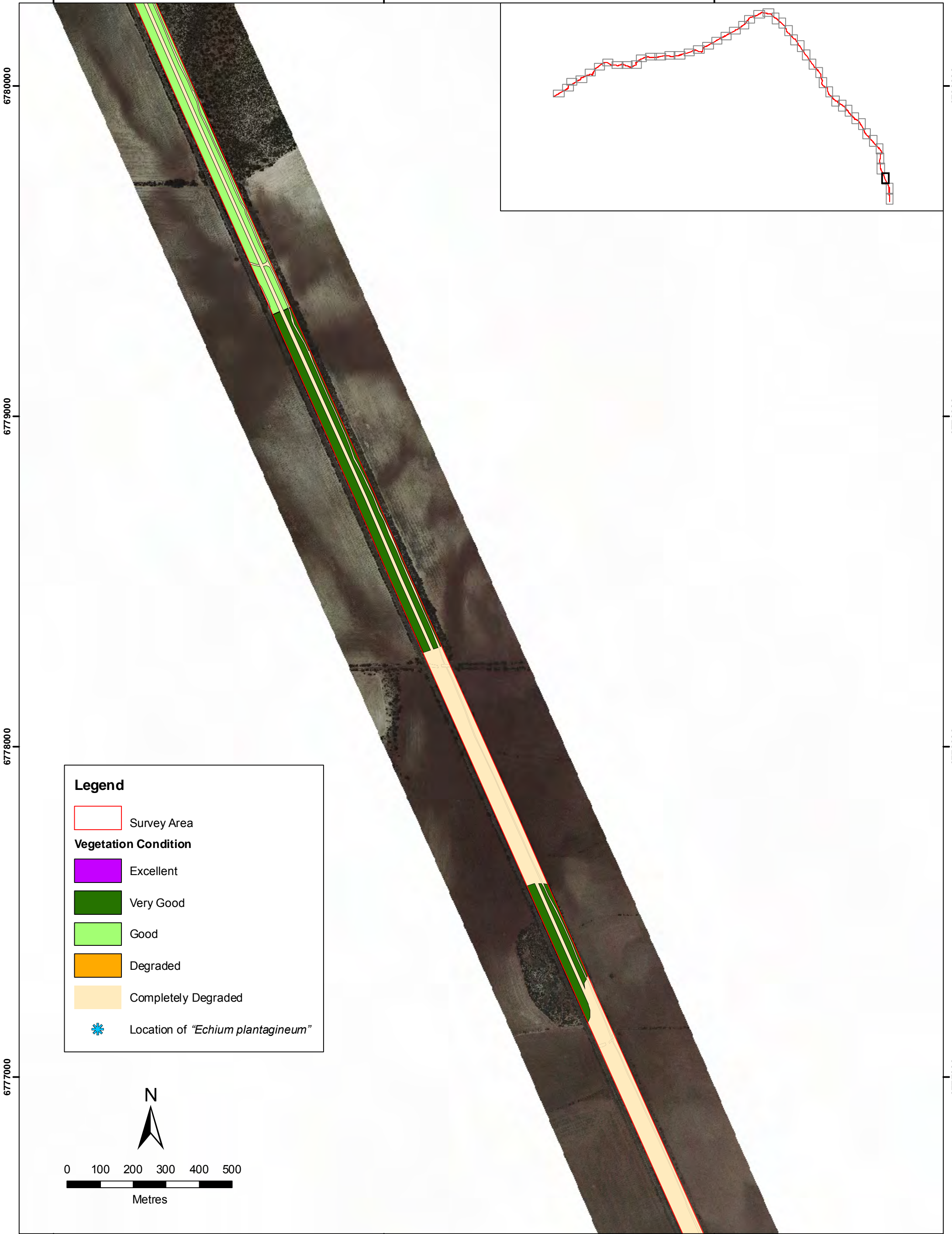
Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



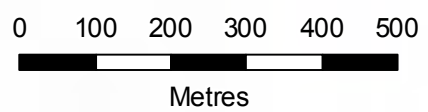
CLIENT	400000	JOB NO.
Strategen		10.159
AUTHOR:	DRAWN	DATE
L. Trotter	S. Rho	14-12-2010
SCALE	PROJECTION	
1:10,000 @ A3	GDA 94 MGA 50	

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa) Flora and Vegetation Assessment



Legend

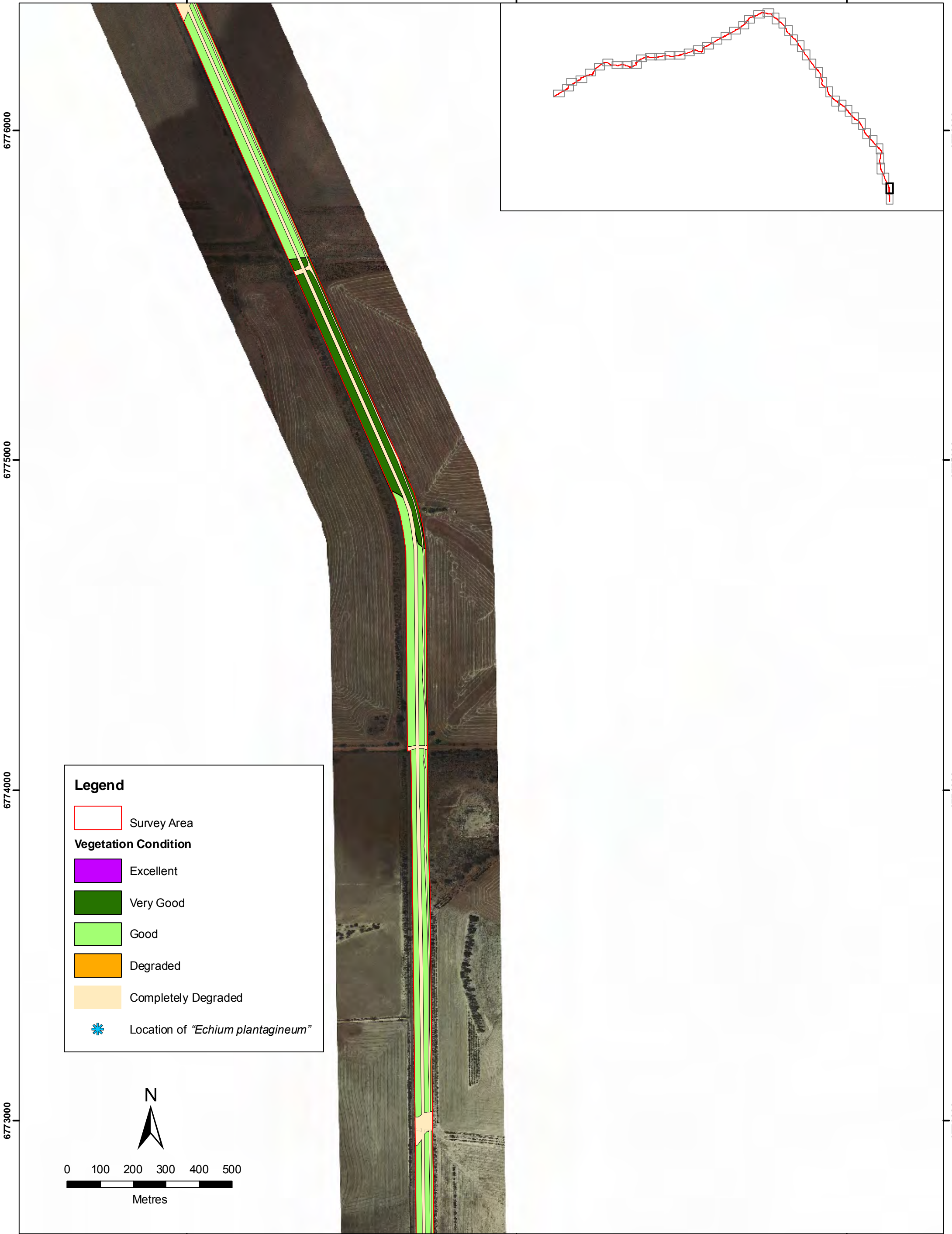
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	Strategen	JOB NO. 402000	10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
SCALE	1:10,000 @ A3	DATE	14-12-2010
	GDA 94 MGA 50	PROJECTION	

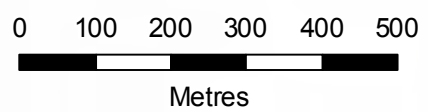
Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE **5.46**



Legend

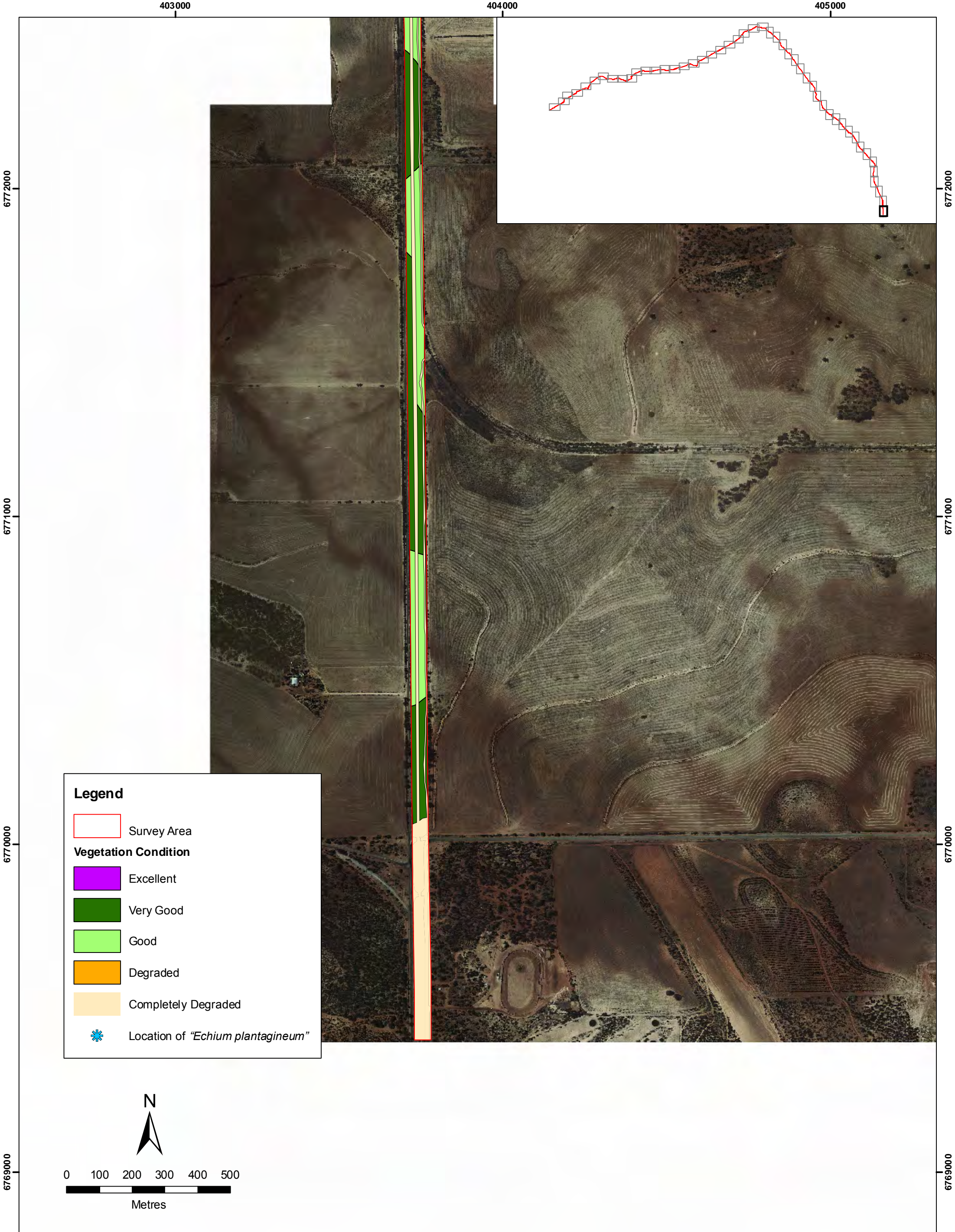
- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	403000	JOB NO.	
	Stratagen		10.159
AUTHOR:	DRAWN	DATE	
L. Trotter	S. Rho	14-12-2010	
SCALE	PROJECTION		
1:10,000 @ A3	GDA 94 MGA 50		

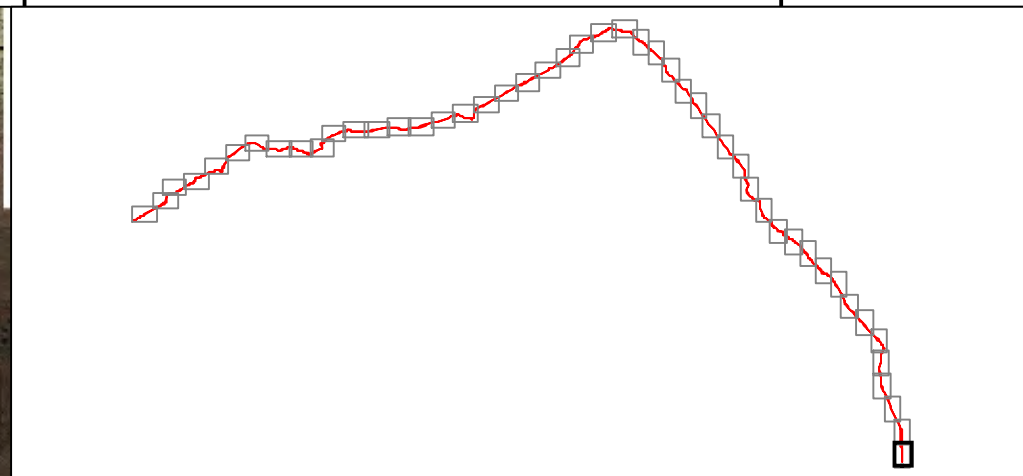
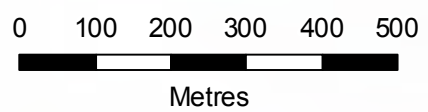
Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment

FIGURE **5.47**



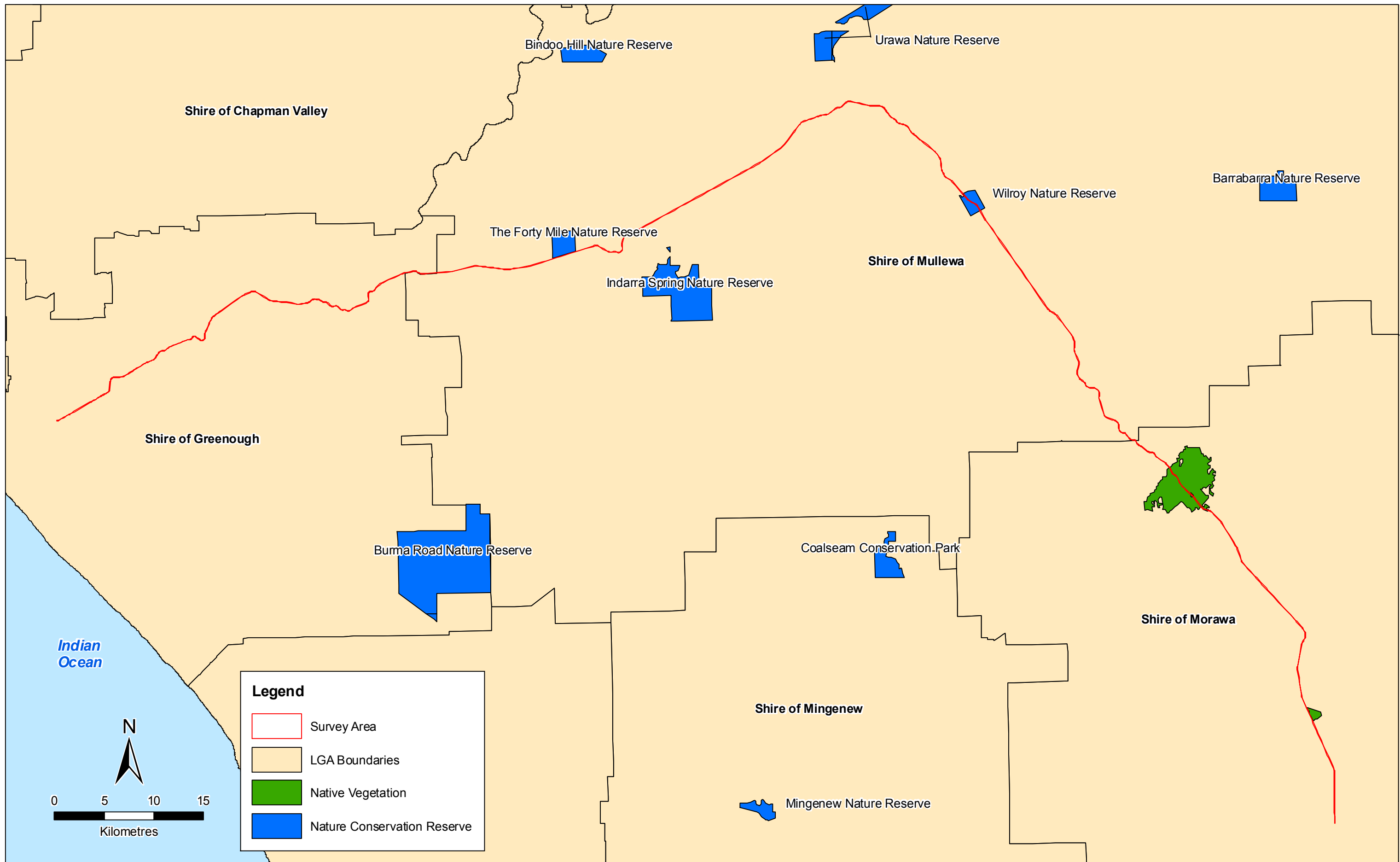
Legend

- Survey Area
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- ✱ Location of "*Echium plantagineum*"



CLIENT	403000	JOB NO.	
	Stratagen		10.159
AUTHOR:	L. Trotter	DRAWN	S. Rho
		DATE	14-12-2010
SCALE	1:10,000 @ A3	PROJECTION	GDA 94 MGA 50

Vegetation Condition and Locations of "*Echium plantagineum*"
 WestNet Rail Upgrade – Narngulu to Tilley (Morawa)
 Flora and Vegetation Assessment



CLIENT Strategen	JOB NO. 10.159
AUTHOR: L. Trotter	DRAWN S. Rho
SCALE 1:350,000 @ A3	DATE 14-12-2010
PROJECTION GDA 94 MGA 50	

Remnant Vegetation of the Survey Area

WestNet Rail Upgrade –
Narngulu to Tilley (Morawa) Flora and Vegetation Assessment

APPENDIX A
DEFINITION OF DECLARED RARE /
PRIORITY / THREATENED FLORA
POTENTIALLY OCCURING IN THE
SURVEY AREA

APPENDIX A

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

A1: Categories of Declared Rare and Priority Flora

Conservation Code	Category
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>
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>
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 urgently need 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), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as ‘rare flora’ but need 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>
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Source: Department of Environment and Conservation (2010). *Western Australian Flora Conservation Codes*. Department of Environment and Conservation, Perth, Western Australia. Online: <http://florabase.calm.wa.gov.au>.

A2: Categories of Threatened Flora Species

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 a period of 5 years.</p>

A3: Significant Flora Species Potentially Occurring in the Project Area

Species	Code	Habitat Preference (WAH 2010)
<i>Drakaea concolor</i>	DRF	Found on Sand.
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	DRF	Clay loams over laterite in heaths with other species of <i>Grevillea</i> , <i>Hakea</i> and <i>Banksia</i>
<i>Caladenia wanosa</i> (Kalbarri Spider Orchid)	DRF	Found on Sand, Sandstone outcrops, top edges of gorges.
<i>Leucopogon marginatus</i>	DRF/ END	Found on Yellow & gravelly lateritic sand. Undulating plains.
<i>Grevillea phanerophlebia</i>	DRF/ P1	Found on Grey, white and brown sand over laterite.
<i>Caladenia hoffmanii</i> (Hoffman's Spider Orchid)	END	Found on Clay, loam, laterite, granite. Rocky outcrops and hillsides, ridges, swamps and gullies.
<i>Eremophila viscida</i> (Varnish Bush)	END	Found on Granitic soils, sandy loam. Stony gullies, sandplains.
<i>Hypocalymma longifolium</i>	END	Found on Grey sand or clay, sandstone. Rocky breakaways, swampland.
<i>Caladenia elegans</i>	R	Found on Clayey loam. Winter-wet clay flats.
<i>Chorizema humile</i>	R	Found on Sandy clay or loam. Plains.
<i>Commersonia adenothalia</i>	R	Found on Orange-brown sand, gravel, laterite. Disturbed road verges.
<i>Eucalyptus beardiana</i>	R	Found on Red or yellow sand. Sand dunes & ridges.
<i>Eucalyptus synandra</i>	R	Found on Sandy & lateritic soils.
<i>Gyrostemon reticulatus</i>	R	Presumed extinct.
<i>Tecticornia bulbosa</i>	R	Found in Saline sandy clay or red/brown loam.
<i>Wurmbea tubulosa</i>	R	Found on Clay, loam. River banks, seasonally-wet places.
<i>Acacia ampliata</i>	P1	Found on Red/orange sand, sandy loam, loam. Sandplains, hillsides.
<i>Acacia lineolata</i> subsp. <i>multilineata</i>	P1	Found on Yellow sand, rocky clay. Sandplains.
<i>Acacia Pterocaulon</i>	P1	Found on Rocky clay loam, sandy clay. Rocky hillslopes
<i>Baekkea staminosa</i>	P1	Found on White sands. Wetlands.

Species	Code	Habitat Preference (WAH 2010)
<i>Chamelaucium</i> sp. Canna (G. Keighery s.n. PERTH 02236435)	P1	Found on Rocky loamy clay. On breakway country.
<i>Dampiera scaevolina</i>	P1	Found on Sandy & gravelly soils.
<i>Enekbatus dualis</i>	P1	Found on Orange-brown silty sand, brown clayey sand, granite. Low hills, gentle mid to upper slopes, rock outcrops.
<i>Enekbatus planifolius</i>	P1	Found on Orange-brown fine silty sand. On gentle slopes.
<i>Harperia ferruginipes</i>	P1	Found on Red sandy loam. Dry kwongan.
<i>Lepidobolus basiflorus</i>	P1	Found on Sand & sandy loam. Dry heath.
<i>Leptospermum exsertum</i>	P1	Found on Sandy soils. Sandplains.
<i>Malleostemon</i> sp. Mullewa (P. Winson B7365)	P1	Found on Sandy clay. Hillslopes, flats.
<i>Mirbelia ternata</i>	P1	Found on Red/brown sand, lateritic gravelly soils. Undulating plains.
<i>Ricinocarpos oliganthus</i>	P1	Found on Gravelly, red-brown clay loam.
<i>Scholtzia</i> sp. Binnu (M.E. Trudgen 2218)	P1	Found on Yellow sand. Sand dune.
<i>Scholtzia</i> sp. Kojarena (A.M. Ashby 1904)	P1	N/A
<i>Stylidium pendulum</i>	P1	Found on Clayey sand or sandy loam, granite. Upper slopes, often near rock outcrops. Shrubland or open mallee woodland.
<i>Stylidium wilroyense</i>	P1	Found on Sand or clayey sand. Plains and gentle slopes. Acacia, Allocasuarina shrubland.
<i>Stylidium xanthopis</i>	P1	Found in Pockets of damp soils. Outcrops.
<i>Tricoryne</i> sp. Geraldton (G.J. Keighery 10461)	P1	Found on White or yellow sand. Plains, crests of dunes.
<i>Acacia megacephala</i>	P2	Found on White/yellow sand, Sandplains.
<i>Anthotroche myoporoides</i>	P2	Found on Yellow or red sand. Sandplains.
<i>Baeckea</i> sp. Yuna (M.E. Trudgen 2224)	P2	Found on Sand, sandy loam, sandstone, Breakaways.
<i>Calectasia browneana</i>	P2	Found on White-grey sand, laterite. Adjacent to wet areas of creekline.
<i>Cheyniana rhodella</i>	P2	N/A

Species	Code	Habitat Preference (WAH 2010)
<i>Chthonocephalus muellerianus</i>	P2	Found on Red sandy soils. Sandplains
<i>Comesperma griffinii</i>	P2	Found on Yellow or grey sand. Plains.
<i>Comesperma rhadinocarpum</i>	P2	Found on Sandy soils.
<i>Dampiera krauseana</i>	P2	Found on Sand, gravel.
<i>Darwinia</i> sp. Canna (R. Davis 11241)	P2	Found on Brown sandy loam. Granite rises.
<i>Dicrastylis incana</i>	P2	Found on Yellow sand. Low, open woodlands.
<i>Eremaea acutifolia</i> (Rusty Eremaea)	P2	Found on Grey or yellow sand. Sandplains.
<i>Petrophile pilostyla</i> subsp. <i>Syntoma</i>	P2	Found on Yellow sand. Crests of sand dunes.
<i>Prostanthera scutata</i>	P2	Found on Gravelly sand. Undulating sandplains
<i>Scholtzia</i> sp. Eradu (R.D. Royce 8016)	P2	Found on Yellow sand. Flats.
<i>Stenanthemum poicilum</i>	P2	Found on Red clay or sandy clay, loam.
<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)	P2	Found in Yellow sand.
<i>Verticordia muelleriana</i> subsp. <i>Minor</i>	P2	Found on White/grey or yellow sand over gravel.
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	P3	Found on Yellow or red sand, gravelly soils. Sandplains.
<i>Angianthus micropodioides</i>	P3	Occurs on Saline sandy soils. River edges, saline depressions and claypans.
<i>Baeckea</i> sp. Walkaway	P3	Found on Yellow/brown or white sand. Undulating plains, hill slopes.
<i>Beyeria gardneri</i>	P3	Found on Yellow sand.
<i>Calytrix ecalycata</i> subsp. <i>ecalycata</i>	P3	Found on Yellow or white sand, sandy gravel, clay loam, granite, sandstone. Uplands, valley flats, ridges, hills, road verges.
<i>Cryptandra nola</i>	P3	Found on Sandy soils over granite, laterite. Along drainage lines, breakaways, hillsides.
<i>Darwinia</i> sp. Morawa (C.A. Gardner 2662)	P3	Found on Clay over granite, yellow/brown clayey sand. Flat, small hills.
<i>Enekbatus longistylis</i>	P3	Found on Yellow sand. Sandplains.
<i>Gastrolobium propinquum</i>	P3	Found on Clay, clay-loam or sandy clay soils, granite, shale. Hills, flats, drainage lines, winter-wet areas.

Species	Code	Habitat Preference (WAH 2010)
<i>Geleznovia verrucosa</i> subsp. Kalbarri (L.M. Broadhurst 123)	P3	Found on White/orange-brown sand, gravel, laterite, sandstone, limestone. Disturbed edges of quarries, slopes.
<i>Gnephosis cassiniana</i>	P3	Found on Sand, clay loam. Saline depressions, low wet areas.
<i>Gompholobium cinereum</i>	P3	Found on Yellow sand, clayey sand, brown loam, sandy gravel, and laterite. Well-drained open sites, slopes, plains, roadsides.
<i>Grevillea candicans</i>	P3	Found on Deep yellow sand. Sandplains.
<i>Grevillea eriobotrya</i>	P3	Found on Yellow sand, sandy clay.
<i>Grevillea granulosa</i>	P3	Found on Amongst medium trees, or low trees, or low (sclerophyll) shrubland; in gravelly soil, or loam; occupying water logged margin of salt lake
<i>Grevillea leptopoda</i>	P3	Found on Loam & lateritic gravel, sand, clay.
<i>Grevillea tenuiloba</i>	P3	Found on Sand, clay loam. Granite outcrops.
<i>Grevillea triloba</i>	P3	Found on Sandy loam on sandstone or limestone, lateritic soils.
<i>Hemigenia saligna</i>	P3	Found on Lateritic & sandy soils.
<i>Hibbertia glomerosa</i> var. <i>Bistrata</i>	P3	Found on Sand, sandy loam, granite.
<i>Malleostemon</i> sp. Erangy Springs (M.E. Trudgen 12030)	P3	Found on Grey sand. Undulating plains.
<i>Melaleuca barlowii</i>	P3	Found on Yellow-brown sand or red-brown clay loam. Roadside reserves, shrubland.
<i>Microcorys tenuifolia</i>	P3	Found on Red-brown sand, lateritic gravelly soils.
<i>Persoonia pentasticha</i>	P3	Found on Sand, loam. Base of granite outcrops.
<i>Psammomoya implexa</i>	P3	Found on Stony rises.
<i>Scaevola globosa</i>	P3	Found on Sandy soils.
<i>Scholtzia</i> sp. Geraldton (F. Lullfitz L 3216)	P3	Found on Yellow sand. Flats.
<i>Tecticornia fimbriata</i>	P3	Found in Clay, loam. Margins of salt & gypsum lakes
<i>Tricoryne</i> sp. Morawa (G.J. Keighery & N. Gibson 6759)	P3	Found on Red-brown sand, red clayey loam, greenstone gravels, gritty soils, granite. Valley and hill slopes, hill summits.

Species	Code	Habitat Preference (WAH 2010)
<i>Triglochin protuberans</i>	P3	Found on Red loam, grey mud over clay. Winter-wet sites, claypans, near salt lakes, margins of pools.
<i>Urodon capitatus</i>	P3	Found on Sandy gravelly soils. Plains.
<i>Verticordia chrysostachys</i> var. <i>Pallida</i>	P3	Found on Yellow sand. Sandplains, sand dunes.
<i>Verticordia densiflora</i> var. <i>roseostella</i>	P3	Found on Sandy gravelly soils.
<i>Verticordia fragrans</i>	P3	Found on White, grey or yellow sand, clay loam. Low-lying areas, sandplains.
<i>Acacia guinetii</i>	P4	Found on Rocky loam, lateritic gravelly soils. Stony hills.
<i>Banksia benthamiana</i>	P4	Found on Sandy loam, clay-loam, yellow sand, gravel.
<i>Banksia elegans</i>	P4	Found on Yellow, white or red sand. Sandplains, low consolidated dunes.
<i>Diuris recurva</i>	P4	Found on Loam. Winter-wet areas
<i>Eucalyptus ebbanoensis</i> subsp. <i>photina</i>	P4	Found on Sandy clay, red sand. Lateritic breakaways, sandplains.
<i>Jacksonia velutina</i>	P4	Found on Yellow sand. Sandplains & sandhills.
<i>Verticordia capillaris</i>	P4	Found on Yellow sand, sandy loam, sandy clay. Sandplains.
<i>Verticordia comosa</i>	P4	Found in Yellow or grey sand.
<i>Verticordia penicillaris</i>	P4	Found on Shallow gritty soils. Granite outcrops.
<i>Verticordia polytricha</i> (Northern Cauliflower)	P4	Found on Sand, gravelly clay. Sandstone outcrops.

Source: Department of Environment and Conservation Database Search (DEC 2010c)

APPENDIX B

DEFINITION OF THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

APPENDIX B

DEFINITIONS OF THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

C1: 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 (2010). *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*. Department of Environment and Conservation, Perth, Western Australia. Online: www.naturebase.net/

C2: 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 (2010). *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*. Department of Environment and Conservation, Perth, Western Australia. Online: www.naturebase.net/

C3: Categories of Threatened Ecological Communities under the *EPBC Act*.

Three categories exist for listing threatened ecological communities under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). An ecological community may be categorized as:

Critically Endangered ☐ If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered ☐ If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.

Vulnerable ☐ If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.

APPENDIX C

ENVIRONMENTAL WEEDS AND DECLARED PLANT CATEGORIES

APPENDIX C

ENVIRONMENTAL WEEDS AND DECLARED PLANT CATEGORIES

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 weed 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/>.

APPENDIX D

CONDITION SCALE

APPENDIX D

BUSH FOREVER VEGETATION 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.

APPENDIX E

FLORA INVENTORY

APPENDIX E
FLORA INVENTORY

Family	Name
Aizoaceae	<i>Tetragonia diptera</i>
	* <i>Mesembryanthemum crystallinum</i>
Amaranthaceae	<i>Ptilotus divaricatus</i>
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
	<i>Ptilotus obovatus</i>
	<i>Ptilotus polystachyus</i>
	<i>Ptilotus spathulatus</i>
Anacardiaceae	* <i>Schinus terebinthifolius</i>
Apiaceae	<i>Daucus glochidiatus</i>
	<i>Platysace maxwellii</i>
	<i>Platysace trachymenioides</i>
Apocynaceae	<i>Alyxia buxifolia</i>
Araliaceae	<i>Trachymene ceratocarpa</i>
	<i>Trachymene cyanopetala</i>
	<i>Trachymene ornata</i>
	<i>Trachymene pilosa</i>
Asparagaceae	<i>Lomandra effusa</i>
	<i>Arthropodium dyeri</i>
	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>
	<i>Dichopogon capillipes</i>
	<i>Laxmannia sessiliflora</i>
	<i>Sowerbaea laxiflora</i>
	<i>Thysanotus manglesianus</i>
	<i>Thysanotus patersonii</i>
	<i>Thysanotus pyramidalis</i>
	<i>Thysanotus speckii</i>
Asphodelaceae	<i>Bulbine semibarbata</i>
Asteraceae	<i>Actinobole uliginosum</i>
	<i>Bellida graminea</i>
	<i>Blennospora drummondii</i>
	<i>Brachyscome ciliaris</i>
	<i>Brachyscome ciliocarpa</i>
	<i>Brachyscome oncocarpa</i>
	<i>Cephalipterum drummondii</i>
	<i>Erymophyllum tenellum</i>
	<i>Gilberta tenuifolia</i>
	<i>Gnephosis angianthoides</i>
	<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>
	<i>Isoetopsis graminifolia</i>

	<i>Lawrencella rosea</i>
	<i>Olearia dampieri</i>
	<i>Olearia stuartii</i>
	<i>Podolepis canescens</i>
	<i>Podolepis capillaris</i>
	<i>Podolepis lessonii</i>
	<i>Podotheca angustifolia</i>
	<i>Pogonolepis stricta</i>
	<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>
	<i>Rhodanthe laevis</i>
	<i>Rhodanthe spicata</i>
	<i>Schoenia cassiniana</i>
	<i>Senecio glossanthus</i>
	<i>Senecio laceratus</i>
	<i>Waitzia acuminata</i> var. <i>acuminata</i>
	* <i>Arctotheca calendula</i>
	* <i>Cotula bipinnata</i>
	* <i>Gorteria personata</i>
	* <i>Hypochaeris glabra</i>
	* <i>Monoculus monstrosus</i>
	* <i>Sonchus oleraceus</i>
	* <i>Urospermum picroides</i>
	* <i>Ursinia anthemoides</i>
Boraginaceae	<i>Halgania gustafsenii</i> var. Mid West
	<i>Halgania cyanea</i> var. Allambi Stn (B.W. Strong 676)
	* <i>Echium plantagineum</i>
Boryaceae	<i>Borya constricta</i>
	<i>Borya sphaerocephala</i>
Brassicaceae	<i>Stenopetalum filifolium</i>
	* <i>Brassica napus</i>
	* <i>Brassica tournefortii</i>
	* <i>Raphanus raphanistrum</i>
	* <i>Sisymbrium irio</i>
Campanulaceae	<i>Wahlenbergia</i> sp.
	* <i>Wahlenbergia capensis</i>
	<i>Lobelia</i> sp.
	<i>Lobelia winfridae</i>
Caryophyllaceae	* <i>Petrohragia dubia</i>
	* <i>Vaccaria hispanica</i>
Casuarinaceae	<i>Allocasuarina acutivalvis</i>
	<i>Allocasuarina campestris</i>
	<i>Allocasuarina humilis</i>
	<i>Casuarina obesa</i>

Celastraceae	<i>Stackhousia dielsii</i>
	<i>Stackhousia monogyna</i>
Chenopodiaceae	<i>Tecticornia halocnemoides</i>
	<i>Tecticornia pruinosa</i>
	<i>Tecticornia undulata</i>
	<i>Atriplex amnicola</i>
	<i>Atriplex bunburyana</i>
	<i>Atriplex codonocarpa</i>
	<i>Atriplex holocarpa</i>
	<i>Atriplex paludosa</i> subsp. <i>baudinii</i>
	<i>Atriplex semilunaris</i>
	<i>Atriplex stipitata</i>
	<i>Atriplex suberecta</i>
	<i>Chenopodium gaudichaudianum</i>
	<i>Didymanthus roei</i>
	<i>Enchylaena tomentosa</i>
	<i>Maireana aphylla</i>
	<i>Maireana carnosa</i>
	<i>Maireana georgei</i>
	<i>Maireana planifolia</i>
	<i>Maireana thesioides</i>
	<i>Maireana tomentosa</i>
	<i>Rhagodia drummondii</i>
	<i>Rhagodia eremaea</i>
	<i>Rhagodia preissii</i> subsp. <i>obovata</i>
	<i>Salsola tragus</i>
	<i>Sclerolaena densiflora</i>
	<i>Sclerolaena diacantha</i>
	<i>Sclerolaena eurotioides</i>
	<i>Sclerolaena lanicuspis</i>
<i>Tecticornia indica</i> subsp. <i>bidens</i>	
<i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i>	
<i>Tecticornia</i> sp.	
Chloanthaceae	<i>Cyanostegia angustifolia</i>
	<i>Lachnostachys eriobotrya</i>
	<i>Pityrodia lepidota</i>
Colchicaceae	<i>Burchardia congesta</i>
	<i>Wurmbea tenella</i>
Convolvulaceae	<i>Bonamia rosea</i>
	<i>Convolvulus remotus</i>
	* <i>Cuscuta epithymum</i>
Crassulaceae	<i>Crassula colorata</i> var. <i>acuminata</i>
	<i>Crassula colorata</i> var. <i>colorata</i>
Cupressaceae	<i>Callitris arenaria</i>

Cyperaceae	<i>Mesomelaena preissii</i>
	<i>Caustis dioica</i>
	<i>Gahnia drummondii</i>
	<i>Gahnia trifida</i>
	<i>Lepidosperma aphyllum</i>
	<i>Lepidosperma brunonianum</i>
	<i>Lepidosperma longitudinale</i>
	<i>Lepidosperma scabrum</i>
	<i>Mesomelaena pseudostygia</i>
	<i>Schoenus grandiflorus</i>
	<i>Schoenus pedicellatus</i>
Dasypogonaceae	<i>Acanthocarpus canaliculatus</i>
	<i>Acanthocarpus preissii</i>
Dilleniaceae	<i>Hibbertia arcuata</i>
	<i>Hibbertia desmophylla</i>
	<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>
	<i>Hibbertia glomerata</i> var. <i>bistrata</i>
	<i>Hibbertia glomerata</i> var. <i>glomerata</i>
	<i>Hibbertia huegelii</i>
	<i>Hibbertia hypericoides</i>
	<i>Hibbertia</i> sp.
<i>Hibbertia stenophylla</i>	
Dioscoreaceae	<i>Dioscorea hastifolia</i>
Droseraceae	<i>Drosera macrantha</i> subsp. <i>macrantha</i>
	<i>Drosera menziesii</i> subsp. <i>menziesii</i>
	<i>Drosera neesii</i> subsp. <i>borealis</i>
Ecdeiocoleaceae	<i>Ecdeiocolea monostachya</i>
Ericaceae	<i>Brachyloma pirara</i>
	<i>Astroloma serratifolium</i>
	<i>Leucopogon hamulosus</i>
	<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)
Euphorbiaceae	<i>Calycopeplus paucifolius</i>
	<i>Monotaxis bracteata</i>
	<i>Ricinocarpos muricatus</i>
	<i>Ricinocarpos velutinus</i>
Fabaceae	<i>Acacia aciphylla</i>
	<i>Acacia acuarina</i>
	<i>Acacia acuminata</i>
	<i>Acacia alata</i> var. <i>biglandulosa</i>
	<i>Acacia andrewsii</i>
	<i>Acacia anthochaera</i>
	<i>Acacia assimilis</i> subsp. <i>assimilis</i>
	<i>Acacia bidentata</i>
<i>Acacia blakelyi</i>	

<i>Acacia brumalis</i>
<i>Acacia burkittii</i>
<i>Acacia colletioides</i>
<i>Acacia comans</i>
<i>Acacia coolgardiensis</i>
<i>Acacia dielsii</i>
<i>Acacia ericifolia</i>
<i>Acacia idiomorpha</i>
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>
<i>Acacia latipes</i> subsp. <i>latipes</i>
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i>
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>
<i>Acacia longiphyllodinea</i>
<i>Acacia longispinea</i>
<i>Acacia megacephala</i>
<i>Acacia neurophylla</i>
<i>Acacia neurophylla</i> subsp. <i>erugata</i>
<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>
<i>Acacia prainii</i>
<i>Acacia pulchella</i>
<i>Acacia quadrimarginea</i>
<i>Acacia ramulosa</i> var. <i>linophylla</i>
<i>Acacia ramulosa</i> var. <i>ramulosa</i>
<i>Acacia restiacea</i>
<i>Acacia rostelifera</i>
<i>Acacia saligna</i>
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>
<i>Acacia sessilis</i>
<i>Acacia sibina</i>
<i>Acacia sibirica</i>
<i>Acacia</i> sp.
<i>Acacia spathulifolia</i>
<i>Acacia stereophylla</i> var. <i>stereophylla</i>
<i>Acacia tetragonophylla</i>
<i>Acacia ulicina</i>
<i>Acacia xanthina</i>
<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>
<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>
<i>Senna charlesiana</i>
<i>Chorizema racemosum</i>
<i>Daviesia benthamii</i> subsp. <i>benthamii</i>
<i>Daviesia divaricata</i>
<i>Daviesia hakeoides</i> subsp. <i>subnuda</i>

	<i>Gastrolobium oxylobioides</i>
	<i>Gastrolobium spinosum</i>
	<i>Gompholobium cinereum</i>
	<i>Gompholobium tomentosum</i>
	<i>Isotropis drummondii</i>
	<i>Jacksonia arenicola</i>
	<i>Jacksonia cupulifera</i>
	<i>Jacksonia foliosa</i>
	<i>Jacksonia ramulosa</i> MS
	<i>Jacksonia rhadinoclada</i>
	<i>Jacksonia rigida</i>
	<i>Jacksonia velutina</i>
	<i>Leptosema aphyllum</i>
	<i>Mirbelia depressa</i>
	<i>Mirbelia longifolia</i>
	<i>Mirbelia ramulosa</i>
	<i>Mirbelia trichocalyx</i>
	* <i>Lupinus cosentinii</i>
	* <i>Medicago polymorpha</i>
	* <i>Melilotus indicus</i>
	* <i>Ornithopus compressus</i>
	* <i>Trifolium hirtum</i>
Frankeniaceae	<i>Frankenia cinerea</i>
Geraniaceae	<i>Erodium cygnorum</i>
Goodeniaceae	<i>Brunonia australis</i>
	<i>Dampiera eriocephala</i>
	<i>Dampiera krauseana</i>
	<i>Dampiera lavandulacea</i>
	<i>Dampiera lindleyi</i>
	<i>Dampiera salahae</i>
	<i>Dampiera spicigera</i>
	<i>Goodenia berardiana</i>
	<i>Goodenia havilandii</i>
	<i>Goodeniaceae</i> sp.
	<i>Lechenaultia floribunda</i>
	<i>Lechenaultia linarioides</i>
	<i>Lechenaultia macrantha</i>
	<i>Scaevola anchusifolia</i>
	<i>Scaevola canescens</i>
	<i>Scaevola spinescens</i>
	<i>Scaevola virgata</i>
	<i>Velleia rosea</i>
Gyrostemonaceae	<i>Gyrostemon ramulosus</i>
Haemodoraceae	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>

	<i>Anigozanthos</i> sp.
	<i>Conostylis androstemma</i>
	<i>Conostylis prolifera</i>
	<i>Conostylis robusta</i>
	<i>Haemodorum simulans</i>
Haloragaceae	<i>Glischrocaryon aureum</i>
	<i>Haloragis trigonocarpa</i>
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>
	<i>Stypandra glauca</i>
	<i>Caesia micrantha</i>
	<i>Corynotheca micrantha</i> var. <i>acanthoclada</i>
	<i>Corynotheca micrantha</i> var. <i>micrantha</i>
	<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)
Iridaceae	<i>Freesia</i> sp.
	* <i>Moraea setifolia</i>
Juncaceae	<i>Juncus radula</i>
Lamiaceae	<i>Dicrastylis soliparma</i>
	<i>Hemigenia appressa</i> G.R Guerin
	<i>Hemigenia botryphylla</i> G.R Guerin
	<i>Hemigenia coccinea</i>
	<i>Hemigenia macphersonii</i>
	<i>Hemigenia scabra</i>
	<i>Microcorys tenuifolia</i>
Lauraceae	<i>Cassytha glabella</i> forma <i>dispar</i>
Loganiaceae	<i>Logania flaviflora</i>
	<i>Phyllangium sulcatum</i>
Loranthaceae	<i>Amyema fitzgeraldii</i>
	<i>Amyema preissii</i>
	<i>Lysiana casuarinae</i>
	<i>Nuytsia floribunda</i>
Malvaceae	<i>Malvaceae</i> sp.
	<i>Alyogyne huegelii</i>
	<i>Alyogyne pinoniana</i>
	<i>Alyogyne wrayae</i>
	<i>Sida calyxhymenia</i>
	<i>Commersonia gaudichaudii</i>
	<i>Guichenotia angustifolia</i>
	<i>Keraudrenia hermanniifolia</i>
	<i>Keraudrenia</i> sp.
	<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>
	<i>Rulingia densiflora</i>
	<i>Rulingia luteiflora</i>
Myrtaceae	<i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>
	<i>Corymbia citriodora</i>

<i>Baeckea crispiflora</i>
<i>Baeckea decipiens</i>
<i>Baeckea grandiflora</i>
<i>Baeckea pentagonantha</i>
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)
<i>Baeckea</i> sp. Murchison River (M.E. Trudgen 12009)
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)
<i>Beaufortia sprengelioides</i>
<i>Beaufortia squarrosa</i>
<i>Callistemon phoeniceus</i>
<i>Calothamnus chrysantherus</i>
<i>Calothamnus sanguineus</i>
<i>Calytrix brevifolia</i>
<i>Calytrix depressa</i>
<i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188)
<i>Chamelaucium drummondii</i>
<i>Chamelaucium pauciflorum</i>
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye
<i>Darwinia diosmoides</i>
<i>Darwinia pauciflora</i>
<i>Eremaea acutifolia</i>
<i>Eucalyptus</i> aff. <i>ewartiana</i>
<i>Eucalyptus camaldulensis</i>
<i>Eucalyptus eudesmioides</i>
<i>Eucalyptus ewartiana</i>
<i>Eucalyptus horistes</i>
<i>Eucalyptus jucunda</i>
<i>Eucalyptus leptopoda</i>
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>
<i>Eucalyptus loxophleba</i>
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
<i>Eucalyptus oldfieldii</i>
<i>Eucalyptus pyriformis</i>
<i>Eucalyptus rigidula</i>
<i>Eucalyptus salubris</i>
<i>Eucalyptus</i> sp.
<i>Eucalyptus wandoo</i> subsp. <i>pulverea</i>
<i>Homalocalyx aureus</i>
<i>Homalocalyx thryptomenoides</i>
<i>Leptospermum oligandrum</i>

	<i>Malleostemon hursthousei</i>
	<i>Malleostemon roseus</i>
	<i>Malleostemon tuberculatus</i>
	<i>Melaleuca acuminata</i>
	<i>Melaleuca atroviridis</i>
	<i>Melaleuca barlowii</i>
	<i>Melaleuca cordata</i>
	<i>Melaleuca depressa</i>
	<i>Melaleuca eleuterostachya</i>
	<i>Melaleuca filifolia</i>
	<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>
	<i>Melaleuca hamata</i>
	<i>Melaleuca leuropoma</i>
	<i>Melaleuca longistaminea</i>
	<i>Melaleuca nematophylla</i>
	<i>Melaleuca radula</i>
	<i>Melaleuca</i> sp.
	<i>Melaleuca tinkeri</i>
	<i>Melaleuca uncinata</i>
	<i>Melaleuca viminea</i> subsp. <i>viminea</i>
	<i>Micromyrtus prochytes</i>
	<i>Myrtaceae</i> sp.
	<i>Scholtzia Kojarena</i>
	<i>Scholtzia leptantha</i>
	<i>Scholtzia oligandra</i>
	<i>Scholtzia parviflora</i>
	<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)
	<i>Thryptomene cuspidata</i>
	<i>Thryptomene denticulata</i>
	<i>Thryptomene hyporhytis</i>
	<i>Thryptomene</i> sp.
	<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)
	<i>Thryptomene</i> sp. Wandana
	<i>Thryptomene strongylophylla</i>
	<i>Verticordia capillaris</i>
	<i>Verticordia chrysostachys</i> var. <i>pallida</i>
	<i>Verticordia densiflora</i> var. <i>stelluligera</i>
	<i>Verticordia eriocephala</i>
	<i>Verticordia monadelpha</i> var. <i>monadelpha</i>
	<i>Verticordia muelleriana</i> subsp. <i>minor</i>
	<i>Verticordia nobilis</i>
	<i>Verticordia picta</i>
Orchidaceae	<i>Caladenia flava</i>
	<i>Caladenia flava</i> subsp. <i>flava</i>

	<i>Caladenia longicauda</i> subsp. <i>borealis</i>
	<i>Caladenia wanosa</i>
	<i>Cyanicula amplexans</i>
	<i>Cyanicula fragrans</i>
	<i>Diuris corymbosa</i>
	<i>Diuris porrifolia</i>
	<i>Diuris setacea</i>
	<i>Diuris</i> sp.
	<i>Orchidaceae</i> sp.
	<i>Pterostylis</i> sp.
	<i>Pterostylis spathulata</i>
	* <i>Monadenia bracteata</i>
Orobanchaceae	* <i>Parentucellia latifolia</i>
Papaveraceae	* <i>Fumaria capreolata</i>
Pittosporaceae	<i>Bursaria occidentalis</i>
	<i>Cheiranthra simplicifolia</i>
	<i>Marianthus bicolor</i>
Plantaginaceae	<i>Plantago debilis</i>
Plumbaginaceae	* <i>Limonium lobatum</i>
	* <i>Limonium sinuatum</i>
Poaceae	<i>Amphipogon caricinus</i> var. <i>caricinus</i>
	<i>Amphipogon turbinatus</i>
	<i>Aristida contorta</i>
	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida</i> sp.
	<i>Austrodanthonia setacea</i>
	<i>Austrostipa elegantissima</i>
	<i>Austrostipa scabra</i> subsp. <i>scabra</i>
	<i>Austrostipa trichophylla</i>
	<i>Austrostipa variabilis</i>
	<i>Eragrostis dielsii</i>
	<i>Eragrostis</i> sp.
	<i>Monachather paradoxus</i>
	<i>Neurachne alopecuroidea</i>
	<i>Thyridolepis multiculmis</i>
	<i>Triodia danthonioides</i>
	* <i>Arundo donax</i>
	* <i>Avena barbata</i>
	* <i>Briza maxima</i>
	* <i>Bromus diandrus</i>
	* <i>Bromus rubens</i>
	* <i>Ehrharta calycina</i>
	* <i>Ehrharta longiflora</i>
	* <i>Eragrostis curvula</i>

	<i>*Hordeum leporinum</i>
	<i>*Lamarckia aurea</i>
	<i>*Lolium perenne</i>
	<i>*Lolium perenne x rigidum</i>
	<i>*Parapholis incurva</i>
	<i>*Pennisetum setaceum</i>
	<i>*Pentaschistis airoides</i>
	<i>*Vulpia muralis</i>
	<i>*Vulpia myuros</i>
Polygalaceae	<i>Comesperma acerosum</i>
	<i>Comesperma integerrimum</i>
	<i>Comesperma scoparium</i>
Polygonaceae	<i>*acetosa vesicarius</i>
	<i>Muehlenbeckia adpressa</i>
	<i>Muehlenbeckia sp.</i>
Portulacaceae	<i>Calandrinia eremaea</i>
	<i>Calandrinia polyandra</i>
	<i>*Portulaca oleracea</i>
Primulaceae	<i>Samolus repens var. floribundus</i>
	<i>*Lysimachia arvensis</i>
Proteaceae	<i>Petrophile pilostyla subsp. syntoma</i>
	<i>Adenanthos cygnorum subsp. cygnorum</i>
	<i>Banksia attenuata</i>
	<i>Banksia benthamiana</i>
	<i>Banksia prionotes</i>
	<i>Banksia scabrella</i>
	<i>Banksia sceptrum</i>
	<i>Conospermum boreale subsp. ascendens</i>
	<i>Conospermum stoechadis subsp. stoechadis</i>
	<i>Banksia fraseri var. ashbyi</i>
	<i>Banksia sessilis var. flabellifolia</i>
	<i>Grevillea amplexans subsp. amplexans</i>
	<i>Grevillea asparagoides</i>
	<i>Grevillea biternata</i>
	<i>Grevillea bracteosa subsp. howatharra</i>
	<i>Grevillea candelabroides</i>
	<i>Grevillea commutata</i>
	<i>Grevillea eriostachya</i>
	<i>Grevillea excelsior</i>
	<i>Grevillea granulosa</i>
	<i>Grevillea hakeoides subsp. hakeoides</i>
	<i>Grevillea integrifolia</i>
	<i>Grevillea levis</i>
	<i>Grevillea obliquistigma subsp. funicularis</i>

	<i>Grevillea paradoxa</i>
	<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>
	<i>Grevillea phanerophlebia</i>
	<i>Grevillea pinaster</i>
	<i>Grevillea</i> sp.
	<i>Grevillea tenuiloba</i>
	<i>Grevillea vestita</i> subsp. <i>isopogoides</i>
	<i>Hakea bucculenta</i>
	<i>Hakea invaginata</i>
	<i>Hakea lissocarpha</i>
	<i>Hakea polyanthema</i>
	<i>Hakea preissii</i>
	<i>Hakea prostrata</i>
	<i>Hakea pycnoneura</i>
	<i>Hakea recurva</i> subsp. <i>arida</i>
	<i>Hakea recurva</i> subsp. <i>recurva</i>
	<i>Hakea</i> sp.
	<i>Hakea subsulcata</i>
	<i>Hakea trifurcata</i>
	<i>Isopogon divergens</i>
	<i>Isopogon</i> sp.
	<i>Persoonia hexagona</i>
	<i>Petrophile brevifolia</i>
	<i>Petrophile conifera</i>
	<i>Stirlingia latifolia</i>
	<i>Xylomelum angustifolium</i>
Pteridaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>
Restionaceae	<i>Desmocladius asper</i>
	<i>Desmocladius fasciculatus</i>
	<i>Hypolaena exsulca</i>
	<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>
Rhamnaceae	<i>Cryptandra apetala</i> var. <i>apetala</i>
	<i>Cryptandra arbutiflora</i> var. <i>borealis</i>
	<i>Cryptandra nola</i>
	<i>Polianthion wichurae</i> (Reissek) K.R. Thiele
	<i>Stenanthemum poicilum</i>
Rubiaceae	<i>Opercularia spermacocea</i>
	<i>Opercularia vaginata</i>
Rutaceae	<i>Boronia coerulescens</i> subsp. <i>spinescens</i>
	<i>Boronia cymosa</i>
	<i>Diplolaena leemaniana</i>
	<i>Geleznovia verrucosa</i>
	<i>Philotheca brucei</i> subsp. <i>brucei</i>
Santalaceae	<i>Exocarpos aphyllus</i>

	<i>Exocarpos sparteus</i>
	<i>Leptomeria preissiana</i>
	<i>Santalum acuminatum</i>
Sapindaceae	<i>Diplopeltis huegelii</i> subsp. <i>subintegra</i>
	<i>Dodonaea inaequifolia</i>
	<i>Dodonaea microzyga</i> var. <i>acrolobata</i>
	<i>Dodonaea pinifolia</i>
Scrophulariaceae	* <i>Zaluzianskya divaricata</i>
	<i>Eremophila clarkei</i>
	<i>Eremophila decipiens</i> subsp. <i>linearifolia</i>
	<i>Eremophila eriocalyx</i>
	<i>Eremophila georgei</i>
	<i>Eremophila glabra</i> subsp. <i>glabra</i>
	<i>Eremophila glandulifera</i>
Solanaceae	<i>Cyphanthera racemosa</i>
	<i>Solanum ellipticum</i>
	<i>Solanum hesperium</i>
	<i>Solanum lasiophyllum</i>
	<i>Solanum oldfieldii</i>
	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>
	* <i>Lycium ferocissimum</i>
Stylidiaceae	<i>Levenhookia leptantha</i>
	<i>Levenhookia pusilla</i>
	<i>Stylidium adpressum</i>
	<i>Stylidium confluens</i>
	<i>Stylidium crossocephalum</i>
	<i>Stylidium elongatum</i>
	<i>Stylidium leptophyllum</i>
	<i>Stylidium</i> sp.
Surianaceae	<i>Stylobasium australe</i>
Thymelaeaceae	<i>Pimelea angustifolia</i>
	<i>Pimelea imbricata</i> var. <i>piliger</i>
	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>
Vitaceae	<i>Clematicissus angustissima</i>
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>

APPENDIX F

MATRIX OF SPECIES RECORDED WITHIN THE SURVEY AREA

NAME	WR01	WR02	WR03	WR04	WR05	WR06	WR07	WR08	WR09	WR10	WR11	WR12	WR13	WR14	WR15	WR16	WR17
<i>Jacksonia rigida</i>													+	+			
<i>Jacksonia velutina</i>																	
<i>Juncus radula</i>																	+
<i>Keraudrenia hermanniifolia</i>				+					5%		5%			1-2%			
<i>Keraudrenia</i> sp.																	
<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>																	
<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>																	+
<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>																	
<i>Lachnostachys eriobotrya</i>															+		
* <i>Lamarckia aurea</i>																	
<i>Lawrencella rosea</i>																	
<i>Laxmannia sessiliflora</i>																	
<i>Lechenaultia floribunda</i>																	
<i>Lechenaultia linarioides</i>				+		+		+	+							+	
<i>Lechenaultia macrantha</i>																	
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>				+				+			+					+	
<i>Lepidosperma aphyllum</i>																	
<i>Lepidosperma brunonianum</i>										+						+	
<i>Lepidosperma longitudinale</i>															+		
<i>Lepidosperma scabrum</i>										+							
<i>Leptomeria preissiana</i>																	
<i>Leptosema aphyllum</i>																	
<i>Leptospermum oligandrum</i>																	
<i>Leucopogon hamulosus</i>	+																
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	+								+							
<i>Levenhookia leptantha</i>																	
<i>Levenhookia pusilla</i>	+																
* <i>Limonium lobatum</i>																	
* <i>Limonium sinuatum</i>																	
<i>Lobelia</i> sp.																	
<i>Lobelia winfridae</i>																	
<i>Logania flaviflora</i>																	
* <i>Lolium perenne</i>																	
* <i>Lolium perenne</i> x <i>rigidum</i>																	
<i>Lomandra effusa</i>																	
* <i>Lupinus cosentinii</i>						+											
* <i>Lycium ferocissimum</i>																	
<i>Lysiana casuarinae</i>											nc						
<i>Lysimachia arvensis</i>				+		+						+	+	+			
<i>Maireana aphylla</i>																	
<i>Maireana carnosa</i>																	
<i>Maireana georgei</i>						+						+	+	+			+
<i>Maireana planifolia</i>																	
<i>Maireana thesioides</i>																	
<i>Maireana tomentosa</i>																	
<i>Malleostemon hursthousei</i>	+							nc						+			

NAME	WR01	WR02	WR03	WR04	WR05	WR06	WR07	WR08	WR09	WR10	WR11	WR12	WR13	WR14	WR15	WR16	WR17
<i>Thryptomene</i> sp. <i>Wandana</i>																	
<i>Thryptomene strongylophylla</i>																	
<i>Thyridolepis multiculmis</i>																	
<i>Thysanotus manglesianus</i>		+	+	+			+	+			+	+	+			+	+
<i>Thysanotus patersonii</i>	+										+				+		
<i>Thysanotus pyramidalis</i>																	
<i>Thysanotus speckii</i>																	
<i>Trachymene ceratocarpa</i>									+								
<i>Trachymene cyanopetala</i>					+						+					+	
<i>Trachymene ornata</i>										+			+				
<i>Trachymene pilosa</i>		+															
<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)																	
* <i>Trifolium hirtum</i>						+											
<i>Triodia danthonioides</i>											1%						
* <i>Urospermum picroides</i>						+							+				
* <i>Ursinia anthemoides</i>				+	+		+	+			nc	+		+			+
* <i>Vaccaria hispanica</i>																	
<i>Velleia rosea</i>																	
<i>Verticordia capillaris</i>																	
<i>Verticordia chrysostachys</i> var. <i>pallida</i>																	
<i>Verticordia densiflora</i> var. <i>stelluligera</i>											+				+	+	
<i>Verticordia eriocephala</i>																	
<i>Verticordia monadelpha</i> var. <i>monadelpha</i>	+		+		+												
<i>Verticordia muelleriana</i> subsp. <i>minor</i>																	
<i>Verticordia nobilis</i>																	
<i>Verticordia picta</i>																	
* <i>Vulpia muralis</i>				+		1%	+	+									
* <i>Vulpia myuros</i>													1%				
* <i>Wahlenbergia capensis</i>											OUT						
<i>Wahlenbergia</i> sp.																	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	nc	+	+	1%	+	+	+	+	+	+	+	+		+		+	
<i>Wurmbea tenella</i>																	
<i>Xanthorrhoea preissii</i>																	
<i>Xylomelum angustifolium</i>				4%												1%	
* <i>Zaluzianskya divaricata</i>												+					

NAME	WR18	WR19	WR20	WR21	WR22	WR23	WR24	WR25	WR50	WR51	WR52	WR53	WR54	WR55	WR56	WR57	WR58
<i>Schoenia cassiniana</i>						+						+		+			+
<i>Schoenus grandiflorus</i>																	
<i>Schoenus pedicellatus</i>	+			+													
<i>Scholtzia Kojarena</i>																	
<i>Scholtzia leptantha</i>					10%												
<i>Scholtzia oligandra</i>	75%																
<i>Scholtzia parviflora</i>																	
<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)													+				
<i>Sclerolaena densiflora</i>																	
<i>Sclerolaena diacantha</i>		1%															
<i>Sclerolaena eurotioides</i>																	
<i>Sclerolaena lanicuspis</i>						+											
<i>Senecio glossanthus</i>																	
<i>Senecio laceratus</i>															+		
<i>Senna charlesiana</i>																+	
<i>Sida calyxhymenia</i>																	
* <i>Sisymbrium irio</i>																	
<i>Solanum ellipticum</i>													nc				
<i>Solanum hesperium</i>														+			
<i>Solanum lasiophyllum</i>		nc															
<i>Solanum oldfieldii</i>				+													
<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>																	
* <i>Sonchus oleraceus</i>													+				
<i>Sowerbaea laxiflora</i>	+			+													
<i>Stackhousia dielsii</i>																	
<i>Stackhousia monogyna</i>																	
<i>Stenanthemum poicilum</i>																	
<i>Stenopetalum filifolium</i>																	
<i>Stirlingia latifolia</i>							1%										
<i>Stylidium adpressum</i>																	
<i>Stylidium confluens</i>																	
<i>Stylidium crossocephalum</i>																	
<i>Stylidium elongatum</i>				+													
<i>Stylidium leptophyllum</i>																	
<i>Stylidium</i> sp.																	
<i>Stylobasium australe</i>		+															
<i>Stypandra glauca</i>																	
<i>Tecticornia indica</i> subsp. <i>bidens</i>											+				nc		
<i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i>											+						
<i>Tecticornia</i> sp.																	
<i>Tetragonia diptera</i>																	
<i>Thryptomene cuspidata</i>																	
<i>Thryptomene denticulata</i>									+	+							
<i>Thryptomene hyporhytis</i>																	
<i>Thryptomene</i> sp.																	
<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)												2%					

NAME	WR123	WR124	WR125	WR126	WR127	WR128	WR129	WRR01	WRR02	WRR03	WRR05	WRR06	WRR07	WRR08	WRR09	WRR50	WRR51
<i>Malleostemon roseus</i>																	
<i>Malleostemon tuberculatus</i>	20%																
* <i>Marianthus bicolor</i>																	
<i>Medicago polymorpha</i>																	
<i>Melaleuca acuminata</i>											30%						
<i>Melaleuca atroviridis</i>			1%			2%											
<i>Melaleuca barlowii</i>																	
<i>Melaleuca cordata</i>						4%											
<i>Melaleuca depressa</i>																	
<i>Melaleuca eleuterostachya</i>																	
<i>Melaleuca filifolia</i>																+	
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	1%	+	+														
<i>Melaleuca hamata</i>																	
<i>Melaleuca leuropoma</i>																	
<i>Melaleuca longistaminea</i>		2%	5%														
<i>Melaleuca nematophylla</i>																	
<i>Melaleuca radula</i>			2%														
<i>Melaleuca</i> sp.																	
<i>Melaleuca tinkeri</i>																	
<i>Melaleuca uncinata</i>					1%												
* <i>Melaleuca viminea</i> subsp. <i>viminea</i>		40%										2%					
* <i>Melilotus indicus</i>														nc			
<i>Mesembryanthemum crystallinum</i>							+										
<i>Mesomelaena pseudostygia</i>																	
<i>Microcorys tenuifolia</i>																	
<i>Micromyrtus prochytes</i>				3%													
<i>Mirbelia depressa</i>		+	+														
<i>Mirbelia longifolia</i>				6%													
<i>Mirbelia ramulosa</i>																	
<i>Mirbelia trichocalyx</i>																	
* <i>Monachather paradoxus</i>																	
* <i>Monadenia bracteata</i>																	
<i>Monoculus monstrosus</i>							+		+							+	
* <i>Monotaxis bracteata</i>																	
<i>Moraea setifolia</i>																	
<i>Muehlenbeckia adpressa</i>									+								
<i>Muehlenbeckia</i> sp.																	
<i>Myrtaceae</i> sp.						2%											
<i>Neurachne alopecuroidea</i>																	
<i>Nuytsia floribunda</i>																	
<i>Olearia dampieri</i>												+					
<i>Olearia stuartii</i>																	
<i>Opercularia spermacocea</i>																+	
<i>Opercularia vaginata</i>																	
* <i>Orchidaceae</i> sp.			+														
* <i>Ornithopus compressus</i>																	
* <i>Parapholis incurva</i>																	
* <i>Parentucellia latifolia</i>																	
* <i>Pennisetum setaceum</i>									10%	10%		1%		nc	50%		

NAME	WRR53	WRR54	WRR55	WRR60	WRR61	WRR62	WRR100	WRR101	WRR102	WRR103	WRR104	WRR105	WRR106	WRR107	WRR108	WRR109	WRR110
<i>Acacia aciphylla</i>																	2%
<i>Acacia acuaria</i>		+											+				
<i>Acacia acuminata</i>	+	+								20%						1%	
<i>Acacia alata</i> var. <i>biglandulosa</i>																	
<i>Acacia andrewsii</i>		1%					2%				2%		+				
<i>Acacia anthochaera</i>	5%									20%		10%	2%				
<i>Acacia assimilis</i> subsp. <i>assimilis</i>																	
<i>Acacia bidentata</i>																	
<i>Acacia blakelyi</i>																	
<i>Acacia brumalis</i>							6%				1%						
<i>Acacia burkittii</i>								+									
<i>Acacia colletioides</i>												1%					
<i>Acacia comans</i>																	
<i>Acacia coolgardiensis</i>																	
<i>Acacia dielsii</i>																	
<i>Acacia ericifolia</i>																	
<i>Acacia idiomorpha</i>																	
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>																	
<i>Acacia latipes</i> subsp. <i>latipes</i>																	
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i>																	
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>																	
<i>Acacia longiphyllodinea</i>																	
<i>Acacia longispinea</i>																	
<i>Acacia megacephala</i>																	
<i>Acacia neurophylla</i>																	
<i>Acacia neurophylla</i> subsp. <i>erugata</i>																	
<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>																	
<i>Acacia prainii</i>																	
<i>Acacia pulchella</i>																	
<i>Acacia quadrimarginea</i>						+											
<i>Acacia ramulosa</i> var. <i>linophylla</i>																30%	
<i>Acacia ramulosa</i> var. <i>ramulosa</i>																	
<i>Acacia restiacea</i>											+						
<i>Acacia rostelifera</i>																	
<i>Acacia saligna</i>																	
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>																	
<i>Acacia sessilis</i>																	
<i>Acacia sibina</i>											2%					1%	
<i>Acacia sibirica</i>																	
<i>Acacia</i> sp.							1%	+						1%	30%		
<i>Acacia spathulifolia</i>																	
<i>Acacia stereophylla</i> var. <i>stereophylla</i>																	
<i>Acacia tetragonophylla</i>																	
<i>Acacia ulicina</i>																	
<i>Acacia xanthina</i>																	
<i>Acanthocarpus canaliculatus</i>											+						

APPENDIX G

LOCATIONS OF DECLARED RARE AND PRIORITY FLORA RECORDED DURING SURVEY

Appendix G Location of Priority Flora

Species	Priority Status	Site	Easting	Northing
<i>Caladenia wanosa</i>	R	WR07	318266	6825416
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	R	WROPCOLL	295596	6822648
	R	WROPCOLL	295514	6822698
	R	WROPCOLL	295502	6822698
	R	WROPCOLL	295462	6822713
	R	WROPCOLL	294782	6822868
	R	WROPCOLL	295657	6822554
	R	WROPCOLL	295566	6822632
	R	WROPCOLL	295471	6822687
	R	WROPCOLL	295400	6822725
	R	WROPCOLL	295403	6822753
<i>Grevillea phanerophlebia</i>	R	WROPCOLL	304570	6821964
	R	WROPCOLL	400171	6783806
<i>Baeckea decipiens</i>	P1	WR105	383949	6807542
	P1	WROPCOLL	383491	6808032
	P1	WROPCOLL	383953	6807493
<i>Scholtzia</i> sp. <i>Kojarena</i> (A.M. Ashby 1904)	P1	WROPCOLL	291067	6820519
<i>Acacia megacephala</i>	P2	WROPCOLL	299215	6821645
	P2	WROPCOLL	299764	6821683
	P2	WROPCOLL	298342	6821794
	P2	WROPCOLL	291067	6820519
	P2	WROPCOLL	290966	6820437
	P2	WROPCOLL	291594	6820840
	P2	WROPCOLL	291708	6820930
	P2	WROPCOLL	292283	6821375
	P2	WROPCOLL	298085	6821823
	P2	WROPCOLL	298458	6821837
	P2	WROPCOLL	297072	6821966
<i>Eremaea acutifolia</i>	P2	WR15	305243.5	6821378
	P2	WR24	290982	6820424
	P2	WROPCOLL	291021	6820466
	P2	WROPCOLL	291431	6820749
	P2	WROPCOLL	291444	6820752
<i>Petrophile pilostyla</i> subsp. <i>syntoma</i>	P2	WROPCOLL	330100	6827209
<i>Scholtzia</i> sp. <i>East Yuna</i> (A.C. Burns 6)	P2	WR54	336536	6890744
<i>Stenanthemum poicilum</i>	P2	WR65	370665	6827154
	P2	WR65	370665	6827154
<i>Thryptomene</i> sp. <i>East Yuna</i> (J.W. Green 4639)	P2	WR53	333509	6829043
<i>Verticordia muelleriana</i> subsp. <i>minor</i>	P2	WROPCOLL	304877	6821146
	P2	WROPCOLL	400537	6781850
<i>Dampiera krauseana</i>	P2	WROPCOLL	335873	6830376
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	P3	WR02	328420	6827277
	P3	WR02	328420	6827277

	P3	WR03	325907	6826483
	P3	WR79	332871	6828766
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	P3	WR09	314548	6824838
	P3	WR76	349800	6839537
<i>Cryptandra nola</i>	P3	WR105	383949	6807542
<i>Gompholobium cinereum</i>	P3	WROPCOLL	367578	6831723
<i>Cyanicula fragrans</i>	P3	WR106	403191	6775980
<i>Grevillea asparagoides</i>	P3	WROPCOLL	332223	6828257
<i>Grevillea granulosa</i>	P3	WROPCOLL	384278	6807379
	P3	WROPCOLL	367578	6831723
	P3	WROPCOLL	368945	6829609
	P3	WROPCOLL	368989	6829541
	P3	WROPCOLL	369165	6829298
	P3	WROPCOLL	377033	6818905
	P3	WROPCOLL	372075	6825209
	P3	WROPCOLL	400126	6784234
	P3	WROPCOLL	400164	6783902
	P3	WROPCOLL	400171	6783806
	P3	WROPCOLL	400212	6783689
	P3	WROPCOLL	400242	6783526
	P3	WROPCOLL	400487	6781981
	P3	WROPCOLL	400646	6781608
	P3	WROPCOLL	401363	6780086
	P3	WROPCOLL	401540	6779701
	P3	WROPCOLL	385839	6806279
	P3	WROPCOLL	385475	6806723
	P3	WROPCOLL	369019	6829544
	P3	WROPCOLL	369011	6829555
	P3	WROPCOLL	400151	6784055
	P3	WROPCOLL	400560	6781789
	P3	WROPCOLL	402103	6778331
	P3	WROPCOLL	402114	6778297
	P3	WROPCOLL	302987	6821433
	P3	WROPCOLL	303335	6821487
	P3	WROPCOLL	385755	6806314
	P3	WROPCOLL	385480	6806686
	P3	WROPCOLL	385115	6806727
	P3	WROPCOLL	383922	6807519
	P3	WROPCOLL	383753	6807828
	P3	WR103	380886	6810209
	P3	WR105	383949	6807542
P3	WR119	382019	6809222	
P3	WR128	390695	6801023	
P3	WR129	403722	6773394	
P3	WR78	369162	6829293	
P3	WR81	400340	6786989	
P3	WR83	400140	6784077	
P3	WR84	400554	6781795	
P3	WR85	401470	6779830	

<i>Grevillea tenuiloba</i>	P3	WROPCOLL	387726	6804390
	P3	WROPCOLL	387594	6804514
	P3	WROPCOLL	387524	6804558
	P3	WROPCOLL	401513	6779758
	P3	WROPCOLL	401540	6779701
	P3	WROPCOLL	387750	6804376
	P3	WROPCOLL	387573	6804480
	P3	WROPCOLL	385584	6806588
	P3	WR123	387378	6804661
	P3	WR125	387692	6804417
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	P3	WROPCOLL	367578	6831723
	P3	WROPCOLL	371390	6826167
	P3	WR65	370665	6827154
	P3	WR78	369162	6829293
	P3	WR78	369162	6829293
	P3	WRR60	367580	6831726
<i>Melaleuca barlowii</i>	P3	WROPCOLL	371312	6826203
<i>Microcorys tenuifolia</i>	P3	WR111	392807	6798929
<i>Thryptomene</i> sp. <i>Wandana</i> (M.E. Trudgen MET 22016)	P3	WR79	332871	6828766
<i>Verticordia chrysostachys</i> var. <i>pallida</i>	P3	WROPCOLL	331895	6826885
	P3	WROPCOLL	332927	6828783
	P3	WR63	374358	6821987
	P3	WROPCOLL	333762	6829185
<i>Banksia scabrella</i>	P4	WR15	305243.5	6821378
<i>Banksia benthamiana</i>	P4	WROPCOLL	371312	6826203
<i>Jacksonia velutina</i>	P4	WROPCOLL	332252	6828349
	P4	WROPCOLL	332222	6828281
<i>Verticordia capillaris</i>	P4	WROPCOLL	345292	6835534
	P4	WROPCOLL	401368	6780070
	P4	WR78	369162	6829293

APPENDIX H

LOCATIONS OF INTRODUCED FLORA

Appendix H

Location of Introduced Flora

Species	Site	Easting	Northing
* <i>Lysimachia arvensis</i>	WROPCOLL	387463	6804580
	WROPCOLL	331529	6826877
	WR04	324557	6826000
	WR06	320807	6825121
	WR111	392807	6798929
	WR12	310942	6824970
	WR13	307504	6823512
	WR14	306523	6822489
	WRR08	289945	6818026
* <i>Arctotheca calendula</i>	WR04	324557	6826000
	WR05	322367	6825428
	WR06	320807	6825121
	WR07	318266	6825416
	WR08	316037	6825155
	WR09	314548	6824838
	WR100	377486	6817058
	WR101	377828	6815019
	WR102	380100	6812010
	WR104	382221	6808770
	WR107	387211	6805069
	WR107	387211	6805069
	WR109	389775	6801981
	WR11	309957	6824699
	WR110	391411	6800700
	WR111	392807	6798929
	WR112	397604	6792208
	WR113	399135	6790545
	WR116	379721	6813167
	WR117	380019	6812901
	WR119	382019	6809222
	WR12	310942	6824970
	WR120	383853	6807730
	WR128	390695	6801023
	WR13	307504	6823512
	WR14	306523	6822489
	WR18	302685	6821509
	WR19	311495	6824847
	WR21	293469	6822245
	WR23	288966	6818392
	WR25	295401	6822717
	WR50	330863	6826852
	WR55	337862	6831478
	WR58	346659	6836355
WR59	348229	6837515	
WR61	375923	6820309	
WR64	371938	6825397	
WR65	370665	6827154	
WR66	368759	6829867	
WR67	366553	6832439	

	WR68	367899	6831378
	WR69	364246	6834951
	WR70	363380	6837073
	WR71	361604	6838571
	WR72	359645	6840019
	WR73	356188	3841750
	WR74	357407	6841566
	WR76	349800	6839537
	WR78	369162	6829293
	WR79	332871	6828766
	WR80	400631	6786890
	WR81	400340	6786989
	WR82	400054	6784388
	WR83	400140	6784077
	WR84	400554	6781795
	WR85	401470	6779830
	WR86	402044	6778457
	WRR01	308323	6824022
	WRR02	302921	6821390
	WRR03	299390	6821617
	WRR05	311368	6824876
	WRR101	393928	6797056
	WRR103	396090	6793902
	WRR105	394533	6795588
	WRR107	403735	6772639
	WRR108	403757	6771559
	WRR109	403751	6770701
	WRR51	353941	6841417
	WRR53	368183	6830842
	WRR55	351752	6840540
<i>*Arundo donax</i>	WROPCOLL	280537	6813876
<i>*Avena barbata</i>	WR100	377486	6817058
	WR101	377828	6815019
	WR102	380100	6812010
	WR103	380886	6810209
	WR105	383949	6807542
	WR106	403191	6775980
	WR111	392807	6798929
	WR114	377888	6816067
	WR116	379721	6813167
	WR117	380019	6812901
	WR118	380384	6816969
	WR119	382019	6809222
	WR120	383853	6807730
	WR121	384264	6807367
	WRR100	378921	6813329
	WRR101	393928	6797056
	WRR109	403751	6770701
<i>*Brassica napus</i>	WROPCOLL	401978	6778624
	WR02	328420	6827277
	WR05	322367	6825428
	WR06	320807	6825121
	WR07	318266	6825416
	WR08	316037	6825155

	WR09	314548	6824838
	WR11	309957	6824699
	WR12	310942	6824970
	WR18	302685	6821509
	WR22	280513	6813571
	WR24	290999	6820442
	WR52	334940	6829824
	WR53	333509	6829043
	WR55	337862	6831478
	WR59	348229	6837515
	WR60	377393	6818391
	WR70	363380	6837073
	WR73	356188	3841750
	WR74	357407	6841566
	WR76	349800	6839537
	WR79	332871	6828766
	WR80	400631	6786890
	WR86	402044	6778457
	WRR01	308323	6824022
	WRR05	311368	6824876
	WRR07	292185	6821334
	WRR54	358064	6841512
<i>*Brassica tournefortii</i>	WR100	377486	6817058
<i>*Briza maxima</i>	WR101	377828	6815019
	WR11	309957	6824699
	WR13	307504	6823512
	WR14	306523	6822489
	WR16	304663	6820982
	WR17	300948	6822114
	WR18	302685	6821509
	WR21	293469	6822245
	WR22	280513	6813571
	WR25	295401	6822717
	WRR02	302921	6821390
	WRR06	295085	6822974
	WRR07	292185	6821334
	WRR09	286362	6817236
<i>*Bromus diandrus</i>	WR06	320807	6825121
	WR102	380100	6812010
	WR50	330863	6826852
	WR52	334940	6829824
	WR55	337862	6831478
	WR57	343598	6834566
	WR59	348229	6837515
	WR59	348229	6837515
	WRR01	308323	6824022
	WRR08	289945	6818026
<i>*Bromus rubens</i>	WR09	314548	6824838
	WR102	380100	6812010
	WR110	391411	6800700
	WR112	397604	6792208
	WR115	378346	6813901
	WR116	379721	6813167
	WR119	382019	6809222

	WR76	349800	6839537
	WR80	400631	6786890
	WRR51	353941	6841417
<i>*Cotula bipinnata</i>	WR23	288966	6818392
<i>*Cuscuta epithymum</i>	WR102	380100	6812010
<i>*Corymbia citriodora</i>	WROPCOLL	299177	6821641
<i>*Echium plantagineum</i> (Priority 1)	WR102	380100	6812010
	WR112	397604	6792208
	WR115	378346	6813901
	WR119	382019	6809222
	WR18	302685	6821509
	WRR03	299390	6821617
	WRR08	289945	6818026
	WRR09	286362	6817236
<i>*Ehrharta calycina</i>	WR11	309957	6824699
	WR18	302685	6821509
	WR20	297401	6821922
	WR22	280513	6813571
	WR24	290999	6820442
	WRR03	299390	6821617
<i>*Ehrharta longiflora</i>	WR02	328420	6827277
	WR04	324557	6826000
	WR05	322367	6825428
	WR06	320807	6825121
	WR08	316037	6825155
	WR09	314548	6824838
	WR102	380100	6812010
	WR106	403191	6775980
	WR107	387211	6805069
	WR110	391411	6800700
	WR111	392807	6798929
	WR112	397604	6792208
	WR113	399135	6790545
	WR12	310942	6824970
	WR13	307504	6823512
	WR14	306523	6822489
	WR17	300948	6822114
	WR18	302685	6821509
	WR19	311495	6824847
	WR20	297401	6821922
	WR21	293469	6822245
	WR22	280513	6813571
	WR23	288966	6818392
	WR50	330863	6826852
	WR51	332417	6828595
	WR52	334940	6829824
	WR53	333509	6829043
	WR54	336536	6890744
	WR55	337862	6831478
	WR57	343598	6834566
	WR58	346659	6836355
	WR59	348229	6837515
WR61	375923	6820309	
WR67	366553	6832439	

	WR69	364246	6834951
	WR70	363380	6837073
	WR71	361604	6838571
	WR72	359645	6840019
	WR73	356188	3841750
	WR74	357407	6841566
	WR75	353067	6840985
	WR76	349800	6839537
	WR77	344733	6835222
	WR79	332871	6828766
	WR84	400554	6781795
	WRR01	308323	6824022
	WRR02	302921	6821390
	WRR03	299390	6821617
	WRR05	311368	6824876
	WRR06	295085	6822974
	WRR07	292185	6821334
	WRR08	289945	6818026
	WRR09	286362	6817236
	WRR103	396090	6793902
	WRR50	332151	6828183
	WRR54	358064	6841512
<i>*Eragrostis curvula</i>	WR22	280513	6813571
<i>*Fumaria capreolata</i>	WROPCOLL	287961	6817883
<i>*Gorteria personata</i>	WR73	356188	3841750
<i>*Hordeum leporinum</i>	WR112	397604	6792208
	WR113	399135	6790545
<i>*Hypochaeris glabra</i>	WR04	324557	6826000
	WR05	322367	6825428
	WR100	377486	6817058
	WR102	380100	6812010
	WR105	383949	6807542
	WR106	403191	6775980
	WR107	387211	6805069
	WR11	309957	6824699
	WR110	391411	6800700
	WR115	378346	6813901
	WR115	378346	6813901
	WR118	380384	6816969
	WR12	310942	6824970
	WR120	383853	6807730
	WR122	384972	6806833
	WR124	387563	6804494
	WR126	387833	6804297
	WR16	304663	6820982
	WR17	300948	6822114
	WR18	302685	6821509
	WR21	293469	6822245
	WR22	280513	6813571
	WR22	280513	6813571
	WR24	290999	6820442
	WR25	295401	6822717
	WR50	330863	6826852
	WR53	333509	6829043

	WR58	346659	6836355
	WR59	348229	6837515
	WR60	377393	6818391
	WR61	375923	6820309
	WR64	371938	6825397
	WR66	368759	6829867
	WR67	366553	6832439
	WR69	364246	6834951
	WR70	363380	6837073
	WR73	356188	3841750
	WR76	349800	6839537
	WR86	402044	6778457
	WRR03	299390	6821617
	WRR07	292185	6821334
	WRR08	289945	6818026
<i>*Lamarckia aurea</i>	WROPCOLL	384567	6807156
	WR23	288966	6818392
	WR76	349800	6839537
<i>*Limonium lobatum</i>	WR72	359645	6840019
<i>*Limonium sinuatum</i>	WROPCOLL	281026	6814270
<i>*Lolium perenne</i>	WR114	377888	6816067
	WR115	378346	6813901
	WR116	379721	6813167
<i>*Lolium perenne x rigidum</i>	WR24	290999	6820442
	WR76	349800	6839537
	WR80	400631	6786890
	WRR01	308323	6824022
	WRR107	403735	6772639
	WRR55	351752	6840540
	WRR61	400222	6786183
<i>*Lupinus cosentinii</i>	WR06	320807	6825121
	WR117	380019	6812901
	WR24	290999	6820442
	WR53	333509	6829043
	WR59	348229	6837515
	WR73	356188	3841750
	WR75	353067	6840985
	WR77	344733	6835222
	WRR01	308323	6824022
	WRR08	289945	6818026
	WRR106	403191	6775980
<i>*Lycium ferocissimum</i>	WROPCOLL	280528	6813770
<i>*Medicago polymorpha</i>	WR110	391411	6800700
	WR111	392807	6798929
	WR112	397604	6792208
	WR113	399135	6790545
	WRR102	394828	6795274
<i>*Melilotus indicus</i>	WRR08	289945	6818026
<i>*Mesembryanthemum crystallinum</i>	WR128	390695	6801023
<i>*Monoculus monstrosus</i>	WR04	324557	6826000
	WR09	314548	6824838
	WR100	377486	6817058
	WR104	382221	6808770
	WR105	383949	6807542

	WR105	383949	6807542
	WR106	403191	6775980
	WR106	403191	6775980
	WR107	387211	6805069
	WR110	391411	6800700
	WR111	392807	6798929
	WR111	392807	6798929
	WR112	397604	6792208
	WR113	399135	6790545
	WR115	378346	6813901
	WR116	379721	6813167
	WR119	382019	6809222
	WR12	310942	6824970
	WR120	383853	6807730
	WR122	384972	6806833
	WR129	403722	6773394
	WR13	307504	6823512
	WR16	304663	6820982
	WR19	311495	6824847
	WR22	280513	6813571
	WR23	288966	6818392
	WR24	290999	6820442
	WR50	330863	6826852
	WR53	333509	6829043
	WR54	336536	6890744
	WR55	337862	6831478
	WR58	346659	6836355
	WR59	348229	6837515
	WR61	375923	6820309
	WR69	364246	6834951
	WR70	363380	6837073
	WR71	361604	6838571
	WR72	359645	6840019
	WR73	356188	3841750
	WR74	357407	6841566
	WR75	353067	6840985
	WR76	349800	6839537
	WR78	369162	6829293
	WR80	400631	6786890
	WR82	400054	6784388
	WR83	400140	6784077
	WR84	400554	6781795
	WR85	401470	6779830
	WR86	402044	6778457
	WRR02	302921	6821390
	WRR106	403191	6775980
	WRR50	332151	6828183
<i>*Moraea setifolia</i>	WR12	310942	6824970
	WR13	307504	6823512
	WRR105	394533	6795588
<i>*Ornithopus compressus</i>	WR06	320807	6825121
<i>*Parapholis incurva</i>	WR63	374358	6821987
<i>*Parentucellia latifolia</i>	WR106	403191	6775980
<i>*Pennisetum setaceum</i>	WR20	297401	6821922

	WR21	293469	6822245
	WR22	280513	6813571
	WR25	295401	6822717
	WR74	357407	6841566
	WRR02	302921	6821390
	WRR03	299390	6821617
	WRR06	295085	6822974
	WRR08	289945	6818026
	WRR09	286362	6817236
	WRR54	358064	6841512
<i>*Pentaschistis airoides</i>	WR05	322367	6825428
	WR06	320807	6825121
	WR07	318266	6825416
	WR08	316037	6825155
	WR100	377486	6817058
	WR102	380100	6812010
	WR106	403191	6775980
	WR107	387211	6805069
	WR110	391411	6800700
	WR114	377888	6816067
	WR115	378346	6813901
	WR116	379721	6813167
	WR13	307504	6823512
	WR14	306523	6822489
	WR21	293469	6822245
	WR23	288966	6818392
	WR25	295401	6822717
	WR68	367899	6831378
	WR69	364246	6834951
	WR70	363380	6837073
	WR72	359645	6840019
	WR73	356188	3841750
	WR74	357407	6841566
	WR75	353067	6840985
	WR77	344733	6835222
	WR79	332871	6828766
	WR80	400631	6786890
	WRR03	299390	6821617
<i>*Petrorhagia dubia</i>	WR06	320807	6825121
	WRR51	353941	6841417
	WR100	377486	6817058
	WR105	383949	6807542
	WR110	391411	6800700
	WR112	397604	6792208
	WR113	399135	6790545
	WR19	311495	6824847
	WR23	288966	6818392
	WR52	334940	6829824
	WR63	374358	6821987
	WR69	364246	6834951
	WR71	361604	6838571
	WR73	356188	3841750
	WR74	357407	6841566
	WR81	400340	6786989

	WRR102	394828	6795274
	WRR105	394533	6795588
	WRR106	403191	6775980
	WRR107	403735	6772639
<i>*Raphanus raphanistrum</i>	WR111	392807	6798929
<i>*Acetosa vesicaria</i>	WROPCOLL	371486	6826050
<i>*Schinus terebinthifolius</i>	WROPCOLL	287961	6817883
<i>*Sisymbrium irio</i>	WR112	397604	6792208
	WR113	399135	6790545
	WR115	378346	6813901
	WR116	379721	6813167
	WR71	361604	6838571
<i>*Sonchus oleraceus</i>	WROPCOLL	283990	6815683
	WR100	377486	6817058
	WR102	380100	6812010
	WR110	391411	6800700
	WR112	397604	6792208
	WR113	399135	6790545
	WR54	336536	6890744
	WR63	374358	6821987
<i>*Trifolium hirtum</i>	WR06	320807	6825121
<i>*Urospermum picroides</i>	WR06	320807	6825121
	WR13	307504	6823512
	WR23	288966	6818392
	WR53	333509	6829043
	WR59	348229	6837515
	WR69	364246	6834951
	WR72	359645	6840019
	WR80	400631	6786890
	WRR06	295085	6822974
<i>*Ursinia anthemoides</i>	WR04	324557	6826000
	WR05	322367	6825428
	WR07	318266	6825416
	WR08	316037	6825155
	WR11	309957	6824699
	WR12	310942	6824970
	WR122	384972	6806833
	WR14	306523	6822489
	WR15	305262	6821371
	WR17	300948	6822114
	WR18	302685	6821509
	WR18	302685	6821509
	WR21	293469	6822245
	WR22	280513	6813571
	WR24	290999	6820442
	WR50	330863	6826852
	WRR02	302921	6821390
	WRR07	292185	6821334
<i>*Vaccaria hispanica</i>	WR67	366553	6832439
	WRR106	403191	6775980
<i>*Vulpia muralis</i>	WR04	324557	6826000
	WR06	320807	6825121
	WR07	318266	6825416
	WR08	316037	6825155

	WR105	383949	6807542
* <i>Vulpia myuros</i>	WR13	307504	6823512
* <i>Wahlenbergia capensis</i>	WROPCOLL	291660	6820957
	WR11	309957	6824699
* <i>Zaluzianskya divaricata</i>	WR12	310942	6824970

APPENDIX I

LOCATIONS OF PATERSON'S CURSE

WESTNET RAIL FLORA AND VEGETATION ASSESSMENT

APPENDIX I

Paterson's Curse	Easting	Northing	Number of Plants
Start	374200	6822200	15
End	373900	6823075	
Start	373250	6823010	5
End	373300	6824010	
Start	374300	6822200	15
End	373700	6823100	
Start	373200	6823010	5
End	372600	6824050	
Start	366700	6832900	200
End	366080	6832600	
Start	361600	6838150	5
End	363700	6836500	
Start	361750	6838650	5
End	361700	6838800	
Start	361500	6838450	100
End	360500	6839400	
Start	359750	6836000	8
End	359500	6838000	
Start	358050	6841500	80
End	355250	6841850	
Start	355250	6842000	10
End	354100	6841200	
Start	352900	6848000	5
End	349990	6839650	
Start	349900	6839550	5
End	349000	6838500	
Start	348950	6838450	5
End	348050	6837400	
Start	347800	6837250	5
End	347700	6837100	
Start	339600	6832400	5
End	338500	6832600	
Start	314547	6824838	5
End	314530	6824833	
Start	299390	6821617	5
End	304165	6821058	
Start	300590	6821834	15
End	300646	6821874	
Start	300997	6822122	20
End	301039	6822133	
Start	278575	6811794	30
End	276981	6810901	
Start	299605	6821617	7
End	299752	6821642	

Paterson's Curse	Easting	Northing	Number of Plants
Start	299977	6821680	50
End	300025	6821686	
Start	300538	6821816	12
End	300590	6821834	
Start	301222	6822117	8
End	301239	6822112	
Start	301378	6822097	2
End	301442	6822087	
Start	301605	6822037	2
End	301620	6822028	
Start	301660	6822007	100
End	301693	6821983	
Point Location	380100	6812010	1
Point Location	397604	6792208	15
Point Location	378346	6813901	20
Point Location	382019	6809222	5
Point Location	302685	6821509	1
Point Location	299390	6821617	30
Point Location	289945	6818026	45
Point Location	286362	6817236	25
Point Location	351752	6840540	15
Point Location	302710	6821532	20
Point Location	347880	6837250	1
Point Location	338976	6832041	5
Point Location	348101	6837422	10
Point Location	347507	6836972	5
Point Location	347663	6837097	10

APPENDIX J

VEGETATION ASSOCIATION

DESCRIPTIONS

Appendix J

Vegetation Association Descriptions

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-GcEmAe

Tall Open Shrubland of *Acacia brumalis* and/or *Allocasuarina campestris* over Low Open to Open Shrubland of *Acacia brumalis*, *Allocasuarina campestris*, *Grevillea candelabroides* over Open Sedgeland of *Ecdeiocolea monostachya* over Open Grassland of *Austrostipa elegantissima*



Area: 30.91 ha

Quadrats Sampled

WR011, WR012, WR014

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Orange-brown loam with cobbles and pebbles

Litter Cover: <1% Logs, 12% Twigs and 3% Leaves

Bare Ground: 25-80 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia brumalis</i> and/or <i>Allocasuarina campestris</i>
Midstorey	
Middle Shrub Layer	Low Open to Open Shrubland of <i>Acacia brumalis</i> , <i>Allocasuarina campestris</i> , <i>Grevillea candelabroides</i>
Understorey	
Grassland	Open Grassland of <i>Austrostipa elegantissima</i>
Sedgeland	Open Sedgeland of <i>Ecdeiocolea monostachya</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Adjacent to tracks, weeds, grazing and rabbits

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-Mvv

Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Allocasuarina campestris*, *Acacia acuminata* and *Acacia* sp. over Open Shrubland of *Melaleuca viminea* subsp. *viminea*, *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and *Grevillea granulosa* over Very Open Grassland of *Amphipogon caricinus* var. *caricinus* and *Pogonolepis stricta*



Area: 4.17 ha

Quadrats Sampled

WR084

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Pale Brown / Red Sand / Loam with Scattered Pebbles

Litter Cover: <1% Logs, 3% Twigs, 15% Leaves

Bare Ground: 50 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Allocasuarina campestris</i> , <i>Acacia acuminata</i> and <i>Acacia</i> sp.
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Grevillea granulosa</i>
Understorey	
Grassland	Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i> and <i>Pogonolepis stricta</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Nearby road, nearby rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-Mt

Tall Shrubland of *Allocasuarina campestris*, *Acacia sibina* and *Acacia* sp. over Open Shrubland of *Malleostemon tuberculatus* and *Acacia acuminata* over Very Open Grassland of **Avena barbata*, *Austrostipa variabilis* and *Austrostipa elegantissima* over Very Open Herbland of *Waitzia acuminata* var. *acuminata* and *Velleia rosea*



Area: 2.39 ha

Quadrats Sampled

WR103

Landform Description

Location and

Landform:

Geology: Granite, Quartz

Soil Attributes: Orange red brown loam with some clay

Litter Cover: 3% Logs, 10% Twigs, 5% Leaves

Bare Ground: 40 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Allocasuarina campestris</i> , <i>Acacia sibina</i> and <i>Acacia</i> sp.
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Malleostemon tuberculatus</i> and <i>Acacia acuminata</i>
Understorey	
Grassland	Very Open Grassland of <i>*Avena barbata</i> , <i>Austrostipa variabilis</i> and <i>Austrostipa elegantissima</i>
Herbland	Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Velleia rosea</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track clearing, soil dump, animal tracks

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-MnPt

Tall Open Scrub of *Allocasuarina campestris* and *Acacia longiphyllodinea* over Open Shrubland of *Melaleuca nematophylla* over Low Open Shrubland of *Platysace trachymenioides* over Very Open Sedgeland of *Ecdeiocolea monostachya* over Very Open Herbland of *Borya sphaerocephala* and *Waitzia acuminata* var. *acuminata*



Area: 3.98 ha **Quadrats Sampled** WR121

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Orange-brown loam with cobbles and pebbles

Litter Cover: 2% Logs, 3% Twigs and 5% Leaves

Bare Ground: 75 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Allocasuarina campestris</i> and <i>Acacia longiphyllodinea</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Melaleuca nematophylla</i>
Lower Shrub Layer	Low Open Shrubland of <i>Platysace trachymenioides</i>
Understorey	
Sedgeland	Very Open Sedgeland of <i>Ecdeiocolea monostachya</i>
Herbland	Very Open Herbland of <i>Borya sphaerocephala</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Very Good to Good

Disturbances: Historical clearing, track and rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-MvvMI

Tall Shrubland of *Allocasuarina campestris* and *Acacia acuminata* over Open Heath of *Melaleuca viminea* subsp. *Viminea* and *Melaleuca longistaminea* over Very open Herbland of *Waitzia acuminata* var. *acuminata*, *Schoenia cassiniana* and *Cheilanthes sieberi* subsp. *sieberi*



Area: 1.25 ha

Quadrats Sampled

WR124

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Light orange brown loam with cobbles, pebbles, boulders and exposed rock

Litter Cover: 1% Logs, 5% Twigs, 80% Leaves

Bare Ground: 10 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Shrubland of <i>Allocasuarina campestris</i> and <i>Acacia acuminata</i>	
Midstorey		
Middle Shrub Layer	Open Heath of <i>Melaleuca viminea</i> subsp. <i>Viminea</i> and <i>Melaleuca longistaminea</i>	
Understorey		
Herbland	Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> , <i>Schoenia cassiniana</i> and <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Track, rail, rock piles, piles of vegetation

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Allocasuarina* Tall Shrubland

Vegetation Association: AAIT-MaMc

Tall Shrubland of *Acacia sibina*, *Acacia ramulosa* var. *ramulosa*, *Allocasuarina campestris*, *Acacia acuminata* and *Melaleuca atroviridis* over Low Open Shrubland of *Melaleuca cordata*, *Acacia acuaria* and Myrtaceae sp.



Area: 5.24 ha

Quadrats Sampled

WR128

Landform Description

Location and

Landform:

Geology: Granite, Laterite

Soil Attributes: Light Orange Clayey Loam with Cobbles and Pebbles

Litter Cover: 1% Logs, 3% Twigs, 1% Leaves

Bare Ground: 60 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. and *Allocasuarina campestris* are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Acacia sibina</i> , <i>Acacia ramulosa</i> var. <i>ramulosa</i> , <i>Allocasuarina campestris</i> , <i>Acacia acuminata</i> and <i>Melaleuca atroviridis</i>
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Melaleuca cordata</i> , <i>Acacia acuaria</i> and Myrtaceae sp.

Vegetation Condition

Condition Rating: Good

Disturbances: Track, rail, clearing, soil piles

Average Fire Age: Old

Broad Floristic Formation: *Callitris* Shrubland
Vegetation Association: ACS-Ba
 Tall Open Shrubland of *Acacia rostellifera*, *Banksia sceptrum* and *Allocasuarina campestris* over Shrubland of *Callitris arenaria*



Area: 3.14 ha

Quadrats Sampled

WR051

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Soft Yellow Sand

Litter Cover: 5% Logs, 30% Twigs, 10% Leaves.

Bare Ground: 55 %

Vegetation Structure and Floristics

Shrubland of *Callitris* is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia rostellifera</i> , <i>Banksia sceptrum</i> and <i>Allocasuarina campestris</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Callitris arenaria</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Nearby tracks, rail line

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland

Vegetation Association: AGS-KhCd

Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Acacia stereophylla* var. *stereophylla* over Low Open Shrubland of *Keraudrenia hermanniifolia* and *Halgania cyanea* var. *allambi* Stn (B.W. Strong 676) over Very Open Grassland of **Ehrharta longiflora*, *Austrostipa elegantissima* and *Aristida contorta* over Open Herbland of *Cephalopterum drummondii*, *Daucus glochidiatus*, *Brassica napus*, *Podolepis canescens* and *Podolepis capillaris*



Area: 11.21 ha

Quadrats Sampled

WR070

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Brown Sand

Litter Cover: -% Logs, 1% Twigs, 1% Leaves.

Bare Ground: 80 %

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Acacia stereophylla</i> var. <i>stereophylla</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Keraudrenia hermanniifolia</i> and <i>Halgania cyanea</i> var. <i>allambi</i> Stn (B.W. Strong 676)	
Understorey		
Grassland	Very Open Grassland of <i>Ehrharta longiflora</i> , <i>Austrostipa elegantissima</i> and <i>Aristida contorta</i>	
Herbland	Open Herbland of <i>Cephalopterum drummondii</i> , <i>Daucus glochidiatus</i> , <i>Brassica napus</i> , <i>Podolepis canescens</i> and <i>Podolepis capillaris</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Clearing, nearby road, weeds

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Shrubland

Vegetation Association: AGS-EIAcc

Shrubland of *Acacia acuminata* and *Grevillea obliquistigma* subsp. *funicularis* over Open Grassland of **Ehrharta longiflora* and *Amphipogon caricinus* var. *caricinus*



Area: 12.32 ha

Quadrats Sampled

WR067

Landform Description

Location and

Landform:

Geology: Quartz and Laterite

Soil Attributes: Light cream brown sandy loam with slight clay

Litter Cover: 1% Logs, 2% Twigs, 15% Leaves

Bare Ground: 70 %

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. and *Grevillea* sp. are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Shrubland of <i>Acacia acuminata</i> and <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>
Understorey	
Grassland	Open Grassland of <i>*Ehrharta longiflora</i> and <i>Amphipogon caricinus</i> var. <i>caricinus</i>

Vegetation Condition

Condition Rating: Degraded to Good

Disturbances: Clearing, tracks and weeds

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Shrubland

Vegetation Association: AGS-EIWaa

Shrubland of *Acacia stereophylla* var. *stereophylla*, *Grevillea obliquistigma* subsp. *Funicularis*, *Acacia ramulosa* var. *linophylla* and *Acacia* sp. Over Low Shrubland of *Grevillea levis* over Very Open Grassland of **Ehrharta longiflora* and *Austrostipa elegantissima* over Very Open Herbland *Waitzia acuminata* var. *acuminata* and **Arctotheca calendula*



Area: 7.78 ha

Quadrats Sampled

WR061

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow / Brown Sand

Litter Cover: -% Logs, -% Twigs, -% Leaves.

Bare Ground: 20%

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i> , <i>Grevillea obliquistigma</i> subsp. <i>Funicularis</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia</i> sp.
Midstorey	
Middle Shrub Layer	Low Shrubland of <i>Grevillea levis</i>
Understorey	
Grassland	Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>Austrostipa elegantissima</i>
Herbland	Very Open Herbland <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>*Arctotheca calendula</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds, tracks, clearing, rubbish

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Shrubland

Vegetation Association: AGS-Ae

Open Shrubland of *Acacia coolgardiensis* subsp. *coolgardiensis*, *Grevillea obliquistigma* subsp. *funicularis* and *Senna charlesiana* over Very Open Grassland of *Austrostipa elegantissima*.



Area: 3.64 ha

Quadrats Sampled

WR129

Landform Description

Location and

Landform:

Geology: Quartz and Laterite

Soil Attributes: Light cream brown sandy loam with slight clay

Litter Cover: 2% Logs, 3% Twigs, 1% Leaves

Bare Ground: 75 %

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. and *Grevillea* sp. are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open shrubland of <i>Acacia coolgardiensis</i> subsp. <i>coolgardiensis</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Senna charlesiana</i>
Understorey	
Grassland	Very Open Grassland of <i>Austrostipa elegantissima</i>

Vegetation Condition

Condition Rating: Very Good to Good

Disturbances: Track, rail, clearing, possible salinity

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Tall Shrubland

Vegetation Association: AGT-PcPmm

Tall Open Shrubland of *Acacia rostellifera* and *Grevillea* sp. Over Low Open Shrubland of *Grevillea vestita* subsp. *isopogoides*, *Pimelea microcephala* subsp. *microcephala* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* over Very Open Herbland of *Podolepis canescens* and *Waitzia acuminata* var. *acuminata*



Area: 9.44 ha

Quadrats Sampled

WR058

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White - Yellow Soil With Minor Gravel and Pebble Surface

Litter Cover: 10% Logs, 7.5% Twigs, 2% Leaves.

Bare Ground: 20 %.

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. and *Grevillea* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia rostellifera</i> and <i>Grevillea</i> sp.
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Grevillea vestita</i> subsp. <i>isopogoides</i> , <i>Pimelea microcephala</i> subsp. <i>microcephala</i> and <i>Keraudrenia hermanniifolia</i>
Understorey	
Grassland	Open Grassland of <i>Austrostipa elegantissima</i> and <i>Ehrharta longiflora</i>
Herbland	Very Open Herbland of <i>Podolepis canescens</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Clearing, rail, earth movement in the quadrat

Average Fire Age: Old.

Broad Floristic Formation: *Acacia* and *Grevillea* Tall Shrublands

Vegetation Association: AGT-AuLpr

Tall Open Shrubland of *Acacia ramulosa* var. *linophylla*, *Grevillea obliquistigma* subsp. *Funicularis* and *Grevillea levis* over Open Shrubland of *Acacia ulicina* over Open Grassland of **Lolium perenne x rigidum* and **Bromus rubens* over Very Open Herbland of **Arctotheca calendula*



Area: 11.44 ha

Quadrats Sampled

WR80

Landform Description

Location and

Landform:

Geology: Quartz, Granite

Soil Attributes: Light orange brown loam

Litter Cover: 2<1% Logs, 3% Twigs, 10% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Tall Open Shrubland of *Grevillea* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Grevillea obliquistigma</i> subsp. <i>Funicularis</i> and <i>Grevillea levis</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Acacia ulicina</i>	
Understorey		
Grassland	Open Grassland of <i>*Lolium perenne x rigidum</i> and <i>*Bromus rubens</i>	
Herbland	Very Open Herbland of <i>*Arctotheca calendula</i>	

Vegetation Condition

Condition Rating: Good to Degraded

Disturbances: Rail and tracks

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Tall Open Shrublands

Vegetation Association: AGT-MtAa

Tall Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Acacia acuminata* over Shrubland of *Malleostemon tuberculatus*, *Acacia aciphylla* and *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369) over Very Open Herbland of *Waitzia acuminata* var. *acuminata* and *Brachyscome ciliocarpa*



Area: 5.50 ha

Quadrats Sampled

WR101

Landform Description

Location and

Landform:

Geology: Quartz, Granite

Soil Attributes: Light orange brown loam

Litter Cover: 2% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 40 %

Vegetation Structure and Floristics

Tall Open Shrubland of *Grevillea* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Acacia acuminata</i>	
Midstorey		
Middle Shrub Layer	Shrubland of <i>Malleostemon tuberculatus</i> , <i>Acacia aciphylla</i> and <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	
Understorey		
Herbland	Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Brachyscome ciliocarpa</i>	

Vegetation Condition

Condition Rating: Excellent

Disturbances: Track

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Grevillea* Shrubland

Vegetation Association: AGT-HraRd

Tall Open Shrubland of *Grevillea hakeoides* subsp. *hakeoides*, *Acacia acuminata* and *Acacia Sclerosperma* subsp. *Sclerosperma* over Open Shrubland of *Hakea recurva* subsp. *arida* and *Rhagodia drummondii* over Very Open Grassland of *Sisymbrium irio* and **Hordeum leporinum* over Very Open Herbland of *Cephalipterum drummondii*, *Gnephosis angianthoides*, **Arctotheca calendula* and **Portulaca oleracea*



Area: 1.8 ha

Quadrats Sampled

WR112

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red orange loam with crust

Litter Cover: 1% Logs, 5% Twigs, 10% Leaves

Bare Ground: 50 %

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. and *Grevillea* sp. are the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Grevillea hakeoides</i> subsp. <i>Hakeoides</i> , <i>Acacia acuminata</i> and <i>Acacia Sclerosperma</i> subsp. <i>sclerosperma</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Hakea recurva</i> subsp. <i>arida</i> and <i>Rhagodia drummondii</i>
Understorey	
Grassland	Very Open Grassland of <i>Sisymbrium irio</i> and <i>*Hordeum leporinum</i>
Herbland	Very Open Herbland of <i>Cephalipterum drummondii</i> , <i>Gnephosis angianthoides</i> , <i>*Arctotheca calendula</i> and <i>*Portulaca oleracea</i>

Vegetation Condition

Condition Rating: Very Good to Good

Disturbances: Clearing, track, rail, soil dumps/ piles, animal tracks

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Hakea* Tall Shrubland

Vegetation Association: AHT-Hrr

Tall Open Shrubland of *Hakea recurva* subsp. *recurva* over Open Shrubland of *Acacia acuminata* and *Acacia acuaria* over Very Open Grassland of *Austrostipa variabilis*, *Monachather paradoxus* and **Ehrharta longiflora* over Very Open Herbland **Arctotheca calendula* and *Cephalipterum drummondii*



Area: 6.24 ha

Quadrats Sampled

WR72

Landform Description

Location and

Landform:

Geology: Granite / Quartz

Soil Attributes: Brown Clayey Loam

Litter Cover: 1% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Tall Open Shrubland of *Hakea* is the main diagnostics of this association

Stratum		Key Characteristics	
Overstorey			
Canopy Layer		Tall Open Shrubland of <i>Hakea recurva</i> subsp. <i>recurva</i>	
Midstorey			
Middle Shrub Layer		Open Shrubland of <i>Acacia acuminata</i> and <i>Acacia acuaria</i>	
Understorey			
Grassland		Very Open Grassland of <i>Austrostipa variabilis</i> , <i>Monachather paradoxus</i> and <i>*Ehrharta longiflora</i>	
Herbland		Very Open Herbland <i>*Arctotheca calendula</i> and <i>Cephalipterum drummondii</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Rubbish, clearing, weeds, nearby roads.

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Melaleuca* Heath

Vegetation Association: AMeH-EIPs

Open Heath of *Melaleuca longistaminea* and *Acacia acuminata* over Very Open Grassland of *Ehrharta longiflora* and *Austrostipa scabra* subsp. *scabra* over Very Open Herbland of *Pogonolepis stricta*, *Schoenia cassiniana* and *Podolepis lessonii*



Area: 2.12 ha

Quadrats Sampled

WR107

Landform Description

Location and

Landform:

Geology: Granite, Quartz

Soil Attributes: Light salmon/orange brown clayey loam with cobbles and pebbles and exposed rock and boulders

Litter Cover: 1% Logs, 10% Twigs, 5% Leaves.

Bare Ground: 40 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Heath of <i>Melaleuca longistaminea</i> and <i>Acacia acuminata</i>
Understorey	
Grassland	Very Open Grassland of <i>Ehrharta longiflora</i> and <i>Austrostipa scabra</i> subsp. <i>scabra</i>
Herbland	Very Open Herbland of <i>Pogonolepis stricta</i> , <i>Schoenia cassiniana</i> and <i>Podolepis lessonii</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Clearing, track, Rail

Average Fire Age: Old.

Broad Floristic Formation: *Acacia* and *Melaleuca* Shrubland

Vegetation Association: AMeS-AcAa

Open Shrubland of *Melaleuca atroviridis*, *Melaleuca uncinata*, *Acacia aciphylla* and *Persoonia hexagona* over Low Open Shrubland of *Grevillea levis*, *Acacia ulicina*, *Acacia restiacea*, *Hibbertia glomerata* subsp. *glomerata*, *Dodonaea inaequifolia*, *Chorizema racemosum* and *Astroloma serratifolium*



Area: 12.17 ha

Quadrats Sampled

WR119, WR120, WR105

Landform Description

Location and

Landform:

Geology:

Soil Attributes:

Litter Cover: <1% Logs, 2% Twigs, 7% Leaves.

Bare Ground: 50-75%.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Shrubland of <i>Melaleuca atroviridis</i> , <i>Melaleuca uncinata</i> , <i>Acacia aciphylla</i> and <i>Persoonia hexagona</i>
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Grevillea levis</i> , <i>Acacia ulicina</i> , <i>Acacia restiacea</i> , <i>Hibbertia glomerata</i> subsp. <i>glomerata</i> , <i>Chorizema racemosum</i> , <i>Astroloma serratifolium</i> and <i>Astroloma serratifolium</i>

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Track, clearing, rubbish, soil pile, rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Melaleuca* Shrubland

Vegetation Association: AMeS-DdBs

Shrubland of *Acacia acuminata*, *Melaleuca longistaminea*, *Melaleuca radula* and *Melaleuca atroviridis* over Low Open Shrubland of *Darwinia diosmoides* and *Grevillea tenuiloba* over Very Open Herbland of *Borya sphaerocephala*.



Area: 0.82 ha

Quadrats Sampled

WR125

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Light orange brown loam with cobbles and boulders with exposed rock

Litter Cover: 1% Logs, 1% Twigs, 2% Leaves.

Bare Ground: 70 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Shrubland of <i>Acacia acuminata</i> , <i>Melaleuca longistaminea</i> , <i>Melaleuca radula</i> and <i>Melaleuca atroviridis</i>
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Darwinia diosmoides</i> and <i>Grevillea tenuiloba</i>
Understorey	
Herbland	Very Open Herbland of <i>Borya sphaerocephala</i> .

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Track

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Melaleuca* Tall Shrubland

Vegetation Association: AMeT-Gg

Tall Shrubland of *Melaleuca viminea* subsp. *Vimineae* and *Acacia ramulosa* var. *linophylla* over Open Shrubland of *Melaleuca fulgens* subsp. *steadmanii*, *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and *Acacia acuminata* over Low Open Shrubland of *Grevillea granulosa* over Very Open Grassland of *Amphipogon caricinus* var. *caricinus*



Area: 1.05 ha

Quadrats Sampled

WR083

Landform Description

Location and

Landform:

Geology: Calcrete

Soil Attributes: Pale Brown/Red Sand with Some Loam with Scattered Fine Pebbles

Litter Cover: <1% Logs, 2% Twigs, 6% Leaves.

Bare Ground: 70 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Melaleuca viminea</i> subsp. <i>Vimineae</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Melaleuca fulgens</i> subsp. <i>Steedmanii</i> , <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Acacia acuminata</i>
Lower Shrub Layer	Low Open Shrubland of <i>Grevillea granulosa</i>
Understorey	
Grassland	Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Tracks, nearby rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Melaleuca* Tall Shrubland

Vegetation Association: AMeT-Cd

Tall Shrubland of *Acacia acuminata*, *Melaleuca viminea* subsp. *viminea* and *Melaleuca atroviridis* over Open Shrubland of *Acacia tetragonophylla.*, Myrtaceae sp. And *Melaleuca radula* over Very Open Grassland of **Avena barbata*, over Open Herbland of *Schoenia cassiniana*, *Cephalopterum drummondii* and *Podolepis lessonii*



Area: 3.82 ha

Quadrats Sampled

WR118

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Orange red brown loam

Litter Cover: <1% Logs, 1% Twigs, 2% Leaves.

Bare Ground: 40 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Shrubland of <i>Acacia acuminata</i> , <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Melaleuca atroviridis</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Acacia tetragonophylla</i> , Myrtaceae sp. and <i>Melaleuca radula</i>	
Understorey		
Grassland	Very Open Grassland of <i>*Avena barbata</i>	
Herbland	Open Herbland of <i>Schoenia cassiniana</i> , <i>Cephalopterum drummondii</i> and <i>Podolepis lessonii</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track, rail, soil piles

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Melaleuca* Tall Shrubland

Vegetation Association: AMeT-Gof

Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Acacia* sp and *Melaleuca viminea* subsp. *Vimineae* over Open Shrubland of *Grevillea obliquistigma* subsp. *Funicularis*, *Acacia longispinea* and *Acacia acuaria* over Very Open Grassland of *Gahnia drummondii* over Very Open Sedgeland of *Ecdeiocolea monostachya*



Area: 6.40 ha

Quadrats Sampled

WR085

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Pale Brown / Red Sand with Scattered Pebbles

Litter Cover: <1% Logs, 4% Twigs, 15% Leaves.

Bare Ground: 70 %

Vegetation Structure and Floristics

Tall Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i> , <i>Acacia</i> sp and <i>Melaleuca viminea</i> subsp. <i>Vimineae</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>Funicularis</i> , <i>Acacia longispinea</i> and <i>Acacia acuaria</i>
Understorey	
Grassland	Very Open Grassland of <i>Gahnia drummondii</i>
Sedgeland	Very Open Sedgeland of <i>Ecdeiocolea monostachya</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Nearby rail tracks and car tracks

Average Fire Age: Old

Broad Floristic Formation: *Acacia* and *Myrtaceae* Shrubland

Vegetation Association: AMyS-Ghh

Open Shrubland of *Acacia rostellifera*, *Thryptomene* sp. Wandana (M.E. Trudgen MET 22016), *Rhagodia drummondii* and *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369) over Low Open Shrubland of *Grevillea hakeoides* subsp. *hakeoides* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima*, *Ehrharta longiflora*, *Austrostipa scabra* subsp. *scabra* and *Monachather paradoxus* over Very Open Herbland of *Drosera neesii* subsp. *borealis*



Area: 0.65 ha

Quadrats Sampled

WR079

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: 1% Logs, 4% Twigs, 20% Leaves.

Bare Ground: 60 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Myrtaceae* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Shrubland of <i>Acacia rostellifera</i> , <i>Thryptomene</i> sp. Wandana (M.E. Trudgen MET 22016), <i>Rhagodia drummondii</i> and <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Grevillea hakeoides</i> subsp. <i>hakeoides</i> and <i>Keraudrenia hermanniifolia</i>
Understorey	
Grassland	Open Grassland of <i>Austrostipa elegantissima</i> , <i>Ehrharta longiflora</i> , <i>Austrostipa scabra</i> subsp. <i>Scabra</i> and <i>Monachather paradoxus</i>
Herbland	Very Open Herbland of <i>Drosera neesii</i> subsp. <i>Borealis</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Weeds, rubbish, nearby tracks and highway

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Heath
Vegetation Association: AH-Css
 Open Heath of *Acacia blakelyi* and *Acacia rostellifera* over Low Open Shrubland of *Conospermum stoechadis* subsp. *stoechadis* and *Grevillea amplexans* subsp. *amplexans*



Area: 2.61ha **Quadrats Sampled** WR015

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Pale Yellow Sand

Litter Cover: <1% Logs, 20% Twigs, 20% Leaves.

Bare Ground: 40 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Heath of <i>Acacia blakelyi</i> and <i>Acacia rostellifera</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Conospermum stoechadis</i> subsp. <i>Stoechadis</i> and <i>Grevillea amplexans</i> subsp. <i>Amplexans</i>	

Vegetation Condition

Condition Rating: Excellent

Disturbances: N/A

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland

Vegetation Association: AS-TsMb

Open Shrubland of *Acacia rostellifera* over Low Open Shrubland of *Thryptomene strongylophylla*, *Calytrix* sp. Paynes Find (F. & J. Hort 1188), *Rhagodia drummondii*, *Grevillea hakeoides* subsp. *hakeoides*, *Mirbelia trichocalyx* over Very Open Grassland of *Ehrharta longiflora*, *Monachather paradoxus* and *Austrostipa elegantissima*



Area: 6.96 ha

Quadrats Sampled

WR077

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow / Brown Sand

Litter Cover: <1% Logs, 3% Twigs, 5% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Shrubland of <i>Acacia rostellifera</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Thryptomene strongylophylla</i> , <i>Calytrix</i> sp. Paynes Find (F. & J. Hort 1188), <i>Rhagodia drummondii</i> , <i>Grevillea hakeoides</i> subsp. <i>hakeoides</i> , <i>Mirbelia trichocalyx</i>	
Understorey		
Grassland	Very Open Grassland of <i>Ehrharta longiflora</i> , <i>Monachather paradoxus</i> and <i>Austrostipa elegantissima</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: -

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland

Vegetation Association: AS-HggAe

Open Shrubland of *Acacia acuminata* and *Senna charlesiana* over Low Shrubland of *Acacia andrewsii*, *Ptilotus obovatus*, *Maireana georgei* and *Maireana tomentosa* over Open Herbland of *Hyalosperma glutinosum* subsp. *Glutinosum*, *Cephalipterum drummondii* and *Waitzia acuminata* var. *acuminata*



Area: 5.89 ha

Quadrats Sampled

WR069

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Brown Loam

Litter Cover: <1% Logs, 1% Twigs, 10% Leaves.

Bare Ground: -%

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics	
Overstorey			
Canopy Layer	Open Shrubland of <i>Acacia acuminata</i> and <i>Senna charlesiana</i>		
Midstorey			
Middle Shrub Layer	Low Shrubland of <i>Acacia andrewsii</i> , <i>Ptilotus obovatus</i> , <i>Maireana georgei</i> and <i>Maireana tomentosa</i>		
Understorey			
Herbland	Open Herbland of <i>Hyalosperma glutinosum</i> subsp. <i>Glutinosum</i> , <i>Cephalipterum drummondii</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>		

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland
Vegetation Association: AS-RdEt
 Shrubland of *Acacia anthochaera*, *Senna charlesiana* and *Acacia colletioides* over Low Open Shrubland of *Rhagodia drummondii* and *Enchylaena tomentosa*



Area: 3.22 ha

Quadrats Sampled

WRR105

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red orange brown loam

Litter Cover: 1% Logs, 1% Twigs, 1% Leaves.

Bare Ground: 30 %.

Vegetation Structure and Floristics

Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Shrubland of <i>Acacia anthochaera</i> , <i>Senna charlesiana</i> and <i>Acacia colletioides</i>
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Rhagodia drummondii</i> and <i>Enchylaena tomentosa</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Track, salinity, clearing, rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland Degraded

Vegetation Association: AS-EICd (D)

Open Shrubland of *Acacia acuminata* over Open Grassland of *Ehrharta longiflora* over Open Herbland of *Cephalopterum drummondii*.



Area: 34.68ha

Quadrats Sampled

WR074, WR075, WR076, WRR054

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Brown Loam with Clay on the Surface

Litter Cover: 1% Logs, 7% Twigs, 7% Leaves.

Bare Ground: 10- 90 %

Vegetation Structure and Floristics

Degraded Shrubland of *Acacia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Shrubland of <i>Acacia acuminata</i>
Understorey	
Grassland	Open Grassland of <i>Ehrharta longiflora</i>
Herbland	Open Herbland of <i>Cephalopterum drummondii</i> .

Vegetation Condition

Condition Rating: Degraded to Good

Disturbances: Clearing, Introduced Species, Rubbish, Tracks, Earth Moving,

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Shrubland - Degraded

Vegetation Association: AS-PcAc (D)

Open Shrubland of *Acacia anthochaera* over Very Open Herbland of *Podolepis capillaris* and **Arctotheca calendula*



Area: 4.79 ha

Quadrats Sampled

WRR53

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Loamy Sand with Clay on Surface

Litter Cover: 1% Logs, 1% Twigs, <1% Leaves.

Bare Ground: 95%

Vegetation Structure and Floristics

Degraded Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Shrubland of <i>Acacia anthochaera</i>
Understorey	
Herbland	Very Open Herbland of <i>Podolepis capillaris</i> and * <i>Arctotheca calendula</i>

Vegetation Condition

Condition Rating: Degraded to Completely Degraded

Disturbances: Clearing, weeds, earthmoving, rubbish.

Average Fire Age:

Broad Floristic Formation: *Acacia* Tall Shrubland- Degraded

Vegetation Association: AT- AbArApEI (D)

Tall Open Scrub of *Acacia blakelyi*, *Acacia rostellifera*, *Acacia prainii* and/or *Acacia alata* var. *biglandulosa* over Open Grassland of *Ehrharta longiflora*, *Eucalyptus calycina*, *Pennisetum setaceum* and *Bromus diandrus* over Very Open Herbland of *Lupinus cosentinii*



Area: 59.11 ha

Quadrats Sampled

WR022, WRR09

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Pale Clayey Sand

Litter Cover: 1% Logs, 3% Twigs, 30% Leaves.

Bare Ground: 10- 25 %

Vegetation Structure and Floristics

Degraded Tall Shrubland of *Acacia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Acacia blakelyi</i> , <i>Acacia rostellifera</i> , <i>Acacia prainii</i> and/or <i>Acacia alata</i> var. <i>biglandulosa</i>
Understorey	
Grassland	Open Grassland of <i>Ehrharta longiflora</i> , <i>Eucalyptus calycina</i> , <i>Pennisetum setaceum</i> and <i>Bromus diandrus</i>
Herbland	Very Open Herbland of <i>Lupinus cosentinii</i>

Vegetation Condition

Condition Rating: Degraded

Disturbances: Clearing, Track, Introduced Species, Adjacent to Quarry

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-MtEI

Tall Open Shrubland *Acacia acuarria* over Open Shrubland of *Acacia acuminata*, *Acacia coolgardiensis* and *Rhagodia drummondii* over Low Shrubland *Maireana tomentosa* over Open Grassland of *Ehrharta longiflora* over Very Open Herbland of *Gorteria personata*



Area: 16.41 ha

Quadrats Sampled

WR073, WRR51

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red Brown Loam/ Sand

Litter Cover: 1% Logs, 1% Twigs, 5% Leaves.

Bare Ground: 15- 40 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Shrubland <i>Acacia acuarria</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Acacia acuminata</i> , <i>Acacia coolgardiensis</i> and <i>Rhagodia drummondii</i>	
Lower Shrub Layer	over Low Shrubland <i>Maireana tomentosa</i>	
Understorey		
Grassland	Open Grassland of <i>Ehrharta longiflora</i>	
Herbland	Very Open Herbland of <i>Gorteria personata</i>	

Vegetation Condition

Condition Rating: Completely Degraded to Very Good

Disturbances: Clearing, Introduced Species, Nearby Road, Earth Moving,

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-MpPc

Tall Open Shrubland of *Acacia rostellifera* over Very Open Grassland of *Bromus diandrus*, *Monachather paradoxus* and **Ehrharta longiflora* over Very Open Herbland of *Podolepis canescens* and *Brachyscome oncocarpa*



Area: 6.2 ha

Quadrats Sampled

WR57

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red - Yellow Sand

Litter Cover: <1% Logs, 2% Twigs, <1% Leaves.

Bare Ground: 30 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia rostellifera</i>
Understorey	
Grassland	Very Open Grassland of <i>Bromus diandrus</i> , <i>Monachather paradoxus</i> and <i>Ehrharta longiflora</i>
Herbland	Very Open Herbland of <i>Podolepis canescens</i> and <i>Brachyscome oncocarpa</i>

Vegetation Condition

Condition Rating: Degraded

Disturbances: Weeds. rail, track

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-AbAb
 Tall Shrubland of *Acacia acuminata* over Shrubland of *Acacia brumalis* over Open Grassland of **Avena barbata* and *Austrostipa variabilis*.



Area: 16.63 ha

Quadrats Sampled

WR115, WR116, WR117, WRR100

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Light Orange Brown Loam

Litter Cover: 5% Logs, 3% Twigs, 10% Leaves.

Bare Ground: 40- 75 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Acacia acuminata</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Acacia brumalis</i>
Understorey	
Grassland	Open Grassland of <i>*Avena barbata</i> and <i>Austrostipa variabilis</i> .

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Clearing, Track, Rail, Soil Dump,

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-ArAsAe

Tall Shrubland of *Acacia rostellifera* over Open Shrubland of *Acacia saligna*, *Grevillea candelabroides*, *Allocasuarina campestris* and *Rhagodia drummondii* over Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* over Very Open Sedgeland of *Dianella revoluta* var. *divaricata* and *Ecdeiocolea monostachya* over Very Open Herbalnd of **Arctotheca calendula* and *Vulpia myuros**



Area: 2.05 ha

Quadrats Sampled

WR013

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Pale Yellow Sand (Nearly White)

Litter Cover: <1% Logs, 5% Twigs, 30% Leaves.

Bare Ground: 35 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics	
Overstorey			
Canopy Layer		Tall Shrubland of <i>Acacia rostellifera</i>	
Midstorey			
Middle Shrub Layer		Open Shrubland of <i>Acacia saligna</i> , <i>Grevillea candelabroides</i> , <i>Allocasuarina campestris</i> and <i>Rhagodia drummondii</i>	
Understorey			
Grassland		Open Grassland of <i>Austrostipa elegantissima</i> and <i>Ehrharta longiflora</i>	
Sedgeland		Very Open Sedgeland of <i>Dianella revoluta</i> var. <i>divaricata</i> and <i>Ecdeiocolea monostachya</i>	
Herbland		Very Open Herbalnd of <i>*Arctotheca calendula</i> and <i>Vulpia myuros*</i>	

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Weeds, nearby track

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-AxAb

Tall Shrubland of *Acacia xanthina* over Open Heath of *Acacia brumalis*, *Acacia rostellifera* and *Rhagodia preissii* subsp. *Obovata* over Low Open Shrubland of *Lechenaultia linarioides* and *Jacksonia ramulosa*



Area: 7.5 ha

Quadrats Sampled

WR20

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Grey - White Sand

Litter Cover: <1% Logs, 5% Twigs, 90% Leaves.

Bare Ground: 5 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Acacia xanthina</i>
Midstorey	
Middle Shrub Layer	Open Heath of <i>Acacia brumalis</i> , <i>Acacia rostellifera</i> and <i>Rhagodia preissii</i> subsp. <i>Obovata</i>
Lower Shrub Layer	Low Open Shrubland of <i>Lechenaultia linarioides</i> and <i>Jacksonia ramulosa</i>

Vegetation Condition

Condition Rating: Excellent

Disturbances: Adjacent to highway and railway, few weeds

Average Fire Age: Moderate

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-PmmSi

Tall Open Shrubland of *Acacia Sclerosperma* subsp. *Sclerosperma*, *Acacia* sp. and *Acacia acuarria* over Low Shrubland of *Pimelea microcephala* subsp. *Microcephala*, *Rhagodia drummondii*, *Maireana tomentosa*, *Maireana georgei* and *Atriplex codonocarpa* over Very Open Grassland of **Ehrharta longiflora* and *Austrostipa elegantissima* over Open Herbland of *Sisymbrium irio* and *Chenopodium gaudichaudianum*



Area: 4.13 ha

Quadrats Sampled

WR71

Landform Description

Location and

Landform:

Geology: Granite and Quartz

Soil Attributes: Brown Loam

Litter Cover: 5% Logs, 5% Twigs, 60% Leaves.

Bare Ground: 30 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia Sclerosperma</i> subsp. <i>Sclerosperma</i> , <i>Acacia</i> sp. and <i>Acacia acuarria</i>
Midstorey	
Middle Shrub Layer	Low Shrubland of <i>Pimelea microcephala</i> subsp. <i>Microcephala</i> , <i>Rhagodia drummondii</i> , <i>Maireana tomentosa</i> , <i>Maireana georgei</i> and <i>Atriplex codonocarpa</i>
Understorey	
Grassland	Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>Austrostipa elegantissima</i>
Herbland	Open Herbland of <i>Sisymbrium irio</i> and <i>Chenopodium gaudichaudianum</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds, clearing, nearby track, rubbish

Average Fire Age: Very Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-Ac
 Tall Open Shrubland of *Acacia acuminata* over
 Shrubland of *Acacia coolgardiensis*



Area: 5.56 ha

Quadrats Sampled

WR068, WRR060

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow sandy Loam with Clay and Rocks

Litter Cover: 1% Logs, 5% Twigs, 1% Leaves.

Bare Ground: 85- 95 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland <i>Acacia acuminata</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Acacia coolgardiensis</i>

Vegetation Condition

Condition Rating: Degraded to Good

Disturbances: Clearing, Fire

Average Fire Age: Moderate to Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-ALMa

Tall Shrubland of *Acacia coolgardiensis*, *Acacia longispinea*, *Acacia stereophylla* var. *stereophylla* and *Melaleuca atroviridis* over Open shrubland of *Acacia coolgardiensis* and/or *Acacia Melaleuca atroviridis* over Very Open Sedgeland of *Ecdeiocolea monostachya*



Area: 24.52 ha

Quadrats Sampled

WR64, WR65, WR78

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Brown Loam with Pebbles and Clay

Litter Cover: 1% Logs, 5% Twigs, 30% Leaves.

Bare Ground: 60- 75 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	<i>Acacia coolgardiensis</i> , <i>Acacia longispinea</i> , <i>Acacia stereophylla</i> and <i>Melaleuca atroviridis</i>
Midstorey	
Middle Shrub Layer	Open shrubland of <i>Acacia coolgardiensis</i> and/or <i>Melaleuca atroviridis</i>
Understorey	
Grassland	Very Open Sedgeland of <i>Ecdeiocolea monostachya</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Clearing, Track, Introduced Species

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-Gof
 Shrubland of *Acacia stereophylla* var. *stereophylla*,
Acacia coolgardiensis and *Grevillea obliquistigma*
 subsp. *funicularis* over Very Open Grassland of
Amphipogon caricinus var. *caricinus*



Area: 8.73 ha

Quadrats Sampled

WR060

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Brown Sand

Litter Cover: 2% Logs, 1% Twigs, 7% Leaves.

Bare Ground: 90%

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics	
Overstorey			
Canopy Layer	Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i> , <i>Acacia coolgardiensis</i> and <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>		
Understorey			
Grassland	Very Open Grassland of <i>Amphipogon caricinus</i> var. <i>caricinus</i>		

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Tracks, weeds

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-Cd

Tall Open Shrubland of *Acacia ramulosa* var. *linophylla* over Open Shrubland of *Acacia acuminata*, *Acacia sibina* and *Hibbertia glomerata* subsp. *glomerata* over Very Open Herbland of *Calytrix depressa*, *Borya sphaerocephala* and *Waitzia acuminata* var. *acuminata*



Area: 2.22ha

Quadrats Sampled

WR114

Landform Description

Location and

Landform:

Geology: Quartz and Granite

Soil Attributes: Light orange brown clayey loam with scattered pebbles

Litter Cover: 2% Logs, 2% Twigs, 1% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Shrubland of <i>Acacia ramulosa</i> var. <i>linophylla</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Acacia acuminata</i> , <i>Acacia sibina</i> and <i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	
Understorey		
Herbland	Very Open Herbland of <i>Calytrix depressa</i> , <i>Borya sphaerocephala</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track, rail, soil piles

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-Gb

Tall Open Shrubland of *Acacia acuminata* over Open Shrubland of *Acacia* sp., *Acacia sibina* and *Mirbelia depressa* over Low Open Shrubland of *Acacia ulicina*, *Grevillea levis* over Very Open Grassland of *Bromus diandrus* and **Avena barbata*



Area: 5.02 ha

Quadrats Sampled

WR102

Landform Description

Location and

Landform:

Geology: Granite, Quartz

Soil Attributes: Orange red brown loam

Litter Cover: -% Logs, 1% Twigs, 5% Leaves.

Bare Ground: 70 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Acacia acuminata</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Acacia</i> sp., <i>Acacia sibina</i> and <i>Mirbelia depressa</i>
Lower Shrub Layer	Low Open Shrubland of <i>Acacia ulicina</i> and <i>Grevillea levis</i>
Understorey	
Grassland	Very Open Grassland of <i>Bromus diandrus</i> and <i>*Avena barbata</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track and rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-CoBG

Tall Shrubland of *Acacia acuminata*, *Acacia stereophylla* var. *stereophylla* and *Casuarina obesa* over Shrubland of *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen), *Grevillea obliquistigma* subsp. *Funicularis*, *Melaleuca cordata*, *Allocasuarina campestris* and *Grevillea paradoxa*



Area: 6.68ha

Quadrats Sampled

WR108

Landform Description

Location and

Landform:

Geology: Laterite, Granite, Quartz

Soil Attributes: Orange brown loam with some clay, cobbles and pebbles.

Litter Cover: 5% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Shrubland of <i>Acacia acuminata</i> , <i>Acacia stereophylla</i> var. <i>stereophylla</i> and <i>Casuarina obesa</i>	
Midstorey		
Middle Shrub Layer	Shrubland of <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen), <i>Grevillea obliquistigma</i> subsp. <i>Funicularis</i> , <i>Melaleuca cordata</i> , <i>Allocasuarina campestris</i> and <i>Grevillea paradoxa</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Clearing track, rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-AIMIAe
 Tall Shrubland of *Acacia longiphylloidea*, *Grevillea paradoxa*, *Acacia sibina* and *Acacia acuminata* over Open Shrubland of *Mirbelia longifolia*, *Micromyrtus prochytes*, *Eremophila georgei* over Low Open Shrubland of *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and *Ricinocarpos muricatus*



Area: 0.21 ha

Quadrats Sampled

WR126

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Pale Yellow Sand (Nearly White)

Litter Cover: 4% Logs, 4% Twigs, 5% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Shrubland of <i>Acacia longiphylloidea</i> , <i>Grevillea paradoxa</i> , <i>Acacia sibina</i> and <i>Acacia acuminata</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Mirbelia longifolia</i> , <i>Micromyrtus prochytes</i> , <i>Eremophila georgei</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and <i>Ricinocarpos muricatus</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track, rubbish, rail, clearing on edge

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland

Vegetation Association: AT-MvvAc

Tall Shrubland of *Acacia acuminata* and *Melaleuca viminea* subsp. *viminea* over Open Shrubland of *Allocasuarina campestris* and *Malleostemon tuberculatus* over Low Open Shrubland of *Acacia coolgardiensis* over Very Open Herbland of *Velleia rosea*, *Ecdeiocolea monostachya*, *Podotheca angustifolia* and *Pogonolepis stricta*.



Area: 3.57 ha

Quadrats Sampled

WR109

Landform Description

Location and

Landform:

Geology: Laterite, Quartz, Granite

Soil Attributes: Orange red clayey loam with small pebbles

Litter Cover: 1% Logs, 1% Twigs, 20% Leaves.

Bare Ground: 40 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Shrubland of <i>Acacia acuminata</i> and <i>Melaleuca viminea</i> subsp. <i>viminea</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Allocasuarina campestris</i> and <i>Malleostemon tuberculatus</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Acacia coolgardiensis</i>	
Understorey		
Herbland	Very Open Herbland of <i>Velleia rosea</i> , <i>Ecdeiocolea monostachya</i> , <i>Podotheca angustifolia</i> and <i>Pogonolepis stricta</i> .	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Clearing track, rail

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-AaAan

Tall Open Scrub of *Acacia acuminata* and *Acacia anthochaera*.



Area: 4.95 ha

Quadrats Sampled

WRR103

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red orange brown loam

Litter Cover: 5% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Acacia acuminata</i> and <i>Acacia anthochaera</i> .

Vegetation Condition

Condition Rating: Good

Disturbances: Track, rail, clearing

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-PoCd
 Tall Open Shrubland of *Acacia anthochaera* over
 Low Open Shrubland of *Ptilotus obovatus* and
Solanum lasiophyllum over Herbland of
Cephalipterum drummondii, *Vaccaria hispanica* and
Podolepis capillaris



Area: 8 ha

Quadrats Sampled

WRR106

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red orange brown loam

Litter Cover: -% Logs, <1% Twigs, <1% Leaves.

Bare Ground: 70 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Shrubland of <i>Acacia anthochaera</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i>	
Understorey		
Herbland	Herbland of <i>Cephalipterum drummondii</i> , <i>Vaccaria hispanica</i> and <i>Podolepis capillaris</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Track, clearing, rail, Introduced species

Average Fire Age: Old

Broad Floristic Formation: Tall Open Scrub of *Acacia* sp.
Vegetation Association: AT-VeWaa
 Tall Open Shrubland of *Acacia* sp.



Area: 1.04 ha

Quadrats Sampled

WRR108

Landform Description

Location and Landform: Drainage Channel

Geology:

Soil Attributes: Light orange brown clayey loam with scatterings of cobbles and pebbles.

Litter Cover: 5% Logs, 2% Twigs, 30% Leaves.

Bare Ground: 40 %

Vegetation Structure and Floristics

Tall Scrub of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Acacia</i> sp.

Vegetation Condition

Condition Rating: Good / Degraded

Disturbances: Track, clearing, rail, Introduced species

Average Fire Age: Old

Broad Floristic Formation: *Acacia* Tall Shrubland
Vegetation Association: AT-ArlAs
 Tall Open Scrub of *Acacia ramulosa* var. *linophylla* and *Acacia sibina*



Area: 1.75 ha

Quadrats Sampled

WRR109

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Light orange brown sandy loam

Litter Cover: 1% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Scrub of <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia sibina</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Track, clearing, rail.

Average Fire Age: Old

Broad Floristic Formation: *Allocasuarina* and *Melaleuca* Shrubland

Vegetation Association: AIMS-Ae

Open Shrubland of *Melaleuca viminea* subsp. *viminea* and *Allocasuarina campestris* over Low Open Shrubland of *Thryptomene* sp. East Yuna (J.W. Green 4639) over Open Grassland of *Austrostipa elegantissima* over Very Open Herbland of *Monachather paradoxus* and *Waitzia acuminata* var. *acuminata*



Area: 3 ha

Quadrats Sampled

WR53

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: -% Logs, 2% Twigs, <1% Leaves.

Bare Ground: - %

Vegetation Structure and Floristics

Open Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Allocasuarina campestris</i>
Midstorey	
Low Shrub Layer	Low Open Shrubland of <i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)
Understorey	
Grassland	Open Grassland of <i>Austrostipa elegantissima</i>
Herbland	Very Open Herbland of <i>Monachather paradoxus</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Track, clearing, rail.

Average Fire Age: Old

Broad Floristic Formation: *Allocasuarina* Tall Shrubland

Vegetation Association: AIT-Em

Open Shrubland to Closed Tall Scrub of *Allocasuarina campestris* over Open Sedgeland of *Ecdeiocolea monostachya*



Area: 31.54 ha

Quadrats Sampled

WR07, WR08, WR09, WR010

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: <1% Logs, 15% Twigs, 8% Leaves.

Bare Ground: 5- 85 %

Vegetation Structure and Floristics

Tall Shrubland of *Allocasuarina* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Shrubland to Closed Tall Scrub of <i>Allocasuarina campestris</i>	
Understorey		
Sedgeland	Open Sedgeland of <i>Ecdeiocolea monostachya</i>	

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Track, Introduced Species

Average Fire Age: Old

Broad Floristic Formation: *Banksia* and *Nuytsia* Low Woodland

Vegetation Association: BNLW-XpEc

Low Open Woodland of *Banksia sceptrum*, *Nuytsia floribunda* and *Acacia blakelyi* over Open Shrubland of *Xanthorrhoea preissii*, *Banksia attenuata* and *Allocasuarina humilis*, over Low Open Shrubland of *Hibbertia hypericoides*, *Conostylis robusta*, *Stirlingia latifolia* over Closed Grassland of *Ehrharta calycina* and *Ursinia anthemoides*



Area: 1.16 ha

Quadrats Sampled

WR024

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White Sand

Litter Cover: <1% Logs, 5% Twigs, 5% Leaves.

Bare Ground: 2 %

Vegetation Structure and Floristics

Low woodland of *Banksia* and *Nuytsia* is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Low Open Woodland of <i>Banksia sceptrum</i> , <i>Nuytsia floribunda</i> and <i>Acacia blakelyi</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Xanthorrhoea preissii</i> , <i>Banksia attenuata</i> and <i>Allocasuarina humilis</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Hibbertia hypericoides</i> , <i>Conostylis robusta</i> , <i>Stirlingia latifolia</i>	
Understorey		
Grassland	Closed Grassland of <i>Ehrharta calycina</i> and <i>Ursinia anthemoides</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Adjacent track and farm

Average Fire Age: Old

Broad Floristic Formation: *Callitris* and *Eucalyptus* Low Forest

Vegetation Association: CELF-Rd

Low Open Forest of *Callitris arenaria* and *Eucalyptus eudesmioides* over Low Open Shrubland of *Rhagodia drummondii*, *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369), *Comesperma scoparium* and *Santalum acuminatum* over Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* over Very Open Herbland of *Opercularia spermacocea* and *Waitzia acuminata* var. *acuminata*



Area: 5.08 ha

Quadrats Sampled

WR54

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: 5% Logs, 10% Twigs, 70% Leaves.

Bare Ground: 5 %

Vegetation Structure and Floristics

Low Forest of *Callitris* and *Eucalyptus* is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Low Open Forest of <i>Callitris arenaria</i> and <i>Eucalyptus eudesmioides</i>
Midstorey	
Middle Shrub Layer	Low Open Shrubland of <i>Rhagodia drummondii</i> , <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369), <i>Comesperma scoparium</i> and <i>Santalum acuminatum</i>
Understorey	
Grassland	Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>*Ehrharta longiflora</i>
Herbland	Very Open Herbland of <i>Opercularia spermacocea</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Weeds, grass, clearing and rubbish

Average Fire Age: Old

Broad Floristic Formation: *Callitris arenaria* Open Woodlands

Vegetation Association: COW-Xa

Low Woodland of *Callitris arenaria* and *Xylomelum angustifolium* over Low Open Shrubland of *Rhagodia preissii* subsp. *obovata* and *Allocasuarina campestris* over Very Open Grassland land of *Austrostipa elegantissima*, *Ehrharta longiflora* and *Bromus diandrus*



Area: 23.55ha

Quadrats Sampled

WR050, WRR050

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: 1% Logs, 40% Twigs, 10% Leaves.

Bare Ground: 10 %

Vegetation Structure and Floristics

Open Woodlands of *Callitris arenaria* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Low Woodland of <i>Callitris arenaria</i> and <i>Xylomelum angustifolium</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Rhagodia preissii</i> subsp. <i>obovata</i> and <i>Allocasuarina campestris</i>	
Understorey		
Grassland	Very Open Grassland land of <i>Austrostipa elegantissima</i> , <i>Ehrharta longiflora</i> and <i>Bromus diandrus</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Track, Introduced Species, Rubbish, Clearing

Average Fire Age: Old

Broad Floristic Formation: *Dryandra* Tall Shrubland
Vegetation Association: DT-Ab
 Open to Tall Open Shrubland of *Dryandra sessilis* var. *flabellifolia* over Shrubland of *Acacia blakelyi* and/or *Acacia brumalis*



Area: 10.37 ha

Quadrats Sampled

WRR02, WR021

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White/ Grey Sand

Litter Cover: 1% Logs, 5% Twigs, 15% Leaves.

Bare Ground: 1- 35 %

Vegetation Structure and Floristics

Tall Shrubland of *Dryandra* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open to Tall Open Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i>	
Midstorey		
Middle Shrub Layer	Shrubland of <i>Acacia blakelyi</i> and/or <i>Acacia brumalis</i>	

Vegetation Condition

Condition Rating: Degraded to Very Good

Disturbances: Track, Introduced Species

Average Fire Age: Very Old to Old

Broad Floristic Formation: *Dryandra* Tall Shrubland

Vegetation Association: DT-Rd

Tall Open Scrub of *Dryandra sessilis* var. *flabellifolia* over Open Shrubland of *Rhagodia drummondii* over Open Grassland of *Ehrharta calycina* and, *Pennisetum setaceum* and **Ehrharta longiflora* over Very Open Herbland of **Arctotheca calendula*



Area: 13.32 ha

Quadrats Sampled

WRR03

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Sand

Litter Cover: 2% Logs, 1% Twigs, 1% Leaves.

Bare Ground: 15 %

Vegetation Structure and Floristics

Tall Shrubland of *Dryandra* is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Tall Open Scrub of <i>Dryandra sessilis</i> var. <i>flabellifolia</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Rhagodia drummondii</i>	
Understorey		
Grassland	Open Grassland of <i>*Ehrharta calycina</i> and, <i>Pennisetum setaceum</i> and <i>*Ehrharta longiflora</i>	
Herbland	Very Open Herbland of <i>*Arctotheca calendula</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Weeds

Average Fire Age: Very Old

Broad Floristic Formation: Mixed *Acacia*, *Allocasuarina* and *Dryandra* Shrublands

Vegetation Association: DAAIS

Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Allocasuarina campestris*, *Acacia saligna*, *Gastrolobium spinosum* over Open Grassland of *Austrostipa elegantissima*, *Brachyloma pirara* and *Keraudrenia hermanniifolia* over Open Sedgeland of *Dampiera spicigera*



Area: 5.79 ha

Quadrats Sampled

WR25, WRR02

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White/ Grey Sand, Clayey Orange Silt

Litter Cover: 1% Logs, 15% Twigs, 25% Leaves.

Bare Ground: 35- 55 %

Vegetation Structure and Floristics

Shrubland of Mixed *Acacia*, *Allocasuarina* and *Dryandra* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> , <i>Allocasuarina campestris</i> , <i>Acacia saligna</i> , <i>Gastrolobium spinosum</i>
Understorey	
Grassland	Open Grassland of <i>Austrostipa elegantissima</i> , <i>Brachyloma pirara</i> and <i>Keraudrenia hermanniifolia</i>
Sedgeland	Open Sedgeland of <i>Dampiera spicigera</i>

Vegetation Condition

Condition Rating: Degraded to Excellent

Disturbances: Track, Introduced Species, Clearing

Average Fire Age: Very Old to Old

Broad Floristic Formation: *Acacia*, *Dryandra* and *Adenanthos* Tall Shrubland

Vegetation Association: DAdAT-EI

Tall Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Adenanthos cygnorum* subsp. *Cygnorum*, *Acacia blakelyi* and *Acacia rostellifera* over Open Grassland of **Ehrharta longiflora* and **Briza maxima*



Area: 8.69 ha

Quadrats Sampled

WRR07

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White Grey Sand

Litter Cover: <1% Logs, 2% Twigs, 92% Leaves.

Bare Ground: 5 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia*, *Dryandra* and *Adenanthos*. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Shrubland of <i>Dryandra sessilis</i> var. <i>flabellifolia</i> , <i>Adenanthos cygnorum</i> subsp. <i>Cygnorum</i> , <i>Acacia blakelyi</i> and <i>Acacia rostellifera</i>
Understorey	
Grassland	Open Grassland of <i>**Ehrharta longiflora</i> and <i>*Briza maxima</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Adjacent to rail and road, weeds

Average Fire Age:

Broad Floristic Formation: *Eucalyptus* Low Forest

Vegetation Association: ELF-AsHt

Low Open Forest of *Eucalyptus camaldulensis* over Open Shrubland of *Acacia saligna* and *Banksia sessilis* var. *flabellifolia* over Low Open Shrubland of *Hakea trifurcata*, *Acacia rostellifera* and *Acacia tetragonophylla* over Very Open Grassland of **Ehrharta longiflora*, *Austrostipa elegantissima* and **Briza maxima*



Area: 0.31 ha

Quadrats Sampled

WR17

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Clayey Sand

Litter Cover: 1% Logs, 10% Twigs, 50% Leaves.

Bare Ground: 35 %

Vegetation Structure and Floristics

Low Woodland of *Eucalyptus* is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Low Open Forest of <i>Eucalyptus camaldulensis</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Acacia saligna</i> and <i>Banksia sessilis</i> var. <i>flabellifolia</i>
Lower Shrub Layer	Low Open Shrubland of <i>Hakea trifurcata</i> , <i>Acacia rostellifera</i> and <i>Acacia tetragonophylla</i>
Understorey	
Grassland	Very Open Grassland of <i>*Ehrharta longiflora</i> , <i>Austrostipa elegantissima</i> and <i>*Briza maxima</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Drainage line, erosion, weeds

Average Fire Age: Very Old

Broad Floristic Formation: *Eucalyptus* Low Woodland

Vegetation Association: ELW-RdSs

Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Low Open Shrubland of *Rhagodia drummondii*, *Scaevola spinescens*, *Melaleuca uncinata* and *Sclerolaena diacantha*



Area: 0.5 ha

Quadrats Sampled

WR19

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Clayey Sand

Litter Cover: <1% Logs, 27% Twigs, 27% Leaves.

Bare Ground: 45%

Vegetation Structure and Floristics

Open Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Low Shrub Layer	Low Open Shrubland of <i>Rhagodia drummondii</i> , <i>Scaevola spinescens</i> , <i>Melaleuca uncinata</i> and <i>Sclerolaena diacantha</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track, clearing, rail.

Average Fire Age: Very Old

Broad Floristic Formation: *Eucalyptus* Low Woodland

Vegetation Association: ELW-ArEIBd

Low Open Woodland of *Eucalyptus eudesmioides* over Tall Open Shrubland of *Grevillea* sp. over Open Shrubland of *Acacia rostellifera*, *Santalum acuminatum* and *Rhagodia preissii* subsp. *obovata* over Open Grassland of **Bromus diandrus* and **Ehrharta longiflora*



Area: 9.73 ha

Quadrats Sampled

WR055

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Soft Yellow Sand

Litter Cover: 2% Logs, 10% Twigs, 60% Leaves.

Bare Ground: 10 %

Vegetation Structure and Floristics

Low Woodland of *Eucalyptus* is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Low Open Woodland of <i>Eucalyptus eudesmioides</i>	
Midstorey		
Middle Shrub Layer	Tall Open Shrubland of <i>Grevillea</i> sp.	
Lower Shrub Layer	Open Shrubland of <i>Acacia rostellifera</i> , <i>Santalum acuminatum</i> and <i>Rhagodia preissii</i> subsp. <i>obovata</i>	
Understorey		
Grassland	Open Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds

Average Fire Age: Weeds, rail and track

Broad Floristic Formation: *Eucalyptus* Low Woodland

Vegetation Association: ELW-Aa

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Shrubland of *Acacia acuminata* over Very Open Grassland of *Avena barbata* and *Briza maxima*



Area: 0.16 ha

Quadrats Sampled

WR034

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White/ Grey Sand

Litter Cover: 1% Logs, 5% Twigs, 15% Leaves.

Bare Ground: 1- 35 %

Vegetation Structure and Floristics

Low Woodland of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Acacia acuminata</i>
Understorey	
Grassland	Very Open Grassland of <i>Avena barbata</i> and <i>Briza maxima</i>

Vegetation Condition

Condition Rating: Degraded to Very Good

Disturbances: Track, Introduced Species

Average Fire Age: Very Old to Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-MaRd

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Scrub of *Melaleuca acuminata* over Low Open Shrubland of *Rhagodia drummondii*



Area: 0.25 ha

Quadrats Sampled

WRR05

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Quartz / Sandy Clay

Litter Cover: -% Logs, 5% Twigs, 5% Leaves.

Bare Ground: 90 %

Vegetation Structure and Floristics

Tall Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Low Open Woodland of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	
Midstorey		
Middle Shrub Layer	Tall Open Scrub of <i>Melaleuca acuminata</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Rhagodia drummondii</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Adjacent to track, weeds

Average Fire Age: Very Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-Ac

Open Tree Mallee of *Eucalyptus eudesmioides*, *Eucalyptus rigidula* and *Eucalyptus* sp. (WR03.03) over Tall Shrubland of *Allocasuarina campestris* over Low Open Shrubland of *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369) and *Opercularia spermacocea* over Very Open Grassland of *Austrostipa elegantissima* and *Ehrharta longiflora*



Area: 13.55 ha

Quadrats Sampled

WR06, WR05

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White/ Grey Sand

Litter Cover: <1% Logs, 10% Twigs, 30% Leaves.

Bare Ground: 5 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Tree Mallee of <i>Eucalyptus eudesmioides</i> , <i>Eucalyptus rigidula</i> and <i>Eucalyptus</i> sp. (WR03.03)	
Midstorey		
Middle Shrub Layer	Tall Shrubland of <i>Allocasuarina campestris</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) and <i>Opercularia spermacocea</i>	
Understorey		
Grassland	Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>Ehrharta longiflora</i>	

Vegetation Condition

Condition Rating: Degraded to Very Good

Disturbances: Rubbish, Introduced Species

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus Tree Mallee*

Vegetation Association: ET-EjAc

Very Open to Open Tree Mallee of *Eucalyptus jucunda* over Tall Open Scrub to Open Heath of *Allocasuarina campestris* over Low Shrubland *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369)



Area: 32.02 ha

Quadrats Sampled

WR03, WR02, WR01

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: <1% Logs, 33% Twigs, 40% Leaves.

Bare Ground: 10- 25 %

Vegetation Structure and Floristics

Tall Shrubland of *Allocasuarina* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open to Open Tree Mallee of <i>Eucalyptus jucunda</i>
Midstorey	
Middle Shrub Layer	Tall Open Scrub to Open Heath of <i>Allocasuarina campestris</i>
Lower Shrub Layer	Low Shrubland <i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Track, Introduced Species, Rubbish

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee
Vegetation Association: ET-EcAt
 Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Shrubland of *Eremophila clarkei* and *Acacia tetragonophylla*



Area: 0.10 ha

Quadrats Sampled

WR023

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Brown Sand / Clay With Loose Gravel

Litter Cover: <1% Logs, 10% Twigs, 20% Leaves.

Bare Ground: 65 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Eremophila clarkei</i> and <i>Acacia tetragonophylla</i>

Vegetation Condition

Condition Rating: Very Good to Excellent

Disturbances: Adjacent to Track, Farmland and Weeds

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-AcGof

Very open Tree Mallee of *Eucalyptus leptopoda* subsp. *arctata* over Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Allocasuarina campestris* over Low Open Shrubland of *Pityrodia lepidota*, *Platysace trachymenioides* and *Verticordia eriocephala*



Area: 4.21 ha

Quadrats Sampled

WR66, WRR62

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: 1% Logs, 5% Twigs, 15% Leaves.

Bare Ground: 50- 60 %

Vegetation Structure and Floristics

Tall Shrubland of *Allocasuarina* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very open Tree Mallee of <i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> and <i>Allocasuarina campestris</i>
Lower Shrub Layer	Low Open Shrubland of <i>Pityrodia lepidota</i> , <i>Platysace trachymenioides</i> and <i>Verticordia eriocephala</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Track, Introduced Species, Rail

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-AaArl

Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia acuminata* and *Acacia ramulosa* var. *linophylla* over Very Open Grassland of *Austrostipa elegantissima* and *Austrostipa variabilis*



Area: 3.57 ha

Quadrats Sampled

WR82

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red Brown Hard Loam

Litter Cover: <1% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	
Midstorey		
Middle Shrub Layer	Tall Open Shrubland of <i>Acacia acuminata</i> and <i>Acacia ramulosa</i> var. <i>linophylla</i>	
Understorey		
Grassland	Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>Austrostipa variabilis</i>	

Vegetation Condition

Condition Rating: Good to Degraded

Disturbances: Track on sides, track through middle.

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Low Woodland

Vegetation Association: ET-MvvAa

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Shrubland of *Melaleuca viminea* subsp. *viminea*, *Acacia acuminata*, *Senna charlesiana* over Low Open Shrubland of *Melaleuca* sp. and *Ptilotus obovatus* over Very Open Grassland of **Avena barbata* and *Pentaschistis airoides* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*



Area: 4.61 ha

Quadrats Sampled

WR100

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Light orange brown clayey loam

Litter Cover: 3% Logs, 3% Twigs, 2% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Low Woodland of *Eucalyptus* is the main diagnostics of this association.

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	
Midstorey		
Middle Shrub Layer	Open Shrubland of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , <i>Acacia acuminata</i> , <i>Senna charlesiana</i>	
Lower Shrub Layer	Low Open Shrubland of <i>Melaleuca</i> sp. and <i>Ptilotus obovatus</i>	
Understorey		
Grassland	Very Open Grassland of <i>*Avena barbata</i> and <i>Pentaschistis airoides</i>	
Herbland	Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Nearby track

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-MuAsAa

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Shrubland of *Melaleuca uncinata*, *Acacia sibina* and *Melaleuca eleuterostachya* over Low Open Shrubland of *Acacia andrewsii*.



Area: 12.71 ha

Quadrats Sampled

WRR104

Landform Description

Location and Landform:

Geology: Quartz and Laterite

Soil Attributes: Light orange brown loam with surface crust

Litter Cover: 5% Logs, 5% Twigs, 5% Leaves.

Bare Ground: 80 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Middle Shrub Layer	Tall Shrubland of <i>Melaleuca uncinata</i> , <i>Acacia sibina</i> and <i>Melaleuca eleuterostachya</i>
Lower Shrub Layer	Low Open Shrubland of <i>Acacia andrewsii</i> .

Vegetation Condition

Condition Rating: Good

Disturbances: Track, clearing, rail

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-AaAs

Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia acuminata* and *Melaleuca uncinata* over Low Open Shrubland of *Astroloma serratifolium*



Area: 3.49 ha

Quadrats Sampled

WR127

Landform Description

Location and

Landform:

Geology: Granite and Laterite

Soil Attributes: Orange red brown loam with pebbles

Litter Cover: 5% Logs, 5% Twigs, 30% Leaves.

Bare Ground: 60 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Middle Shrub Layer	Tall Open Shrubland of <i>Acacia acuminata</i> and <i>Melaleuca uncinata</i>
Lower Shrub Layer	Low Open Shrubland of <i>Astroloma serratifolium</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Track, clearing, rail

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-MuPo

Very Open Tree Mallee of *Eucalyptus horistes* over Shrubland of *Melaleuca uncinata* and *Acacia acuminata* over Open Herbland of **Portulaca oleracea*, *Podolepis capillaris* and **Arctotheca calendula*



Area: 5.84 ha

Quadrats Sampled

WR110

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Orange brown sandy loam (deep)

Litter Cover: 2% Logs, 5% Twigs, 20% Leaves.

Bare Ground: 70 %.

Vegetation Structure and Floristics

Heath of *Acacia* sp. and *Melaleuca* sp. are the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus horistes</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Melaleuca uncinata</i> and <i>Acacia acuminata</i>
Understorey	
Herbland	Open Herbland of <i>*Portulaca oleracea</i> , <i>Podolepis capillaris</i> and <i>*Arctotheca calendula</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Clearing, Introduced species, Track, Rail, Rabbit holes

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-AaAa

Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia anthochaera* over Shrubland of *Acacia acuarina* over Very Open Grassland of **Ehrharta longiflora* and **Avena barbata*



Area: 15.71 ha

Quadrats Sampled

WR111, WRR101

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White/ Grey Sand

Litter Cover: 1% Logs, 3% Twigs, 10% Leaves.

Bare Ground: 50- 70 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>
Midstorey	
Middle Shrub Layer	Tall Open Shrubland of <i>Acacia anthochaera</i>
Lower Shrub Layer	Shrubland of <i>Acacia acuarina</i>
Understorey	
Grassland	Very Open Grassland of <i>*Ehrharta longiflora</i> and <i>*Avena barbata</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Track, Introduced Species, Rail, Clearing

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-EggAsRd

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaervis* over Open Shrubland of *Eremophila glabra* subsp. *glabra*, *Acacia anthochaera* and *Senna charlesiana* over Low Shrubland of *Atriplex stipitata*, *Rhagodia drummondii* and *Enchylaena tomentosa* over Very open Grassland of **Hordeum leporinum*



Area: 7.65 ha

Quadrats Sampled

WR113

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Orange red brown loam with surface crust

Litter Cover: 2% Logs, 10% Twigs, 20% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaervis</i>
Midstorey	
Middle Shrub Layer	Open Shrubland of <i>Eremophila glabra</i> subsp. <i>glabra</i> , <i>Acacia anthochaera</i> and <i>Senna charlesiana</i>
Lower Shrub Layer	Low Shrubland of <i>Atriplex stipitata</i> , <i>Rhagodia drummondii</i> and <i>Enchylaena tomentosa</i>
Understorey	
Grassland	Very open Grassland of <i>*Hordeum leporinum</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Clearing, track, rail

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee

Vegetation Association: ET-MvvAr1

Very Open Tree Mallee *Eucalyptus loxophleba* subsp. *supralaevis* and *Eucalyptus ewartiana* over Shrubland of *Melaleuca viminea* subsp. *Viminea*, *Acacia ramulosa* var. *linophylla* and *Acacia acuminata* over Very Open Herbland of *Amphipogon caricinus* var. *caricinus* and *Waitzia acuminata* var. *acuminata*



Area: 16.47 ha

Quadrats Sampled

WR86

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Brown Loam with Clay at Surface

Litter Cover: 1% Logs, 2% Twigs, 15% Leaves.

Bare Ground: 80 %

Vegetation Structure and Floristics

Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Tree Mallee <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> and <i>Eucalyptus ewartiana</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Melaleuca viminea</i> subsp. <i>Viminea</i> , <i>Acacia ramulosa</i> var. <i>linophylla</i> and <i>Acacia acuminata</i>
Understorey	
Herbland	Very Open Herbland of <i>Amphipogon caricinus</i> var. <i>caricinus</i> and <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Nearby road, weeds, rubbish.

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Tree Mallee – Degraded

Vegetation Association: ET-EILc (D)

Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Grassland of **Ehrharta longiflora*, *Pennisetum setaceum* and **Bromus diandrus* over Open Herbland of **Lupinus cosentinii*, **Echium plantagineum*, **Anagallis arvensis*, *Hypochaeris glabra*, *Melilotus indicus* and *Enchylaena tomentosa*



Area: 10.12 ha

Quadrats Sampled

WRR08

Landform Description

Location and

Landform:

Geology:

Soil Attributes:

Litter Cover: -% Logs, -% Twigs, -% Leaves.

Bare Ground: 20%

Vegetation Structure and Floristics

Degraded Tree Mallee of *Eucalyptus* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Very Open Tree Mallee of <i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	
Understorey		
Grassland	Open Grassland of <i>*Ehrharta longiflora</i> , <i>Pennisetum setaceum</i> and <i>*Bromus diandrus</i>	
Herbland	Open Herbland of <i>*Lupinus cosentinii</i> , <i>*Echium plantagineum</i> , <i>*Anagallis arvensis</i> , <i>Hypochaeris glabra</i> , <i>Melilotus indicus</i> and <i>Enchylaena tomentosa</i>	

Vegetation Condition

Condition Rating: Completely Degraded to Degraded

Disturbances: Old farm paddock not rehabilitated, recently burnt

Average Fire Age: Young

Broad Floristic Formation: *Eucalyptus* Low Woodland

Vegetation Association: EW-AsArCd (D)

Low Open Woodland of *Eucalyptus eudesmioides* over Tall Open Shrubland of *Acacia stereophylla* var. *stereophylla* over Shrubland of *Acacia rostellifera*, *Grevillea obliquistigma* subsp. *funicularis*, *Rhagodia preissii* subsp. *obovata* and *Labichea teretifolia* subsp. *grandistipulata* over Very Open Grassland of **Bromus diandrus* and **Ehrharta longiflora* over Open Herbland of *Cephalopterum drummondii*, **Lupinus cosentinii*, *Podolepis canescens*, *Waitzia acuminata* var. *acuminata*



Area: 12.90 ha

Quadrats Sampled

WR59

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red Brown Loam / Sand

Litter Cover: <1% Logs, 1% Twigs, 4% Leaves.

Bare Ground: 20 %

Vegetation Structure and Floristics

Low Woodland of *Eucalyptus* is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Low Open Woodland of <i>Eucalyptus eudesmioides</i>
Midstorey	
Middle Shrub Layer	Tall Open Shrubland of <i>Acacia stereophylla</i> var. <i>stereophylla</i>
Lower Shrub Layer	Shrubland of <i>Acacia rostellifera</i> , <i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> , <i>Rhagodia preissii</i> subsp. <i>obovata</i> and <i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>
Understorey	
Grassland	Very Open Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>
Herbland	Open Herbland of <i>Cephalopterum drummondii</i> , <i>*Lupinus cosentinii</i> , <i>Podolepis canescens</i> , <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds, Tracks

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Woodland - Degraded

Vegetation Association: EW-Co (D)

Open Woodland of *Eucalyptus camaldulensis* over
Tall Open Shrubland of *Casuarina obesa* over
Closed Grassland of **Bromus diandrus* and
**Ehrharta longiflora*



Area: 0.18 ha

Quadrats Sampled

WRR01

Landform Description

Location and

Landform:

Geology:

Soil Attributes:

Litter Cover: % Logs, % Twigs, % Leaves.

Bare Ground: 0 %

Vegetation Structure and Floristics

Degraded Woodland of *Eucalyptus* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Woodland of <i>Eucalyptus camaldulensis</i>
Midstorey	
Middle Shrub Layer	Tall Open Shrubland of <i>Casuarina obesa</i>
Understorey	
Grassland	Closed Grassland of <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>

Vegetation Condition

Condition Rating: Degraded

Disturbances: Weeds, tracks clearances

Average Fire Age: Old

Broad Floristic Formation: *Eucalyptus* Woodland- Degraded

Vegetation Association: EW-AsBm (D)

Woodland of *Eucalyptus camaldulensis* over Tall Shrubland of *Acacia saligna*, *Exocarpos sparteus*, *Melaleuca viminea* subsp. *viminea* and *Grevillea biternata* over Open Shrubland of *Grevillea pinaster* and *Acacia tetragonophylla* over Grassland of **Briza maxima*, *Pennisetum setaceum* and **Ehrharta longiflora*



Area: 1.02 ha

Quadrats Sampled

WRR06

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Laterite with Silty Clay

Litter Cover: <1% Logs, 2% Twigs, 90% Leaves.

Bare Ground: 1 %

Vegetation Structure and Floristics

Degraded Woodland of *Eucalyptus* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Woodland of <i>Eucalyptus camaldulensis</i>	
Midstorey		
Middle Shrub Layer	Tall Shrubland of <i>Acacia saligna</i> , <i>Exocarpos sparteus</i> , <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Grevillea biternata</i>	
Lower Shrub Layer	Open Shrubland of <i>Grevillea pinaster</i> and <i>Acacia tetragonophylla</i>	
Understorey		
Grassland	Grassland of * <i>Briza maxima</i> , <i>Pennisetum setaceum</i> and * <i>Ehrharta longiflora</i>	

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Weeds

Average Fire Age: Moderate to Old

Broad Floristic Formation: Impacted
Vegetation Association: I
Cleared- Maintained Tracks, Roads, Existing Rail and other Infrastructure



Area: 260.23 ha

Quadrats Sampled

N/A

Landform Description

Location and

Landform:

Geology:

Soil Attributes: N/A

Litter Cover: -% Logs, -% Twigs, -% Leaves.

Bare Ground: 100 %

Vegetation Structure and Floristics

Cleared area is the main diagnostic of this vegetation unit.

Vegetation Condition

Condition Rating: Completely Degraded

Disturbances: Weeds, Clearing, Rail line, Infrastructure

Average Fire Age: Moderate to Old

Broad Floristic Formation: Impacted
Vegetation Association: I-S
 Very Open Shrubland of *Acacia acuminata* over
 Very Open Low Shrubland of *Atriplex codonocarpa*
 and *Rhagodia drummondii*



Area: 9.33 ha

Quadrats Sampled

WRR102

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Red orange brown clayey loam

Litter Cover: -% Logs, -% Twigs, -% Leaves.

Bare Ground: 80 %

Vegetation Structure and Floristics

is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Very Open Shrubland of <i>Acacia acuminata</i>
Midstorey	
Middle Shrub Layer	Very Open Low Shrubland of <i>Atriplex codonocarpa</i> and <i>Rhagodia drummondii</i>

Vegetation Condition

Condition Rating: Degraded

Disturbances: Cleared, Salt effected

Average Fire Age: Old

Broad Floristic Formation: Impacted

Vegetation Association: I-CD

Open Grassland of *Austrostipa trichophylla*, **Bromus diandrus* and **Ehrharta longiflora* with occasional Scattered Low Trees of *Eucalyptus eudesmioides* over Scattered Tall Shrubs of *Grevillea* sp. over Scattered Shrubs of *Santalum acuminatum*, *Acacia rostellifera* and *Rhagodia preissii* subsp. *obovata*



Area: 101.32 ha

Quadrats Sampled

WRR55, WR104

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Brown Loam with Clay and Pebbles

Litter Cover: <1% Logs, 2% Twigs, 10% Leaves.

Bare Ground: 40- 85 %

Vegetation Structure and Floristics

Very Impacted is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	occasional Scattered Low Trees of <i>Eucalyptus eudesmioides</i>	
Midstorey		
Middle Shrub Layer	Scattered Tall Shrubs of <i>Grevillea</i> sp.	
Lower Shrub Layer	Scattered Shrubs of <i>Santalum acuminatum</i> , <i>Acacia rostellifera</i> and <i>Rhagodia preissii</i> subsp. <i>obovata</i>	
Understorey		
Grassland	Open Grassland of <i>Austrostipa trichophylla</i> , <i>*Bromus diandrus</i> and <i>*Ehrharta longiflora</i>	

Vegetation Condition

Condition Rating: Completely Degraded to Very Good

Disturbances: Track, Introduced Species, Clearing

Average Fire Age: Old

Broad Floristic Formation: *Malleostemon* Tall Shrubland

Vegetation Association: MaT-Cp

Tall Open Shrubland of *Calycopeplus paucifolius* over Shrubland of *Malleostemon tuberculatus* and *Melaleuca fulgens* subsp. *steadmanii* over Low Open Shrubland of *Grevillea tenuiloba* and *Calytrix depressa* over Open Herbland of *Velleia rosea*, *Waitzia acuminata* var. *acuminata* and *Borya sphaerocephala*



Area: 0.45 ha

Quadrats Sampled

WR123

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Light orange brown loam with exposed rock

Litter Cover: 1% Logs, 2% Twigs, 2% Leaves.

Bare Ground: 50 %

Vegetation Structure and Floristics

Tall Shrubland of *Acacia* sp. is the main diagnostics of this association.

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Tall Open Shrubland of <i>Calycopeplus paucifolius</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Malleostemon tuberculatus</i> and <i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>
Lower Shrub Layer	Low Open Shrubland of <i>Grevillea tenuiloba</i> and <i>Calytrix depressa</i>
Understorey	
Herbland	Open Herbland of <i>Velleia rosea</i> , <i>Waitzia acuminata</i> var. <i>acuminata</i> and <i>Borya sphaerocephala</i>

Vegetation Condition

Condition Rating: Very Good

Disturbances: Track, rubbish

Average Fire Age: Old

Broad Floristic Formation: *Melaleuca* Shrubland
Vegetation Association: MeS-Ac
 Open Heath of *Melaleuca viminea* subsp. *viminea*



Area: 7.85 ha

Quadrats Sampled

WR81

Landform Description

Location and

Landform:

Geology: Calcrete and Granite

Soil Attributes: Light Brown / Red Soft Clay / Sand with Surface Layer of Pebbles

Litter Cover: <1% Logs, 5% Twigs, 10% Leaves.

Bare Ground: 55 %

Vegetation Structure and Floristics

Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Heath of <i>Melaleuca viminea</i> subsp. <i>viminea</i>

Vegetation Condition

Condition Rating: Good to Degraded

Disturbances: Rail, track, agriculture nearby

Average Fire Age: Old

Broad Floristic Formation: *Melaleuca* Tall Shrubland
Vegetation Association: MeT-A
 Tall Open Shrubland of *Melaleuca atroviridis* and *Acacia* sp.



Area: 3.32 ha

Quadrats Sampled

WRR107

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Brown sandy loam with white surface

Litter Cover: 1% Logs, 1% Twigs, 2% Leaves.

Bare Ground: 90 %

Vegetation Structure and Floristics

Tall Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum		Key Characteristics	
Overstorey			
Canopy Layer	Tall Open Shrubland of <i>Melaleuca atroviridis</i> and <i>Acacia</i> sp.		

Vegetation Condition

Condition Rating: Good to Degraded

Disturbances: Track, clearing, salt effected

Average Fire Age: Old

Broad Floristic Formation: *Melaleuca* Tall Shrubland

Vegetation Association: MeT-GpCaa

Shrubland of *Melaleuca cordata* and *Grevillea paradoxa* over Low Open shrubland of *Cryptandra apetala* var. *apetala* and *Hibbertia stenophylla* over Very Open Grassland of *Homalocalyx aureus*, *Austrostipa elegantissima* and *Amphipogon caricinus* var. *caricinus*



Area: 20.49 ha

Quadrats Sampled

WR62

Landform Description

Location and

Landform:

Geology: Granite

Soil Attributes: Yellow Loamy Clay

Litter Cover: 2% Logs, 2% Twigs, <1% Leaves.

Bare Ground: 85 %

Vegetation Structure and Floristics

Tall Shrubland of *Melaleuca* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Shrubland of <i>Melaleuca cordata</i> and <i>Grevillea paradoxa</i>	
Midstorey		
Middle Shrub Layer	Low Open shrubland of <i>Cryptandra apetala</i> var. <i>apetala</i> and <i>Hibbertia stenophylla</i>	
Understorey		
Grassland	Very Open Grassland of <i>Homalocalyx aureus</i> , <i>Austrostipa elegantissima</i> and <i>Amphipogon caricinus</i> var. <i>caricinus</i>	

Vegetation Condition

Condition Rating: Good

Disturbances: Roads, weeds, clearing

Average Fire Age: Old

Broad Floristic Formation: *Myrtaceous* and *Proteaceous* Heath

Vegetation Association: MyPrH

Closed Heath of *Scholtzia oligandra*, *Acacia saligna* and *Grevillea candelabroides* over Low Open Shrubland of *Banksia fraseri* var. *ashbyi*, *Hakea trifurcata*, *Maireana georgei* and *Jacksonia ramulosa* over Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta calycina*



Area: 2.28 ha

Quadrats Sampled

WR018

Landform Description

Location and

Landform:

Geology:

Soil Attributes: White Sand

Litter Cover: <1% Logs, 20% Twigs, 30% Leaves.

Bare Ground: 25 %

Vegetation Structure and Floristics

Heath of *Myrtaceous* and *Proteaceous* is the main diagnostics of this association

Stratum		Key Characteristics
Overstorey		
Canopy Layer	Closed Heath of <i>Scholtzia oligandra</i> , <i>Acacia saligna</i> and <i>Grevillea candelabroides</i>	
Midstorey		
Middle Shrub Layer	Low Open Shrubland of <i>Banksia fraseri</i> var. <i>ashbyi</i> , <i>Hakea trifurcata</i> , <i>Maireana georgei</i> and <i>Jacksonia ramulosa</i>	
Understorey		
Grassland	Very Open Grassland of <i>Austrostipa elegantissima</i> and <i>*Ehrharta calycina</i>	

Vegetation Condition

Condition Rating: Very Good

Disturbances: Weeds

Average Fire Age: Very Old

Broad Floristic Formation: *Tecticornia* Low Heath

Vegetation Association: TH

Open Low Heath of *Tecticornia pruinosa* and *Hakea bucculenta*



Area: 15.16ha

Quadrats Sampled

WR052, WR056, WR063, WRR61

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Wet Sand, Clay, Mud

Litter Cover: <1% Logs, 5% Twigs, 0% Leaves.

Bare Ground: 15- 60 %

Vegetation Structure and Floristics

Low Heath of *Tecticornia* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Open Low Heath of <i>Tecticornia pruinosa</i> and <i>Hakea bucculenta</i>

Vegetation Condition

Condition Rating: Degraded to Very Good

Disturbances: Track, Introduced Species, Drainage, Rail

Average Fire Age: Very Old to Old

Broad Floristic Formation: *Xylomelum angustifolium* Low Open Woodlands

Vegetation Association: XW-Cp

Low Open Woodland of *Xylomelum angustifolium* over Tall Shrubland of *Allocasuarina campestris* and *Callistemon phoeniceus* over Low Open Shrubland of *Calothamnus quadrifidus* subsp. *angustifolius* and *Hakea bucculenta* over Very Open Sedgeland of *Ecdeiocolea monostachya* and *Mesomelaena preissii* subsp. *preissii* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*



Area: 1.71 ha

Quadrats Sampled

WR04

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Yellow Sand

Litter Cover: <1% Logs, 30% Twigs, 30% Leaves.

Bare Ground: 30 %

Vegetation Structure and Floristics

Low Open Woodland of *Xylomelum angustifolium* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Low Open Woodland of <i>Xylomelum angustifolium</i>
Midstorey	
Middle Shrub Layer	Tall Shrubland of <i>Allocasuarina campestris</i> and <i>Callistemon phoeniceus</i>
Lower Shrub Layer	Low Open Shrubland of <i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i> and <i>Hakea bucculenta</i>
Understorey	
Sedgeland	Very Open Sedgeland of <i>Ecdeiocolea monostachya</i> and <i>Mesomelaena preissii</i> subsp. <i>preissii</i>
Herbland	Very Open Herbland of <i>Waitzia acuminata</i> var. <i>acuminata</i>

Vegetation Condition

Condition Rating: Good

Disturbances: Weeds, Rubbish

Average Fire Age: Old

Broad Floristic Formation: *Xylomelum angustifolium* Low Open Woodlands

Vegetation Association: XW-AcAb

Low Open Woodland of *Xylomelum angustifolium* and *Scholtzia oligandra* over Shrubland of *Allocasuarina campestris*, *Acacia blakelyi* and *Conospermum boreale* subsp. *ascendens* over Low Open Shrubland of *Olearia dampieri*, *Acanthocarpus preissii* and *Glischrocaryon aureum*



Area: 10.69 ha

Quadrats Sampled

WR016

Landform Description

Location and

Landform:

Geology:

Soil Attributes: Sand

Litter Cover: 1% Logs, 35% Twigs, 15% Leaves.

Bare Ground: 25 %

Vegetation Structure and Floristics

Low Open Woodland of *Xylomelum angustifolium* is the main diagnostics of this association

Stratum	Key Characteristics
Overstorey	
Canopy Layer	Low Open Woodland of <i>Xylomelum angustifolium</i> and <i>Scholtzia oligandra</i>
Midstorey	
Middle Shrub Layer	Shrubland of <i>Allocasuarina campestris</i> , <i>Acacia blakelyi</i> and <i>Conospermum boreale</i> subsp. <i>ascendens</i>
Lower Shrub Layer	Low Open Shrubland of <i>Olearia dampieri</i> , <i>Acanthocarpus preissii</i> and <i>Glischrocaryon aureum</i>

Vegetation Condition

Condition Rating: Good to Very Good

Disturbances: Old Track

Average Fire Age: Very Old

APPENDIX K

FLORA QUADRAT DATA SHEETS

Appendix K Flora Quadrat Data Sheets

Westnet Rail Site WR01

Described by Kellie McMaster **Date** 16/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Mullewa

MGA Zone 50J J **329832 mE** **6827436 mN**

Habitat Sandplain

Soil Yellow Loose Firm Sand

Rock Type

Vegetation Tall Open Scrub of *Allocasuarina campestris*

Veg Condition Excellent

Fire Age

Notes Aspect: N/A
Topography: Sandplain
Bare Ground: 25%
Litter Cover: - Logs, 3% Twigs, 75% Lvs.
Disturbance: Nearby track

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia neurophylla</i> subsp. <i>erugata</i>	+	1.4m	WR01.22	
<i>Allocasuarina campestris</i>	65%	2.2m	WR01.01	F
<i>Austrostipa elegantissima</i>			WR01.31	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)			WR01.32	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.9m	WR01.14	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.9m	WR01.13	Fruit
<i>Baeckea</i> sp. Murchison River (M.E. Trudgen 12009)	+	0.9m	WR01.08	
<i>Beaufortia squarrosa</i>	+	1m	WR01.18	
<i>Brachyscome ciliaris</i>	+	0.1m	WR01.10	F
<i>Caladenia flava</i> subsp. <i>flava</i>	+	0.05m		
<i>Callitris arenaria</i>	OUT	3m	WR01.24	
<i>Calytrix brevifolia</i>	+	0.9m	WR01.07	
<i>Chamelaucium drummondii</i>	OUT		WR01.29	
<i>Comesperma scoparium</i>	OUT		WR01.28	
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	+	0.9m	WR01.02	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.2m	WR01.16	
<i>Eucalyptus jucunda</i>			WR01.33	
<i>Eucalyptus oldfieldii</i>	+	1.6m	WR01.03	
<i>Grevillea excelsior</i>	+	2m	WR01.12	
<i>Grevillea integrifolia</i>	+	0.6m	WR01.05	F
<i>Hakea</i> sp.	+	1m	WR01.11	F
<i>Hibbertia huegelii</i>	OUT		WR01.30	
<i>Leucopogon hamulosus</i>	+	0.5m	WR01.17	
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.4m	WR01.26	
<i>Levenhookia pusilla</i>	+	0.05m	WR01.21	F
<i>Malleostemon hursthousei</i>	+	0.9m	WR01.15	
<i>Melaleuca filifolia</i>	+	1.5m	WR01.09	Fruit
<i>Melaleuca tinkeri</i>	+	1.2m	WR01.23	
<i>Monotaxis bracteata</i>	+	0.2m	WR01.19	F
<i>Petrophile confifera</i>	+	0.5m	WR01.06	Fruit
<i>Podotheca angustifolia</i>	+	0.1m	WR01.25	F

<i>Thysanotus patersonii</i>	+	-	WR01.04	Buds
<i>Verticordia monadelpha</i> var. <i>monadelpha</i>	+		WR01.27	
<i>Waitzia acuminata</i> var. <i>acuminata</i>		0.05m	WR01.20	F

Westnet Rail Site WR02

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **328420 mE** **6827277 mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Very Open Tree Mallee of *Eucalyptus* sp., *Eucalyptus jucunda* and *Eucalyptus oldfieldii* over Open

Heath of *Allocasuarina campestris* and *Acacia rostellifera* over Low Open Shrubland of *Baeckea* sp.

Dudawa (M.E. Trudgen MET 5369)

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Sandplain
Bare Ground: 10%
Litter Cover: <1% Logs, 60% Twigs, 20% Lvs.
Disturbance: Weeds, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	+	1m	WR02.01
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	+	1m	WR02.02
<i>Acacia rostellifera</i>	1%	1.5m	WR02.18
<i>Acacia rostellifera</i>	+	0.8m	WR02.17
<i>Allocasuarina campestris</i>	65%	1.5m	WR02.19
<i>Astroloma serratifolium</i>	+	0.5m	WR02.37
<i>Austrostipa elegantissima</i>	+	0.6m	WR02.30
<i>Baeckea</i> sp. <i>Dudawa (M.E. Trudgen MET 5369)</i>	5%	0.7m	WR02.21
<i>Beaufortia sprengelioides</i>	+	0.8m	WR02.29
<i>Blennospora drummondii</i>	+	<0.1m	WR02.15
* <i>Brassica napus</i>	+	0.4m	WR02.22
<i>Caladenia flava</i> subsp. <i>flava</i>	+	0.1m	NC
<i>Comesperma scoparium</i>	+	0.3m	WR02.33
<i>Crassula colorata</i> var. <i>acuminata</i>	+	<0.1m	WR02.14
* <i>Ehrharta longiflora</i>	1%	0.5m	WR02.23
<i>Eucalyptus eudesmioides</i>	+	1m	WR02.28
<i>Eucalyptus jucunda</i>	1%	1.8m	WR02.25
<i>Eucalyptus oldfieldii</i>	+	1.5m	WR02.27
<i>Eucalyptus oldfieldii</i>	1%	1.7m	WR02.26
<i>Eucalyptus</i> sp.	1%	2m	WR02.24
<i>Geleznovia verrucosa</i>	+	0.4m	WR02.36
<i>Glischrocaryon aureum</i>	+	0.3m	WR02.34
<i>Grevillea excelsior</i>	+	1.5m	WR02.08
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>	+	1.5m	WR02.09
<i>Hakea bucculenta</i>	+	1m	WR02.38
<i>Hakea prostrata</i>	+	1m	WR02.03
<i>Hakea pycnoneura</i>	+	0.7m	WR02.39
<i>Hibbertia huegelii</i>	+	0.4m	WR02.32
Indeterminate	+	CR	WR02.13
Indeterminate	+	0.4m	WR02.05

<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.5m	WR02.10
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.5m	WR02.04
<i>Melaleuca filifolia</i>	+	0.8m	WR02.11
<i>Schoenus pedicellatus</i>	+	0.1m	WR02.35
<i>Solanum hesperium</i>	+	0.4m	WR02.31
<i>Thryptomene denticulata</i>	+	0.8m	WR02.20
<i>Thysanotus manglesianus</i>	+	CR	WR02.12
<i>Trachymene pilosa</i>	+	<0.1m	WR02.16
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR03

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **325907 mE** **6826483 mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Open Tree Mallee of *Eucalyptus jucunda* and *Eucalyptus eudesmioides* over Open Heath of *Acacia*

spathulifolia and *Allocasuarina campestris* over Low Shrubland of *Callistemon phoeniceus*, *Baeckea*

sp. Dudawa (M.E. Trudgen MET 5369) *Cryptandra arbutiflora* var. *borealis* and *Thryptomene*

denticulata

Veg Condition Excellent

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 20%
 Litter Cover: <1% Logs, 40% Twigs, 40% Lvs
 Disturbance: N/A

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	+	0.6m	WR03.19
<i>Acacia rostellifera</i>	+	1m	WR03.11
<i>Acacia spathulifolia</i>	40%	1.5m	WR03.08
<i>Acanthocarpus preissii</i>	+	0.3m	WR03.10
<i>Allocasuarina campestris</i>	5%	1.2m	WR02.19
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	3%	0.6m	WR02.21
<i>Callistemon phoeniceus</i>	3%	0.7m	WR03.06
<i>Conostylis androstemma</i>	+	0.1m	WR03.13
<i>Cryptandra arbutiflora</i> var. <i>borealis</i>	3%	0.6m	WR03.18
<i>Ecdeiocolea monostachya</i>	+	0.5m	WR03.14
<i>Eucalyptus eudesmioides</i>	4%	4m	WR03.02
<i>Eucalyptus jucunda</i>	13%	4m	WR03.03
<i>Eucalyptus jucunda</i>	4%	4m	WR03.01
<i>Glischrocaryon aureum</i>	+	0.1m	WR03.17
<i>Grevillea excelsior</i>	+	2m	WR03.15
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>	+	2m	WR03.16
<i>Hibbertia huegelii</i>	+	0.6m	WR02.32
<i>Hypolaena exsulca</i>	+	0.4m	WR03.05
<i>Melaleuca filifolia</i>	+	1m	WR02.11
<i>Petrophile confifera</i>	+	0.4m	WR03.09
<i>Polianthion wichurae</i> (Reissek) K.R. Thiele	+	0.5m	WR03.12
<i>Samolus repens</i> var. <i>floribundus</i>	+	0.3m	WR03.07
<i>Stylidium elongatum</i>	+	0.2m	WR03.04
<i>Thryptomene denticulata</i>	1%	0.7m	WR02.20
<i>Thysanotus manglesianus</i>	+	CR	WR02.12
<i>Verticordia monadelpha</i> var. <i>monadelpha</i>	+	1m	WR03.20
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR04

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **324557 mE** **6826000 mN**

Habitat Road Reserve, Sandplain

Soil Yellowsand

Rock Type

Vegetation Low Open Woodland of *Xylomelum angustifolium* over Tall Shrubland of *Allocasuarina campestris* and *Callistemon phoeniceus* over Low Open Shrubland of *Calothamnus quadrifidus* subsp.

angustifolius and *Hakea bucculenta* over Very Open Sedgeland of *Ecdeiocolea monostachya* and

Mesomelaena preissii subsp. *preissii* over Very Open Herbland of *Waitzia acuminata* var. *acuminata*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 30%
 Littercover: <1% Logs, 30% Twigs, 30% Lvs.
 Disturbance: Weeds, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia latipes</i> subsp. <i>latipes</i>	+		WR04.23
<i>Acacia rostellifera</i>	+		WR04.16
<i>Acacia ulicina</i>	+		WR04.17
<i>Acanthocarpus preissii</i>	+		WR03.10
<i>Allocasuarina campestris</i>	11%	2.5m	WR02.19
* <i>Anagallis arvensis</i>	+		WR04.06
* <i>Arctotheca calendula</i>	+		WR04.01
<i>Aristida contorta</i>	+		WR04.04
<i>Austrostipa elegantissima</i>	+		WR02.30
<i>Baeckea pentagonantha</i>	+		WR04.35
<i>Bonamia rosea</i>	+		WR04.10
<i>Callistemon phoeniceus</i>	5%	2-3m	WR03.06
<i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>	1%		WR04.15
<i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>	+		WR04.34
<i>Calytrix brevifolia</i>	+		WR04.36
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	+		WR04.22
<i>Corynotheca micrantha</i> var. <i>micrantha</i>	+		WR04.32
<i>Cyanicula amplexans</i>	+		WR04.09
<i>Diuris</i> sp.	+		WR04.26
<i>Drosera menziesii</i> subsp. <i>menziesii</i>	+		WR04.20
<i>Ecdeiocolea monostachya</i>	3%	0.5m	WR04.13
* <i>Ehrharta longiflora</i>	+		WR02.23
<i>Haemodorum simulans</i>	+		WR04.30
<i>Hakea bucculenta</i>	1%		WR02.38
* <i>Hypochaeris glabra</i>	+		WR04.08
<i>Keraudrenia hermanniifolia</i>	+		WR04.24
<i>Lechenaultia linarioides</i>	+		WR04.33

<i>Lechenaultia linarioides</i>	+		WR04.19
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>	+		WR04.31
<i>Mesomelaena preissii</i> subsp. <i>preissii</i>	1%		WR04.37
<i>Monachather paradoxus</i>	+		WR04.12
* <i>Monoculus monstrosus</i>	+		WR04.11
* <i>Monoculus monstrosus</i>	+		WR04.28
<i>Neurachne alopecuroidea</i>	+		WR04.29
<i>Podolepis canescens</i>	+		WR04.27
<i>Podolepis capillaris</i>	+		WR04.02
<i>Podotheca angustifolia</i>	+		WR04.05
<i>Pterostylis</i> sp.	+		WR04.07
<i>Scaevola canescens</i>	+		WR04.25
<i>Schoenus pedicellatus</i>	+		WR02.35
<i>Stylidium elongatum</i>	+		WR03.04
<i>Stylidium elongatum</i>	+		WR04.18
<i>Thysanotus manglesianus</i>	+		WR02.12
* <i>Ursinia anthemoides</i>	+		WR04.14
* <i>Vulpia muralis</i>	+		WR04.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.01m	WR02.07
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.01m	WR02.06
<i>Xylomelum angustifolium</i>	4%	6m	WR04.21

Westnet Rail Site WR05

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **322367 mE** **6825428 mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Open Tree Malle of *Eucalyptus rigidula*, *Eucalyptus eudesmioides*, and *Eucalyptus jucunda* over Tall

Shrubland of *Allocasuarina campestris* over Low Open Shrubland of *Baeckea* sp. Dudawa (M.E.

Trudgen MET 5369) and *Opercularia spermacoea* over Very Open Grassland of *Ehrharta longiflora* and *Austrostipa elegantissima*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Sandplain
Bare Ground: 5%
Litter Cover: <1% Logs, 20% Twigs, 60% Lvs
Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia blakelyi</i>	+	1.5m	WR05.07
<i>Allocasuarina campestris</i>	20%	4m	WR02.19
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Austrostipa elegantissima</i>	2%	0.6m	WR02.30
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	2%	0.7m	WR02.21
* <i>Brassica napus</i>	+	0.5m	WR02.22
<i>Caladenia flava</i> subsp. <i>flava</i>	+	0.2m	NC
<i>Chenopodium gaudichaudianum</i>	+	0.4m	WR05.03
* <i>Ehrharta longiflora</i>	5%	0.5m	WR02.23
<i>Eucalyptus eudesmioides</i>	2%	4m	WR05.08
<i>Eucalyptus jucunda</i>	1%	5m	WR03.03
<i>Eucalyptus rigidula</i>	15%	4m	WR05.09
<i>Hakea bucculenta</i>	+	2.5m	WR05.06
<i>Hibbertia huegelii</i>	+	0.4m	WR05.10
* <i>Hypochaeris glabra</i>	+	0.2m	WR04.08
Indeterminate	+	0.6m	WR05.05
<i>Opercularia spermacoea</i>	1%	0.2m	WR05.02
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Solanum hesperium</i>	+	0.3m	WR02.31
<i>Trachymene cyanopetala</i>	+	0.1m	WR05.11
* <i>Ursinia anthemoides</i>	+	0.2m	WR04.14
<i>Verticordia monadelpha</i> var. <i>monadelpha</i>	+	0.4m	WR05.04
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06

Westnet Rail Site WR06

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **320807 mE** **6825121 mN**

Habitat Sandplain (Depression)

Soil Yellow Red Sand

Rock Type

Vegetation Tall Open Shrubland of *Allocasuarina campestris* over Low Open Shrubland of *Acacia blakelyi*,

Baeckea sp. Dudawa (M.E. Trudgen MET 5369) and *Opercularia spermacocea* over Open Grassland

of **Ehrharta longiflora*, *Austrostipa elegantissima* and **Vulpia muralis*

Veg Condition Degraded

Fire Age Old

Notes Aspect: N/A
Topography: Sandplain (Depression)
Bare Ground: 5%
Litter Cover: <1% Logs, 5% Twigs, 5% Lvs
Disturbance: Weeds, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia blakelyi</i>	2%	0.7m	WR05.07
<i>Acacia latipes</i> subsp. <i>latipes</i>	+	0.6m	WR04.23
<i>Acanthocarpus preissii</i>	+	0.5m	WR03.10
<i>Actinobole uliginosum</i>	+	<0.1m	WR06.01
<i>Allocasuarina campestris</i>	3%	2.5m	WR02.19
<i>*Anagallis arvensis</i>	+	0.1m	WR04.06
<i>*Arctotheca calendula</i>	+	0.2m	WR04.01
<i>Aristida contorta</i>	1%		WR04.04
<i>Austrostipa elegantissima</i>	3%	0.8m	WR02.30
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	2%	0.6m	WR02.21
<i>Bonamia rosea</i>	+	0.3m	WR04.10
<i>*Brassica napus</i>	+	0.4m	WR02.22
<i>Bromus diandrus</i>	+	0.5m	WR06.12
<i>Calandrinia eremaea</i>	+	<0.1m	WR06.02
<i>Calytrix brevifolia</i>	+	0.6m	WR04.36
<i>Chenopodium gaudichaudianum</i>	+	0.8m	WR05.03
<i>Convolvulus remotus</i>	+	CL	WR06.13
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.7m	WR06.17
<i>Ecdiocollea monostachya</i>	+	0.5m	WR04.13
<i>*Ehrharta longiflora</i>	20%	0.4m	WR02.23
<i>Eucalyptus rigidula</i>	1%	4m	WR05.09
<i>Goodenia berardiana</i>	+	0.1m	WR06.03
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	+	0.6m	WR06.18
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>	1%	1.5m	WR03.16
Indeterminate	1%	3m	WR06.06
<i>Lechenaultia linarioides</i>	+	0.7m	WR04.19

<i>Lechenaultia linarioides</i>	+	0.6m	WR04.33
* <i>Lupinus cosentinii</i>	+	0.4m	WR06.04
<i>Maireana georgei</i>	+	0.5m	WR06.05
<i>Marianthus bicolor</i>	+	1.8m	WR06.14
<i>Melaleuca filifolia</i>	+	1m	WR06.15
<i>Monotaxis bracteata</i>	+	0.3m	WR06.09
<i>Nuytsia floribunda</i>	+	0.7m	WR06.10
<i>Opercularia spermacoea</i>	1%	0.4m	WR05.02
* <i>Ornithopus compressus</i>	+	0.4m	WR06.20
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01
* <i>Petrorhagia dubia</i>	+	0.2m	WR06.19
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Ptilotus polystachyus</i>	+	0.5m	WR06.07
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	+	1m	WR06.11
<i>Solanum hesperium</i>	+	0.5m	WR02.31
<i>Thryptomene denticulata</i>	+	0.7m	WR02.20
* <i>Trifolium hirtum</i>	+	0.2m	WR06.16
* <i>Urospermum picroides</i>	+	0.4m	WR06.08
* <i>Vulpia muralis</i>	1%	0.3m	WR04.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR07

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J 318266 mE 6825416 mN

Habitat Sandplain

Soil Yellow Sands

Rock Type

Vegetation Closed Tall Scrub of *Allocasuarina campestris* over Very Open Sedgeland of *Ecdeiocolea*

monostachya

Veg Condition Excellent

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 85%
 Litter Cover: <1% Logs, 2% Twigs, 3% Lvs
 Disturbance: Weeds, Adjacent to Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Allocasuarina campestris</i>	85%	2.5m	WR02.19
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WR02.21
<i>Blennozona drummondii</i>	+		WR07.02
* <i>Brassica napus</i>	+	0.5m	WR02.22
<i>Caladenia wanosa</i>			NC
<i>Ecdeiocolea monostachya</i>	9%	0.5m	WR04.13
<i>Ecdeiocolea monostachya</i>	+		WR07.03
<i>Goodenia berardiana</i>	+	0.1m	WR06.03
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>	+		WR07.04
<i>Melaleuca filifolia</i>	1%	0.8m	WR06.15
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01
<i>Samolus repens</i> var. <i>floribundus</i>	+		WR03.07
<i>Schoenus pedicellatus</i>	+	0.1m	WR02.35
<i>Solanum hesperium</i>	+		WR02.31
<i>Thysanotus manglesianus</i>	+	0.1m	WR02.12
* <i>Ursinia anthemoides</i>	+	0.1m	WR04.14
* <i>Vulpia muralis</i>	+		WR07.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR08

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J 316037 **mE** 6825155 **mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Shrubland of *Allocasuarina campestris* over Open Sedgeland of *Ecdeiocolea monostachya*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 30%
 Litter Cover: <1% Logs, 25% Twigs, 20% Lvs.
 Disturbances: Weeds and Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>	+	0.7m	WR08.06
<i>Actinobole uliginosum</i>	+		WR06.01
<i>Allocasuarina campestris</i>	15%	2m	WR08.03
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01
<i>Austrostipa elegantissima</i>	+	0.6m	WR02.30
<i>Blennospora drummondii</i>	+		WR07.02
* <i>Brassica napus</i>	+	0.5m	WR02.22
<i>Dianella revoluta</i> var. <i>divaricata</i>	+		WR06.17
<i>Ecdeiocolea monostachya</i>	25%	0.6m	WR08.02
* <i>Ehrharta longiflora</i>	+	0.7m	WR02.23
<i>Goodenia berardiana</i>	+		WR06.03
Indeterminate	+	0.6m	WR08.07
<i>Lechenaultia linarioides</i>	+	0.4m	WR08.05
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>	+	0.4m	WR08.01
<i>Malleostemon hursthousei</i>			WR08.09
* <i>Pentaschistis airoides</i>	+	0.2m	WR05.01
<i>Podolepis lessonii</i>	+	0.1m	WR08.04
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Thysanotus manglesianus</i>	+	CL	WR02.12
* <i>Ursinia anthemoides</i>	+	0.4m	WR08.08
* <i>Vulpia muralis</i>	+		WR07.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR09

Described by James Sansom **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **314548 mE** **6824838 mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Low Open Shrubland of *Allocasuarina campestris*, *Keraudrenia hermanniifolia* and *Rhagodia preissii*

subsp. *obovata* over Open Sedgeland of *Ecdeiocolea monostachya* over Very Open Grassland of

Austrostipa elegantissima and **Ehrharta longiflora* over Very Open Herbland of *Glischrocaryon*

aureum and *Thryptomene* sp.

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 5%
 Litter Cover: <1% Logs, 2% Twigs, 1% Lvs.
 Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia tetragonophylla</i>			WR09.02
<i>Actinobole uliginosum</i>	+		WR06.01
<i>Allocasuarina campestris</i>	1%		WR02.19
<i>*Arctotheca calendula</i>	+		WR04.01
<i>Aristida contorta</i>	+		WR04.04
<i>Austrostipa elegantissima</i>	5%		WR09.05
<i>Austrostipa elegantissima</i>	+		WR02.30
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	+		WR09.04
<i>*Brassica napus</i>	+		WR02.22
<i>*Bromus rubens</i>	+		WR09.14
<i>Comesperma scoparium</i>	+		WR09.10
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	+		WR09.07
<i>Dampiera spicigera</i>			WR09.11b
<i>Dianella revoluta</i> var. <i>divaricata</i>	+		WR06.17
<i>Ecdeiocolea monostachya</i>	10%		WR08.02
<i>*Ehrharta longiflora</i>	2%		WR02.23
<i>Gilberta tenuifolia</i>	+		WR09.11
<i>Glischrocaryon aureum</i>	1%		WR02.34
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>			WR09.01
<i>Grevillea eriostachya</i>			WR09.13
<i>Keraudrenia hermanniifolia</i>	5%		WR09.08
<i>Lechenaultia linarioides</i>	+		WR04.19
<i>*Monoculus monstrosus</i>	+		WR04.28
<i>Petrophile conifera</i>	+		WR03.09
<i>Podolepis capillaris</i>	+		WR04.02
<i>Podotheca angustifolia</i>	+		WR04.05
<i>Ptilotus polystachyus</i>	+		WR06.07
<i>Rhagodia drummondii</i>	+		WR09.12

<i>Rhagodia preissii</i> subsp. <i>obovata</i>	1%	WR09.09
<i>Thryptomene</i> sp.	1%	WR09.06
<i>Trachymene ceratocarpa</i>	+	WR09.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	WR02.07

Westnet Rail Site WR10

Described by Hayden Ajduk **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **313154 mE** **6822805 mN**

Habitat Gravelly Rise / Plain

Soil Orange Gravel Over Grey - Yellow Sand

Rock Type

Vegetation Shrubland of *Allocasuarina campestris*, *Melaleuca eleuterostachya*, *Baekkea crispiflora* and *Melaleuca*

radula over Low Open Shrubland of *Isopogon divergens* and *Banksia fraseri* var. *ashbyi*

Veg Condition Very Good to Excellent

Fire Age Old

Notes Aspect: N/A
Topography: Gravelly Rise / Plainage
Bare Ground: 50%
Litter Cover: <1% Logs, 30% Twigs, 10% Lvs.
Disturbance: Adjacent to Tracks

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia bidentata</i>	+	0.4m	WR10.08
<i>Acacia blakelyi</i>	+	2.5m	WR05.07
<i>Acacia latipes</i> subsp. <i>latipes</i>	+	0.3m	WR10.25
<i>Allocasuarina campestris</i>	5%	1.8m	WR10.11
<i>Allocasuarina campestris</i>	+	1.8m	WR10.12
<i>Astroloma serratifolium</i>	+	0.6m	WR10.09
<i>Baekkea crispiflora</i>	3%	1.1m	WR10.07
<i>Boronia coerulescens</i> subsp. <i>spinescens</i>	+	0.5m	WR10.05
<i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>	+	0.6m	WR10.17
<i>Cassytha glabella</i> forma <i>dispar</i>	+	CL	WR10.20
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.05m	WR10.18
<i>Comesperma scoparium</i>	+	0.5m	WR10.06
<i>Conostylis androstemma</i>	1%	0.10m	WR10.31
<i>Cryptandra arbutiflora</i> var. <i>borealis</i>	+	1.1m	WR10.22
<i>Daucus glochidiatus</i>	+	0.1m	WR10.21
<i>Daviesia hakeoides</i> subsp. <i>subnuda</i>	+	0.4m	WR10.01
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR06.17
<i>Diplopeltis huegelii</i> subsp. <i>subintegra</i>	+	0.2m	WR10.23
<i>Diplopeltis huegelii</i> subsp. <i>subintegra</i>	+	0.4m	WR10.24
<i>Dodonaea inaequifolia</i>	+	1m	WR10.13
<i>Dryandra fraseri</i> var. <i>ashbyi</i>	2%	0.7m	WR10.04
<i>Ecdeiocolea monostachya</i>	+	0.7m	WR10.28
<i>Goodenia berardiana</i>	+	0.1m	WR10.19
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>			WR09.01
<i>Haemodorum simulans</i>	+	0.4m	WR04.30
Indeterminate	+	0.10m	WR10.27
<i>Isopogon divergens</i>	2%	0.7m	WR10.03
<i>Lepidosperma brunonianum</i>	+	0.6m	WR10.32
<i>Lepidosperma scabrum</i>	+	0.10m	WR10.30
<i>Lepidosperma scabrum</i>	+	0.7m	WR10.33
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.9m	WR10.14
<i>Melaleuca eleuterostachya</i>	3%	1.5-2m	WR10.10

<i>Melaleuca radula</i>	1%	1m	WR10.02
<i>Melaleuca tinkerii</i>	+	1.6m	WR10.16
<i>Podolepis capillaris</i>	+	0.1m	WR04.02
<i>Rhagodia drummondii</i>	+	1.1m	WR10.15
<i>Schoenus pedicellatus</i>	+	0.05m	WR10.29
<i>Trachymene ornata</i>	+	0.05m	WR10.26
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.05m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.05m	WR02.07

Westnet Rail Site WR100

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **377486 mE** **6817058 mN**

Habitat Plain

Soil Light orange brown clayey loam

Rock Type N/A

Vegetation Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralae* over Open Shrubland of *Melaleuca*

viminea subsp. *viminea*, *Acacia acuminata*, *Senna charlesiana* over Low Open Shrubland of

Melaleuca sp. and *Ptilotus obovatus* over Very Open Grassland of **Avena barbata* and *Pentaschistis*

airoides over Very Open Herbland of *Waitzia acuminata* var. *acuminata*

Veg Condition Very good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 50%
Litter Cover: 3% Logs, 3% Twigs, 2% Lvs.
Disturbance: Nearby track

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	1.5-2m	WR100.05	
<i>Acacia andrewsii</i>	1%	0.8m	WR100.38	
<i>Acacia tetragonophylla</i>	+	0.6m	WR100.37	
<i>Actinobole uliginosum</i>	+	0.1m	WR100.34	
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42	
<i>Atriplex semilunaris</i>	+	0.2m	WR100.09	
<i>Austrostipa elegantissima</i>	+	0.4m	WR100.33	
<i>Austrostipa variabilis</i>	+	0.2m	WR100.30	
<i>*Avena barbata</i>	1%	0.4m	WR100.31	
<i>*Brassica tournefortii</i>	+	0.3m	WR100.18	
<i>Chenopodium gaudichaudianum</i>	+	0.2m	WR100.25	
<i>Chenopodium gaudichaudianum</i>	+	0.6m	WR100.36	
<i>Comesperma integerrimum</i>	+	CR	WR100.28	
<i>Comesperma integerrimum</i>	+	CR	WR100.40	
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR100.23	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR100.46	
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26	
<i>Eremophila clarkei</i>	1%	1m	WR100.41	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17	
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	5%	4-6m	WR100.04	
<i>*Hypochaeris glabra</i>	+	0.1m	WR100.45	
Indeterminate	+	0.4m	WR100.29	
<i>Maireana planifolia</i>	+	0.2m	WR100.11	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	2%	1.5-2m	WR100.06	
<i>*Monoculus monstrosus</i>	+	0.1m	WR100.16	
<i>*Pentaschistis airoides</i>	1%	0.2m	WR100.32	
<i>Plantago debilis</i>	+	0.1m	WR100.22	
<i>Podolepis capillaris</i>	+	0.3m	WR100.13	

<i>Podolepis lessonii</i>	+	0.2m	WR100.20
<i>Podotheca angustifolia</i>	+	0.2m	WR100.21
<i>Pogonolepis stricta</i>	+	0.2m	WR100.02
* <i>Portulaca oleracea</i>	+	0.2m	WR100.10
<i>Ptilotus obovatus</i>	1%	0.3m	WR100.01
<i>Rhagodia eremaea</i>	+	0.6m	WR100.35
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	+	1m	WR100.08
<i>Rhodanthe spicata</i>	+	0.2m	WR100.44
<i>Salsola tragus</i>	+	0.3m	WR100.19
<i>Scaevola spinescens</i>	1%	0.8m	WR100.39
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Sclerolaena densiflora</i>	+	0.2m	WR100.03
<i>Senecio glossanthus</i>	+	0.2m	WR100.43
<i>Senna charlesiana</i>	1%	1.5m	WR100.07
* <i>Sonchus oleraceus</i>	+	0.2m	WR100.24
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
Unknown	+	0.3m	WR100.27
<i>Waitzia acuminata</i> var. <i>acuminata</i>	2%	0.2m	WR100.14

Westnet Rail Site WR101

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa to Morowa

MGA Zone 50J **377828 mE** **6815019 mN**

Habitat Plain

Soil Light orange brown loam

Rock Type Quartz, Granite

Vegetation Tall Open Shrubland of *Grevillea obliquistigma* subsp. *funicularis* and *Acacia acuminata* over

Shrubland of *Malleostemon tuberculatus*, *Acacia aciphylla* and *Baeckea* sp. Dudawa (M.E. Trudgen

MET 5369) over Very Open Herbland of *Waitzia acuminata* var. *acuminata* and *Brachyscome ciliocarpa*

Veg Condition Excellent

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 40%
Litter Cover: 2% Logs, 5% Twigs, 20% Lvs.
Disturbance: Track

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia aciphylla</i>	3%	1-2m	WR101.01	
<i>Acacia acuminata</i>	1%	2-2.5m	WR100.05	
<i>Acacia restiacea</i>	+	0.4m	WR101.22	
<i>Acacia tetragonophylla</i>	+	1m	WR101.09	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.3m	WR101.19	
* <i>Arctotheca calendula</i>	+	+	WR100.42	
<i>Austrostipa elegantissima</i>	+	+	WR101.10	
<i>Austrostipa variabilis</i>	+	0.3m	WR101.20	
* <i>Avena barbata</i>	1%	1m	WR100.31	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	2%	1-2m	WR101.03	
<i>Borya sphaerocephala</i>	1%	1m	WR101.13	
<i>Brachyscome ciliaris</i>	+	0.1m	WR101.30	
<i>Brachyscome ciliocarpa</i>	1%	0.1m	WR101.15	
* <i>Briza maxima</i>	+	+	WR101.11	
<i>Calytrix depressa</i>	+	1m	WR101.05	
<i>Calytrix depressa</i>	+	1m	WR101.25	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16	
<i>Comesperma integerrimum</i>	+	CR	WR101.28	
<i>Diuris porrifolia</i>	+	0.2m	WR101.18	
<i>Drosera macrantha</i> subsp. <i>macrantha</i>	+	CR	WR101.27	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	2%	2-3m	WR101.04	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.2m	WR101.21	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.5m	WR101.07	
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	1%	0.5-1m	WR101.06	
<i>Malleostemon tuberculatus</i>	+	1m	WR101.24	
<i>Malleostemon tuberculatus</i>	5%	1-2m	WR101.23	
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	+	0.5m	WR101.08	
<i>Opercularia vaginata</i>	+	0.2m	WR101.29	

<i>Podolepis canescens</i>	+	+	WR101.12
<i>Podolepis lessonii</i>	+	+	WR100.20
<i>Podotheca angustifolia</i>	+	+	WR100.21
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Rhodanthe spicata</i>	+	+	WR100.44
<i>Schoenia cassiniana</i>	+	0.1m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Thysanotus manglesianus</i>	+	CR	WR101.26
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR101.17
<i>Velleia rosea</i>	1%	0.2m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	2%	0.2m	WR100.14

Westnet Rail Site WR102

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat

Location Mullewa to Morowa

MGA Zone 50J J 380100 **mE** 6812010 **mN**

Habitat Low Hill Slope into Drainage along Rail

Soil Orange red brown loam

Rock Type Granite, Quartz

Vegetation Tall Open Shrubland of *Acacia acuminata* over Open Shrubland of *Acacia* sp., *Acacia sibina* and

Mirbelia depressa over Low Open Shrubland of *Acacia ulicina*, *Grevillea levis* over Very Open

Grassland of *Bromus diandrus* and **Avena barbata*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Low Hill Slope into Drainage Line
Bare Ground: 70%
Litter Cover: 0 Logs, 1% Twigs, 5% Lvs.
Disturbance: Track and Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	2%	2-3m	WR102.03
<i>Acacia sibina</i>	1%	1.5m	WR102.02
<i>Acacia tetragonophylla</i>	1%	1-2m	WR100.37
<i>Acacia ulicina</i>	5%	0.3-1m	WR102.06
<i>Acacia ulicina</i>	1%	0.4m	WR102.12
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Aristida contorta</i>	+	0.2m	WR102.18
<i>Austrostipa elegantissima</i>	+	0.3m	WR100.33
* <i>Avena barbata</i>	1%	0.3m	WR100.31
<i>Blennospora drummondii</i>	+	0.1m	WR102.17
<i>Bromus diandrus</i>	1%	0.5m	WR102.23
* <i>Bromus rubens</i>	+	0.3m	WR102.19
<i>Calandrinia eremaea</i>	+	0.1m	WR102.13
<i>Cephalopterum drummondii</i>	+	0.2m	WRR100.03
<i>Chorizema racemosum</i>	+	0.4m	WR102.05
<i>Comesperma integerrimum</i>	+	CR	WR102.10
* <i>Cuscuta epithymum</i>	+	0.1m	WR102.15
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR100.46
* <i>Echium plantagineum</i>	+	0.6m	WR102.09
* <i>Ehrharta longiflora</i>	+	0.2m	WR102.24
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17
<i>Grevillea biternata</i>	+	0.3m	WR102.16
<i>Grevillea levis</i>	1%	0.5m	WR102.07
* <i>Hypochaeris glabra</i>	+	0.3m	WR102.20
<i>Mirbelia depressa</i>	1%	1m	WR102.04
* <i>Pentaschistis airoides</i>	+	0.2m	WR102.22
<i>Podolepis capillaris</i>	+	0.1m	WR100.13
<i>Podolepis lessonii</i>	+	0.2m	WR102.11
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR102.01

<i>Rhodanthe spicata</i>	+	0.1m	WR102.14
<i>Rhodanthe spicata</i>	+	0.2m	WR100.44
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Sida calyxhymenia</i>	+	0.3m	WR102.21
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
* <i>Sonchus oleraceus</i>	+	0.6m	WR102.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR100.14

Westnet Rail Site WR103

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **380886 mE** **6810209 mN**

Habitat Plain

Soil Orange red brown loam with some clay

Rock Type Granite, Quartz

Vegetation Tall Shrubland of *Allocasuarina campestris*, *Acacia sibina* and *Acacia* sp. over Open Shrubland of

Malleostemon tuberculatus and *Acacia acuminata* over Very Open Grassland of **Avena barbata*,

Austrostipa variabilis and *Austrostipa elegantissima* over Very Open Herbland of *Waitzia acuminata*

var. *acuminata* and *Velleia rosea*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 40%

Litter Cover: 3% Logs, 10% Twigs 5% Lvs.

Disturbance: Track clearing, Soil dump, Animal tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	2m	WR103.08	
<i>Acacia sibina</i>	5%	1-3m	WR102.02	
<i>Acacia tetragonophylla</i>	1%	2.5m	WR100.37	
<i>Allocasuarina campestris</i>	5%	2-3m	WR103.03	
<i>Arthropodium dyeri</i>	+	0.2m	WR103.17	
<i>Arthropodium dyeri</i>	+	0.2m	WR103.16	
<i>Astroloma serratifolium</i>	+	1m	WR103.04	
<i>Austrostipa elegantissima</i>	1%	0.3m	WR103.20	
<i>Austrostipa variabilis</i>	1%	0.3m	WR103.14	
<i>*Avena barbata</i>	2%	0.3m	WR100.31	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	3%	1.2m	WR103.06	
<i>Borya sphaerocephala</i>	+	0.1m	WR101.13	
<i>Cassutha glabella forma dispar</i>	+	CR	WR103.12	
<i>Cephalopterum drummondii</i>	+	0.2m	WRR100.03	
<i>Cephalopterum drummondii</i>	+	0.2m	WR103.09	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR103.10	
<i>Comesperma integerrimum</i>	+	CR	WR102.10	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR103.18	
<i>Goodenia havilandii</i>	+	0.1m	WR103.02	
<i>Grevillea granulosa</i>	+	1m	WR103.07	
<i>Grevillea levis</i>	+	1m	WR102.07	
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	+	0.5m	WR101.06	
<i>Levenhookia leptantha</i>	+	0.1m	WR103.11	
<i>Malleostemon tuberculatus</i>	3%	1.5m	WR103.05	
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	+	1.3m	WR101.08	
<i>Opercularia vaginata</i>	+	0.3m	WR103.15	
<i>Platysace trachymenioides</i>	+	1m	WR103.13	
<i>Podotheca angustifolia</i>	+	0.1m	WR100.21	

<i>Rhodanthe spicata</i>	+	0.1m	WR100.44
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Schoenia cassiniana</i>	+	0.2m	WR103.21
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Thysanotus manglesianus</i>	+	CR	WR101.26
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR103.01
<i>Velleia rosea</i>	+	0.2m	WR103.19
<i>Velleia rosea</i>	2%	0.2m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	2%	0.2m	WR100.14

Westnet Rail Site WR104

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat

Location Mullewa to Morowa

MGA Zone 50J J 382221 mE 6808770 mN

Habitat Lower Slope of Hill

Soil Red orange clayey loam with pebbles

Rock Type Ironstone, Quartz and Granite

Vegetation Very Open Grassland of *Austrostipa trichophylla*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 85%
 Litter Cover: 1% Logs, 5% Twigs 20% Lvs.
 Disturbance: Track clearing, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>		1-4m	WR103.08
<i>Acacia andrewsii</i>		1.5m	WR100.38
<i>Acacia rostellifera</i>			WR104.01
* <i>Arctotheca calendula</i>	+	0.1m	WR100.42
<i>Astroloma serratifolium</i>			WR103.04
<i>Austrostipa elegantissima</i>			WR103.20
<i>Austrostipa trichophylla</i>	2%	0.2m	WR104.04
<i>Borya sphaerocephala</i>			WR101.13
<i>Calandrinia eremaea</i>	+	0.1m	WR102.13
<i>Cephalopterum drummondii</i>	+	0.2m	WRR100.03
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR100.23
<i>Dodonaea inaequifolia</i>	1%	0.5-2m	WR104.02
<i>Enchylaena tomentosa</i>	+	0.2m	WR100.26
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>		3-10m	WR104.03
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	0.1m	WR104.07
<i>Maireana planifolia</i>	+	0.3m	WR104.05
<i>Monachather paradoxus</i>	+	0.2m	WR104.06
* <i>Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>Podolepis capillaris</i>	+	0.3m	WR100.13
<i>Podolepis lessonii</i>	+	0.3m	WR100.20
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR103.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WR105

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **383949 mE** **6807542 mN**

Habitat Low Rocky Hill/ Outcrop

Soil Light salmon loam (clayey) with cobbles and pebbles and areas of exposed rock

Rock Type Granite

Vegetation Tall Open Shrubland of *Acacia assimilis* subsp. *assimilis* and *Allocasuarina acutivalvis* over

Shrubland of *Melaleuca uncinata*, *Acacia* sp., *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)

and *Cryptandra nola* over Low Open Shrubland of *Baeckea decipiens* and *Ricinocarpos muricatus*

Veg Condition Very good to excellent

Fire Age Old

Notes Aspect: N/A
 Topography: Low Rocky Hill/ Outcrop
 Bare Ground: 75%
 Litter Cover: 1% Logs, 1% Twigs 1% Lvs.
 Disturbance: Track clearing, Some rubbish.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia assimilis</i> subsp. <i>assimilis</i>	4%	3-4m	WR105.05
<i>Acacia</i> sp.	1%	1.5-2m	WR105.03
<i>Allocasuarina acutivalvis</i>	1%	4m	WR105.02
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.2m	WR105.11
<i>Aristida contorta</i>	+	0.2m	WR102.18
<i>Arthropodium dyeri</i>	+	0.2m	WR105.24
<i>Astroloma serratifolium</i>	+	0.4m	WR103.04
* <i>Avena barbata</i>	+	0.3m	WR100.31
<i>Baeckea decipiens</i>	8%	0.5m	WR105.06
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	1%	1-2m	WR105.17
<i>Borya sphaerocephala</i>	1%	0.1m	WR101.13
<i>Cassytha glabella</i> forma <i>dispar</i>	+	CL	WR103.12
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Comesperma integerrimum</i>	+	CR	WR102.10
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.01m	WR105.09
<i>Cryptandra nola</i>	1%	1m	WR105.15
<i>Dampiera lavandulacea</i>	+	0.3m	WR105.27
<i>Dichopogon capillipes</i>	+	0.2m	WR105.20
<i>Diuris porrifolia</i>	+	0.2m	WR105.21
<i>Ecdeiocolea monostachya</i>	+	0.3m	WR105.25
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17
<i>Grevillea granulosa</i>	+	0.5m	WR105.14
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	0.1m	WR104.07
* <i>Hypochoeris glabra</i>	+	0.2m	WR102.20
<i>Lepidosperma scabrum</i>	+	0.3m	WR105.13
<i>Melaleuca uncinata</i>	2%	1.5-2m	WR105.23
<i>Melaleuca uncinata</i>	2%	0.5-2m	WR105.01
<i>Melaleuca uncinata</i>	3%	1-2m	WR105.18

<i>Mirbelia depressa</i>	+	0.5m	WR105.22
* <i>Monoculus monstrosus</i>	+	0.3m	WR105.26
* <i>Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>Neurachne alopecuroidea</i>	+	0.2m	WR105.07
<i>Pogonolepis stricta</i>	+	0.05m	WR100.02
* <i>Portulaca oleracea</i>	+	0.1m	WR100.10
<i>Ptilotus obovatus</i>	+	0.4m	WR105.04
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Rhodanthe spicata</i>	+	0.1m	WR100.44
<i>Ricinocarpos muricatus</i>	1%	0.5m	WR105.16
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Schoenia cassiniana</i>	+	0.1m	WR105.19
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Stylidium elongatum</i>	+	0.2m	WR105.10
<i>Velleia rosea</i>	+	0.2m	WR105.08
* <i>Vulpia muralis</i>	+	0.2m	WR105.12
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR106

Described by Emma Carroll **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J **385669 mE** **6806539 mN**

Habitat Low Rocky Hill Slope

Soil Red brown loam with cobbles and boulders

Rock Type Granite

Vegetation Tall Open *Shrub* of *Acacia acuminata* over Open Shrubland of *Allocasuarina campestris*, *Acacia*

burkittii and *Scaevola spinescens* over Open Grassland of **Ehrharta longiflora* and **Avena barbata*

over Very Open Herbland of *Podolepis canescens* and *Sclerolaena densiflora*

Veg Condition Excellent

Fire Age Old

Notes Aspect: West
Topography: Low Rocky Hill Slope
Bare Ground: 30%
Litter Cover: 2% Logs, 5% Twigs 2% Lvs.
Disturbance: Track, Fence

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	10%	1-4m	WR103.08
<i>Acacia burkittii</i>	1%	1.5m	WR106.06
<i>Acacia neurophylla</i>	+	1.5m	WR106.21
<i>Acacia tetragonophylla</i>	1%	1-3m	WR106.07
<i>Allocasuarina campestris</i>	1%	1-2m	WR106.05
<i>Allocasuarina campestris</i>	1%	1-2m	WR106.04
<i>Aristida contorta</i>	+	0.3m	WR102.18
<i>Arthropodium dyeri</i>	+	0.2m	WR106.17
<i>*Avena barbata</i>	1%	0.3m	WR100.31
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.3m	WR106.10
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	1M	WR106.09
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	+	2m	WR106.20
<i>Borya sphaerocephala</i>	+	0.1m	WR101.13
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR101.15
<i>Calycopeplus paucifolius</i>			WR106.16b
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Clematicissus angustissima</i>	+	1.5m	WR106.16
<i>Cyanicula fragrans</i>	+	0.2m	WR106.01
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR103.18
<i>Dioscorea hastifolia</i>	+	CR	WR106.13
<i>Dioscorea hastifolia</i>	+	CR	WR106.12
<i>Ecdeiocolea monostachya</i>	+	0.3m	WR105.25
<i>*Ehrharta longiflora</i>	2%	0.3m	WR106.15
<i>Grevillea levis</i>	+	0.5m	WR102.07
<i>Haloragis trigonocarpa</i>	+	0.3m	WR106.18
<i>*Hypochoeris glabra</i>	+	0.2m	WR102.20
<i>*Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>*Monoculus monstrosus</i>	+	0.2m	WR106.19
<i>*Parentucellia latifolia</i>	+	0.1m	WR106.02

<i>*Pentaschistis airoides</i>	+	0.1m	WR102.22
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	1.2m	WR106.08
<i>Podolepis canescens</i>	3%	0.1-0.3m	WR106.03
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Ptilotus obovatus</i>	+	0.3m	WR100.01
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Scaevola spinescens</i>	1%	1.5m	WR106.11
<i>Schoenia cassiniana</i>	+	0.3m	WR103.21
<i>Schoenia cassiniana</i>	+	0.1m	WR100.15
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Sclerolaena densiflora</i>	1%	0.2m	WR100.03
<i>Sida calyxhymenia</i>	+	0.3m	WR106.14
<i>Solanum lasiophyllum</i>	+	0.6m	WR101.02
<i>Thysanotus manglesianus</i>	+	CR	WR101.26
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR103.01

Westnet Rail Site WR107

Described by Hayden Ajduk **Date** 19/09/2010 **Type** Quadrat **10m x 40m**

Location Mullewa to Morowa

MGA Zone 50J J **387211 mE** **6805069 mN**

Habitat Low hill slope

Soil Light salmon/orange brown clayey loam with cobbles and pebbles and exposed rock and boulders

Rock Type Granite, Quartz

Vegetation Open Heath of *Melaleuca longistaminea* and *Acacia acuminata* over Very Open Grassland of

**Ehrharta longiflora* and *Austrostipa scabra* subsp. *scabra* over Very Open Herbland of *Pogonolepis stricta*, *Schoenia cassiniana* and *Podolepis lessonii*

Veg Condition Very good

Fire Age Old

Notes Aspect: South East
Topography: Low Hill Slope
Bare Ground: 40%
Litter Cover: 1% Logs, 10% Twigs 5% Lvs.
Disturbance: Clearing track, Rail

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	10%	1-2m	WR103.08	
<i>Acacia neurophylla</i>	+	0.5m	WR107.05	
<i>Allocasuarina campestris</i>	+	1.5m	WR107.01	
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42	
<i>*Arctotheca calendula</i>	+	0.1m	WR107.23	
<i>Aristida contorta</i>	+	0.2m	WR102.18	
<i>Aristida</i> sp.	+	0.2m	WR104.14	
<i>Arthropodium dyeri</i>	+	0.2m	WR107.34	
<i>Austrostipa elegantissima</i>	+	0.3m	WR107.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	2%	0.2m	WR107.25	
<i>Borya sphaerocephala</i>	+	0.1m	WR101.13	
<i>Brachyscome oncocarpa</i>	+	0.1m	WR107.21	
<i>Bulbine semibarbata</i>	+	0.2m	WR107.27	
<i>Calycopeplus paucifolius</i>			WR107.02b	
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	+	0.1m	WR107.06	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16	
<i>Chorizema racemosum</i>	+	0.3m	WR107.19	
<i>Clematicissus angustissima</i>	+	CR	WR107.15	
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR100.23	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46	
<i>Dichopogon capillipes</i>	+	0.3m	WR107.26	
<i>Diuris porrifolia</i>	+	0.2m	WR107.09	
<i>Dodonaea pinifolia</i>	+	0.5m	WR107.12	
<i>Drosera macrantha</i> subsp. <i>macrantha</i>	+	CR	WR107.10	
<i>*Ehrharta longiflora</i>	2%	0.3m	WR107.24	
<i>Eremophila clarkei</i>	+	1.5m	WR107.03	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17	
<i>Gahnia drummondii</i>	+	0.3m	WR107.18	
<i>Hakea subsulcata</i>	+	1.5m	WR107.02	

<i>Haloragis trigonocarpa</i>	+	0.2m	WR107.28	
* <i>Hypochaeris glabra</i>	+	0.2m	WR107.33	
Indeterminate	+	CR	WR107.16	
Indeterminate	+	0.3m	WR107.11	
<i>Lawrencella rosea</i>	+	0.2m	WR107.20	
<i>Malvaceae</i> sp.	+	0.3m	WR107.29	
<i>Melaleuca longistaminea</i>	20%	1m	WR107.04	
<i>Melaleuca uncinata</i>	+	1m	WR107.22	
<i>Mirbelia depressa</i>	+	0.5m	WR107.32	
* <i>Monoculus monstrosus</i>	+	0.2m	WR107.17	
* <i>Pentaschistis airoides</i>	+	0.1m	WR102.22	
<i>Podolepis lessonii</i>	+	0.2m	WR107.30	
<i>Podolepis lessonii</i>	1%	0.3m	WR100.20	
<i>Podotheca angustifolia</i>	+	0.2m	WR100.21	
<i>Pogonolepis stricta</i> (20%)	2%	0.1m	WR100.02	Carpet
<i>Ptilotus obovatus</i>	+	0.3m	WR105.04	
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR107.14	
<i>Rhodanthe spicata</i>	+	CR	WR102.14	
<i>Rhodanthe spicata</i>	+	CR	WR102.14	
<i>Scaevola spinescens</i>	+	0.5m	WR107.13	
<i>Schoenia cassiniana</i>	1%	0.2m	WR100.15	
<i>Solanum ellipticum</i>	+	0.3m	WR107.08	
<i>Solanum ellipticum</i>	+	0.3m	WR107.07	
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02	
<i>Trachymene ornata</i>	+	0.1m	WR103.01	
<i>Velleia rosea</i>	+	0.2m	WR101.14	

Westnet Rail Site WR108

Described by Emma Carroll **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **388357 mE** **6803378 mN**

Habitat Slightly sloping plain

Soil Orange brown loam with some clay, cobbles and pebbles.

Rock Type Laterite, Granite, Quartz

Vegetation Tall Shrubland of *Acacia acuminata*, *Acacia stereophylla* var. *stereophylla* and *Casuarina obesa* over Shrubland of *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen), *Grevillea obliquistigma* subsp. *funicularis*, *Melaleuca cordata*, *Allocasuarina campestris* and *Grevillea paradoxa*

Veg Condition Very good

Fire Age Old

Notes Aspect: South East
Topography: Sloping plain
Bare Ground: 60%
Litter Cover: 5% Logs, 5% Twigs 20% Lvs.
Disturbance: Clearing track, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	10%	1-4m	WR108.02
<i>Acacia coolgardiensis</i>	1%	0.2m	WR108.01
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	10%	1-4m	WR108.06
<i>Allocasuarina campestris</i>	1%	1-2m	WR108.21
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.5m	WR108.10
<i>Astroloma serratifolium</i>	+	0.5m	WR108.12
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	1%	1m	WR108.09
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	4%	1m	WR108.08
<i>Borya sphaerocephala</i>	+	0.2m	WR101.13
<i>Casuarina obesa</i>	5%	1-4m	WR108.05
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Dampiera salahae</i>	+	0.3m	WR108.17
<i>Diuris porrifolia</i>	+	0.3m	WR108.15
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR108.19
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	1-2m	WR108.04
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	1-2m	WR108.03
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	2m	WR108.14
<i>Grevillea paradoxa</i>	1%	1m	WR108.07
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	+	0.3-1m	WR108.11
<i>Melaleuca atroviridis</i>	+	1.5m	WR108.20
<i>Melaleuca cordata</i>	1%	1.5m	WR108.13
<i>Mirbelia ramulosa</i>	+	0.3m	WR108.23
<i>Opercularia vaginata</i>	+	0.2m	WR108.22
<i>Rhodanthe spicata</i>	+	0.1m	WR100.44
<i>Stylidium elongatum</i>	+	0.2m	WR108.16
<i>Thysanotus manglesianus</i>	+	CR	WR108.18
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR109

Described by Emma Carroll **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **389775 mE** **6801981 mN**

Habitat Plain

Soil Orange red clayey loam with small pebbles

Rock Type Laterite, Quartz, Granite

Vegetation Tall Shrubland of *Acacia acuminata* and *Melaleuca viminea* subsp. *viminea* over Open Shrubland of

Allocasuarina campestris and *Malleostemon tuberculatus* over Low Open Shrubland of *Acacia*

coolgardiensis over Very Open Herbland of *Velleia rosea*, *Ecdeiocolea monostachya*,

Podotheca angustifolia and *Pogonolepis stricta*.

Veg Condition Very good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 40%
Litter Cover: 1% Logs, 1% Twigs 20% Lvs.
Disturbance: Clearing track, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	10%	1-4m	WR103.08
<i>Acacia coolgardiensis</i>	1%	3m	WR109.03
<i>Acacia coolgardiensis</i>	3%	0.2m	WR108.01
<i>Allocasuarina campestris</i>	1%	2m	WR109.05
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Arthropodium dyeri</i>	+	0.2m	WR109.17
<i>Austrostipa variabilis</i>	+	0.3m	WR109.13
<i>Borya sphaerocephala</i>	+	0.2m	WR101.13
<i>Brachyscome oncocarpa</i>	+	0.1m	WR107.21
<i>Comesperma integerrimum</i>	+	CR	WR109.18
<i>Dampiera lavandulacea</i>	+	0.3m	WR109.07
<i>Diuris porrifolia</i>	+	0.2m	WR108.15
<i>Ecdeiocolea monostachya</i>	1%	0.5m	WR108.19
<i>Ecdeiocolea monostachya</i>	+	0.3m	WR105.25
<i>Gnephosis angianthoides</i>	+	0.05m	WR109.10
<i>Grevillea levis</i>	+	0.5m	WR109.15
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.3m	WR109.14
<i>Hemigenia coccinea</i>			WR109.14b
Indeterminate	1%	0.05m	WR109.11
<i>Levenhookia leptantha</i>	+	0.05m	WR109.02
<i>Levenhookia pusilla</i>	+	0.1m	WR109.01
<i>Malleostemon tuberculatus</i>	1%	0.5-1.5m	WR109.06
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	2%	3m	WR109.04
<i>Mirbelia depressa</i>	+	0.5m	WR109.16
<i>Podolepis capillaris</i>	+	0.2m	WR100.13
<i>Podolepis lessonii</i>	+	0.1m	WR109.09
<i>Podotheca angustifolia</i>	1%	0.2m	WR100.21
<i>Pogonolepis stricta</i>	1%	0.1m	WR100.02

<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Trachymene cyanopetala</i>	+		WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR103.01
Unknown	+	0.02m	WR109.08
<i>Velleia rosea</i>	3%	0.2m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR109.12

Westnet Rail Site WR11

Described by Kellie McMaster **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **309957 mE** **6824699 mN**

Habitat Gravelly Rise - Top / Crest

Soil Lateritic Gravel with Grey / Yellow Silty Sand

Rock Type

Vegetation Shrubland of *Acacia blakelyi* and *Allocasuarina campestris* over Low Open Shrubland of *Keraudrenia*

hermanniifolia, *Scholtzia parviflora* and *Banksia fraseri* var. *ashbyi* over Open Sedgeland of

Ecdeiocolea monostachya over Open Grassland of *Austrostipa elegantissima* and *Triodia danthonioides*

Veg Condition Very Good

Fire Age Old

Notes Aspect: North to South
Topography: Gravelly Rise - Top / Crest
Bare Ground: 45%
Litter Cover: <1% Logs, 1% Twigs, 1% Lvs
Disturbance: Adjacent Tracks

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	+	2.5m	WR11.19
<i>Acacia blakelyi</i>	10%	1.5m	WR11.23
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>	+	0.5m	WR11.33
<i>Acanthocarpus preissii</i>			WR11.31
<i>Allocasuarina campestris</i>	5%	1-2m	WR02.19
<i>Allocasuarina campestris</i>	1%	3m	WR11.12
* <i>Arctotheca calendula</i>	+	0.05m	WR04.01
<i>Aristida holathera</i> var. <i>holathera</i>			WR11.03
<i>Austrostipa elegantissima</i>			WR09.05
<i>Austrostipa elegantissima</i>	10%		WR02.30
* <i>Brassica napus</i>	+	0.5m	WR02.22
* <i>Briza maxima</i>			NC
<i>Burchardia congesta</i>	+	0.3m	WR11.18
<i>Caladenia flava</i>	OUT	0.05m	NC
<i>Calandrinia polyandra</i>	OUT	0.05m	WR11.36
<i>Comesperma integerrimum</i>	+	CR	WR11.09
<i>Conostylis robusta</i>	+	0.5m	WR11.13
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.05m	WR11.15
<i>Desmocladus asper</i>	+	0.1m	WR11.14
<i>Dianella revoluta</i> var. <i>divaricata</i>	+		WR06.17
<i>Dodonaea inaequifolia</i>	+	1.1m	WR10.13
<i>Dryandra fraseri</i> var. <i>ashbyi</i>	1%		WR10.04
<i>Ecdeiocolea monostachya</i>	15%	0.3m	WR08.02
* <i>Ehrharta calycina</i>	+	0.6m	WR11.27
<i>Gnephosis angianthoides</i>	+	0.05m	WR11.34
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	+	0.7m	WR09.01
<i>Grevillea candelabroides</i>	+	1m	WR11.26
<i>Hakea lissocarpa</i>	+	0.7m	WR11.32

<i>Hibbertia hypericoides</i>	+	0.5m	WR11.29	
* <i>Hypochaeris glabra</i>	+	0.1m	WR11.25	
<i>Jacksonia ramulosa</i> MS	+	0.7m	WR11.17	
<i>Keraudrenia hermanniifolia</i>	5%		WR09.08	
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>	+	0.3m	WR11.10	
<i>Lysiana casuarinae</i>			WR11.01	
MYRTACEAE sp.	+	0.6m	WR11.20	
<i>Neurachne alopecuroidea</i>	+	0.4m	WR11.11	
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.4m	WR11.28	
<i>Podotheca angustifolia</i>	+		WR04.05	
<i>Ptilotus polystachyus</i>	+		WR06.07	
<i>Rhagodia drummondii</i>	+	0.7m	WR11.30	
<i>Scaevola spinescens</i>	+	1.5m	WR11.08	
<i>Schoenus grandiflorus</i>	OUT	1.1m	WR11.35	
<i>Scholtzia parviflora</i>	1%	0.5-2.5m	WR11.22	2
Shrubs				
<i>Thryptomene denticulata</i>	1%	0.6m	WR11.21	
<i>Thysanotus manglesianus</i>	+	CR	WR11.07	
<i>Thysanotus manglesianus</i>	+	CR	WR11.06	
<i>Thysanotus manglesianus</i>	+	CR	WR11.05	
<i>Thysanotus patersonii</i>	+	CR	WR11.04	
<i>Trachymene cyanopetala</i>	+	0.05m	WR11.16	
<i>Triodia danthonioides</i>	1%	1m	WR11.02	
* <i>Ursinia anthemoides</i>			WR08.08	
<i>Verticordia densiflora</i> var. <i>stelluligera</i>	+	0.6m	WR11.24	
* <i>Wahlenbergia capensis</i>	OUT	0.05m	WR11.37	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+		WR02.07	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+		WR02.06	

Westnet Rail Site WR110

Described by Emma Carroll **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J **391411 mE** **6800700 mN**

Habitat Plain

Soil Orange brown sandy loam (deep)

Rock Type N/A

Vegetation Very Open Tree Mallee of *Eucalyptus horistes* over Shrubland of *Melaleuca uncinata* and *Acacia*

acuminata over Open Herbland of **Portulaca oleracea*, *Podolepis capillaris* and **Arctotheca calendula*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 70%

Litter Cover: 2% Logs, 5% Twigs, 20% Lvs.

Disturbance: Clearing, Introduced species, Track, Rail, Rabbit holes.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	1-2m	WR110.06	
<i>Actinobole uliginosum</i>	+	0.01m	WR110.12	
<i>Actinobole uliginosum</i>	+	0.02m	WR110.01	
<i>*Arctotheca calendula</i>	1%	0.2m	WR100.42	
<i>Atriplex codonocarpa</i>	+	0.2m	WR110.19	
<i>Brachyscome ciliocarpa</i>	+	0.2m	WR101.15	
<i>*Bromus rubens</i>	+	0.3m	WR102.19	
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.01m	WR110.13	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR100.46	
<i>*Ehrharta longiflora</i>	+	0.3m	WR107.24	
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.02m	WR110.11	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17	
<i>Eucalyptus horistes</i>	5%	2-7m	WR110.07	
<i>Gnephosis angianthoides</i>	+	0.1m	WR110.09	
<i>*Hypochaeris glabra</i>	+	0.05m	WR110.02	
Indeterminate	+	0.3m	WR100.29	
<i>Isoetopsis graminifolia</i>	+	0.05m	WR110.16	
<i>Levenhookia leptantha</i>	+	0.02m	WR110.10	
<i>Maireana carnosa</i>	+	0.1m	WR110.03	
<i>*Medicago polymorpha</i>	+	0.3m	WR110.18	
<i>Melaleuca uncinata</i>	20%	1-3m	WR110.08	
<i>*Monoculus monstrosus</i>	+	0.3m	WR105.26	
<i>*Pentaschistis airoides</i>	+	0.2m	WR100.32	
<i>Podolepis capillaris</i>	5%	0.2m	WR110.15	
<i>Podotheca angustifolia</i>	+	0.2m	WR100.21	
<i>*Portulaca oleracea</i>	5%	0.3m	WR100.10	
<i>Rhagodia drummondii</i>	1%	0.5m	WR110.05	
<i>Rhagodia drummondii</i>	+	0.4m	WR110.04	
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR110.14	
<i>Rhodanthe spicata</i>	+	0.3m	WR102.14	

<i>*Sonchus oleraceus</i>	+	0.3m	WR102.08
<i>Thysanotus speckii</i>	+	0.02m	WR110.17
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Velleia rosea</i>	+	0.1m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR111

Described by Hayden Ajduk **Date** 19/09/2010 **Type** Quadrat **10m x 40m**

Location Mullewa to Morowa

MGA Zone 50J J **392807 mE** **6798929 mN**

Habitat Plain

Soil Orange brown sandy loam with surface crust

Rock Type

Vegetation Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Shrubland of *Acacia anthochaera* and *Acacia acuarria* over Very Open Grassland of **Ehrharta longiflora* and **Avena barbata*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 70%
Litter Cover: 1% Logs, 1% Twigs, 10% Lvs.
Disturbance: Clearing, Track, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuarria</i>	6%	1.2m	WR111.03
<i>Acacia anthochaera</i>	15%	1.5-2.5m	WR111.02
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	+	0.6m	WR111.12
<i>Actinobole uliginosum</i>	+	0.01m	WR110.12
* <i>Anagallis arvensis</i>	+	0.2m	WR111.13
* <i>Arctotheca calendula</i>	+		WR100.42
<i>Aristida contorta</i>	+	0.2m	WR102.18
* <i>Avena barbata</i>	1%	0.3m	WR100.31
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.1m	WR110.13
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.4m	WR100.46
* <i>Ehrharta longiflora</i>	1%	0.3m	WR102.24
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
<i>Eremophila decipiens</i> subsp. <i>linearifolia</i>	+	0.3m	WR111.04
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	10%	6.8m	WR111.01
<i>Gnephosis angianthoides</i>	+	0.1m	WR110.09
* <i>Lamarckia aurea</i>	+	0.1m	WROPEC07 Brush
Grass			
<i>Lomandra effusa</i>	+	0.3m	WR111.11
* <i>Medicago polymorpha</i>	+	CR	WR110.18
<i>Microcorys tenuifolia</i>	1%	0.4m	WR111.06
<i>Mirbelia ramulosa</i>	+	0.3m	WR111.09
* <i>Monoculus monstrosus</i>	+	0.3m	WR105.26
* <i>Monoculus monstrosus</i>	+	0.3m	WR111.10
<i>Olearia dampieri</i>	+	1.5m	WR111.05
<i>Podolepis capillaris</i>	+	0.2m	WR100.13
<i>Podolepis lessonii</i>	+	0.2m	WR100.20
<i>Podotheca angustifolia</i>	+	0.2m	WR100.21
<i>Ptilotus obovatus</i>	+	0.3m	WR100.01
* <i>Raphanus raphanistrum</i>	+	0.3m	WR111.07
<i>Rhagodia drummondii</i>	+	0.5m	WR111.08
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR110.14

<i>Salsola tragus</i>	+	0.3m	WR100.19
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Velleia rosea</i>	+	0.2m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR100.14

Westnet Rail Site WR112

Described by Emma Carroll **Date** 19/09/2010 **Type** Quadrat 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J 397604 **mE** 6792208 **mN**

Habitat Plain

Soil Red orange loam with crust

Rock Type

Vegetation Tall Open Shrubland of *Grevillea hakeoides* subsp. *Hakeoides*, *Acacia acuminata* and *Acacia*

sclerosperma subsp. *Sclerosperma* over Open Shrubland of *Hakea recurva* subsp. *arida* and *Rhagodia*

drummondii over Very Open Grassland of **Sisymbrium irio* and **Hordeum leporinum** over Very

Open Herbland of *Cephalipterum drummondii*, *Gnephosis angianthoides*, **Arctotheca calendula* and

**Portulaca oleracea*

Veg Condition Very Good/ Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 50%

Litter Cover: 1% Logs, 5% Twigs, 10% Lvs.

Disturbance: Clearing, Track, Rail, Soil Dumps/ Piles, Animal Tracks.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	2%	4m	WR103.08
<i>Acacia andrewsii</i>	1%	1m	WR100.38
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	1%	3m	WR112.04
<i>*Arctotheca calendula</i>	1%	0.2m	WR100.42
<i>Atriplex codonocarpa</i>	+	0.2m	WR110.19
<i>*Bromus rubens</i>	+	0.2m	WR102.19
<i>Cephalipterum drummondii</i>	+	0.2m	WRR100.03
<i>Cephalipterum drummondii</i>	5%	0.2m	WR112.01
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>*Echium plantagineum</i>	+	0.2m	WR102.09
<i>*Ehrharta longiflora</i>	+	0.3m	WR102.24
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Exocarpos aphyllus</i>	+	1m	WR112.13
<i>Gnephosis angianthoides</i>	2%	0.1m	WR112.12
<i>Grevillea hakeoides</i> subsp. <i>hakeoides</i>	4%	1-4m	WR112.03
<i>Hakea recurva</i> subsp. <i>arida</i>	3%	0.5-2m	WR112.02
<i>*Hordeum leporinum</i>	1%	0.3m	WR112.11
<i>Lomandra effusa</i>	+	0.3m	WR111.11
<i>Maireana aphylla</i>	+	0.3m	WR112.10
<i>Maireana tomentosa</i>	+		WR112.05
<i>*Medicago polymorpha</i>	2%	0.2m	WR110.18
<i>*Monoculus monstrosus</i>	+	0.3m	WR105.26
<i>Olearia dampieri</i>	+	1m	WR111.05
<i>Podolepis lessonii</i>	+	0.2m	WR100.20
<i>*Portulaca oleracea</i>	1%	0.1m	WR100.10

<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.3m	WR112.08
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.1m	WR112.14
<i>Rhagodia drummondii</i>	5%	1m	WR112.06
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Sclerolaena diacantha</i>	+	0.2m	WR112.07
* <i>Sisymbrium irio</i>	1%	0.4m	WR112.09
* <i>Sonchus oleraceus</i>	+	0.2m	WR102.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR113

Described by Emma Carroll **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J **399135 mE** **6790545 mN**

Habitat Plain

Soil Orange red brown loam with surface crust

Rock Type

Vegetation Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Shrubland of *Eremophila glabra* subsp. *glabra*, *Acacia anthochaera* and *Senna charlesiana* over Low Shrubland of *Atriplex stipitata*, *Rhagodia drummondii* and *Enchylaena tomentosa* over Very open Grassland of **Hordeum leporinum*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 50%
Litter Cover: 2% Logs, 10% Twigs, 20% Lvs.
Disturbance: Clearing, Track, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia anthochaera</i>	1%	2m	WR113.03
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42
<i>Atriplex stipitata</i>	20%	0.5m	WR113.04
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Dichopogon capillipes</i>	+	0.3m	WR113.01
<i>*Ehrharta longiflora</i>	+	0.4m	WR102.24
<i>Enchylaena tomentosa</i>	1%	0.3m	WR100.26
<i>Eremophila glabra</i> subsp. <i>glabra</i>	1%	2m	WR113.02
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	4%	8m	WR111.01
<i>*Hordeum leporinum</i>	2%	0.2m	WR112.11
<i>*Medicago polymorpha</i>	1%	CR	WR110.18
<i>*Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>*Portulaca oleracea</i>	+	0.1m	WR100.10
<i>Rhagodia drummondii</i>	2%	0.3-0.5m	WR112.06
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR102.01
<i>Sclerolaena diacantha</i>	1%	0.2m	WR112.07
<i>Senna charlesiana</i>	1%	1m	WR100.07
<i>*Sisymbrium irio</i>	+	0.3m	WR112.09
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>*Sonchus oleraceus</i>	+	0.3m	WR102.08

Westnet Rail Site WR114

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J **377888 mE** **6816067 mN**

Habitat Slight Hill Slope

Soil Light orange brown clayey loam with scattered pebbles

Rock Type Quartz and Granite

Vegetation Tall Open Shrubland of *Acacia ramulosa* var. *linophylla* over Open Shrubland of *Acacia acuminata*,
Acacia sibina and *Hibbertia glomerata* subsp. *glomerata* over Very Open Herbland of
Calytrix depressa, *Borya sphaerocephala* and *Waitzia acuminata* var. *acuminata*

Veg Condition Very Good

Fire Age Old

Notes Aspect: North
Topography: Slight Hill Slope
Bare Ground: 50%
Litter Cover: 2% Logs, 2% Twigs, 1% Lvs.
Disturbance: Track, Rail, Soil Piles

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia aciphylla</i>	+	1m	WR114.07
<i>Acacia acuminata</i>	2%	1-1.5m	WR103.08
<i>Acacia ramulosa</i> var. <i>linophylla</i>	5%	1.5-3m	WR114.05
<i>Acacia restiacea</i>	+	0.3m	WR101.22
<i>Acacia sibina</i>	1%	1-1.5m	WR102.02
<i>Actinobole uliginosum</i>	+	0.01m	WR110.12
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.3m	WR114.03
<i>Austrostipa elegantissima</i>	+	0.3m	WR107.31
* <i>Avena barbata</i>	1%	0.6m	WR100.31
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	+	0.6m	WR114.01
<i>Borya sphaerocephala</i>	1%	0.2m	WR101.13
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR101.15
<i>Calytrix depressa</i>	5%	0.1m	WR114.02
<i>Calytrix depressa</i>	2%	0.5m	WR114.02
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.2m	WR100.46
<i>Diuris porrifolia</i>	+	0.3m	WR108.15
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	1%	0.4-1.5m	WR101.06
* <i>Lolium perenne</i>	+	0.3m	WR114.04
<i>Malleostemon tuberculatus</i>	+	1m	WR114.06
* <i>Pentaschistis airoides</i>	+	0.2m	WR100.32
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Schoenia cassiniana</i>	+	0.1m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Velleia rosea</i>	+	0.1m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WR115

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J 378346 mE 6813901 mN

Habitat Plain

Soil Light orange brown loam with scattered pebbles

Rock Type Quartz and Granite

Vegetation Tall Open Shrubland of *Acacia acuminata* over Shrubland of *Acacia brumalis*, *Acacia tetragonophylla*

and *Dodonaea inaequifolia* over Very Open Grassland of **Pentaschistis airoides* over Open Herbland

of *Podolepis capillaris*, *Rhodanthe spicata* and **Hypochaeris glabra*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 40%
 Litter Cover: 10% Logs, 3% Twigs, 10% Lvs.
 Disturbance: Track clearing, Soil dump, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	5%	1-3m	WR103.08
<i>Acacia brumalis</i>	10%	1-2m	WR115.05
<i>Acacia tetragonophylla</i>	1%	1m	WR115.04
<i>*Bromus rubens</i>	+	0.2m	WR102.19
<i>Cephalopterum drummondii</i>	+	0.2m	WRR100.03
<i>Dodonaea inaequifolia</i>	1%	0.5-1.5m	WR115.03
<i>*Echium plantagineum</i>	+	0.3m	WR102.09
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17
<i>Grevillea levis</i>	+	0.5m	WR115.02
<i>*Hypochaeris glabra</i>	+	0.2m	WR102.20
<i>*Hypochaeris glabra</i>	1%	0.1m	WR115.06
<i>*Lolium perenne</i>	+	0.2m	WR114.04
<i>Maireana tomentosa</i>	+	0.3m	WR115.01
<i>*Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>*Pentaschistis airoides</i>	2%	0.1m	WR100.32
<i>Podolepis capillaris</i>	10%	0.2m	WR100.13
<i>Ptilotus obovatus</i>	1%	0.3m	WR100.01
<i>Rhodanthe spicata</i>	1%	0.2m	WR102.14
<i>Sclerolaena densiflora</i>	+	0.2m	WR100.03
<i>Sclerolaena diacantha</i>	+	0.3m	WR112.07
<i>*Sisymbrium irio</i>	+	0.3m	WR112.09
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Velleia rosea</i>	+	0.1m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR100.14

Westnet Rail Site WR116

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J **379721 mE** **6813167 mN**

Habitat Plain

Soil Light orange brown sandy loam

Rock Type Quartz and Granite

Vegetation Tall Shrubland of *Acacia acuminata* over Shrubland of *Acacia brumalis* over Grassland of *Avena*

barbata, *Austrostipa variabilis* and **Pentaschistis airoides*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 40%

Litter Cover: 5% Logs, 5% Twigs, 15% Lvs.

Disturbance: Track in the middle, Lots of introduced species, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	15%	1-4m	WR116.01	
<i>Acacia brumalis</i>	15%	0.5-2m	WR115.05	
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42	
<i>Austrostipa variabilis</i>	10%	0.2m	WR116.03	
<i>*Avena barbata</i>	25%	0.3m	WR100.31	
<i>*Bromus rubens</i>	+	0.3m	WR102.19	
<i>Cephalipterum drummondii</i>	+	0.2m	WR103.09	
<i>Cephalipterum drummondii</i>	+	0.2m	WRR100.03	
<i>Chenopodium gaudichaudianum</i>	+	0.3m	WR100.25	
<i>Dichopogon capillipes</i>	+	0.2m	WR116.04	
<i>Dodonaea inaequifolia</i>	+	0.5m	WR104.02	
<i>Ecdeiocola monostachya</i>	+	0.3m	WR105.25	
<i>Eremophila decipiens</i> subsp. <i>linearifolia</i>	+	0.3m	WR111.04	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17	
<i>*Lolium perenne</i>	+	0.1m	WR114.04	
<i>Mirbelia depressa</i>	+	0.3m	WR116.05	
<i>*Monoculus monstrosus</i>	+	0.2m	WR100.16	
MYRTACEAE sp.	1%	0.5m	WR100.38	
<i>*Pentaschistis airoides</i>	1%	0.1m	WR100.32	
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02	
<i>Rhodanthe spicata</i>	+	0.1m	WR116.06	
<i>Sida calyxhymenia</i>	+	0.2m	WR116.02	
<i>*Sisymbrium irio</i>	+	0.3m	WR112.09	
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02	
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12	

Westnet Rail Site WR117

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **380019 mE** **6812901 mN**

Habitat Hill Slope

Soil Light orange sandy loam with pebbles

Rock Type Granite and Quartz

Vegetation Shrubland of *Acacia brumalis*, *Acacia acuminata* and *Acacia aciphylla* over Low Open Shrubland of

Grevillea levis and *Mirbelia depressa* over Open Grassland of **Avena barbata*, *Austrostipa elegantissima* and *Austrostipa variabilis*

Veg Condition Very Good

Fire Age Old

Notes Aspect: South East
Topography: Hill Slope
Bare Ground: 50%
Litter Cover: 5% Logs, 5% Twigs, 10% Lvs.
Disturbance: Soil Piles, Pushed up old trees, Track/ Road, Diggings.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia aciphylla</i>	1%	0.5-1m	WR117.05
<i>Acacia acuminata</i>	10%	0.5-2m	WR116.01
<i>Acacia brumalis</i>	15%	0.5-2m	WR115.05
<i>Acacia ramulosa</i> var. <i>linophylla</i>	+	1.5m	WR114.05
<i>Acacia tetragonophylla</i>	+	1m	WR100.37
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42
<i>Arthropodium dyeri</i>	+	0.3m	WR117.04
<i>Austrostipa elegantissima</i>	5%	0.3m	WR107.31
<i>Austrostipa variabilis</i>	5%	0.3m	WR116.03
<i>*Avena barbata</i>	10%	0.3m	WR100.31
<i>Cephalopterum drummondii</i>	+	0.2m	WR103.09
<i>Cephalopterum drummondii</i>	+	0.2m	WR100.03
<i>Dichopogon capillipes</i>	+	0.3m	WR117.03
<i>Eremophila decipiens</i> subsp. <i>linearifolia</i>	+	0.3m	WR111.04
<i>Grevillea levis</i>	5%	0.6m	WR115.02
<i>*Lupinus cosentinii</i>	+	0.3m	NC
<i>Mirbelia depressa</i>	2%	0.5m	WR116.05
<i>Opercularia vaginata</i>	+	0.2m	WR117.02
<i>Pogonolepis stricta</i>	2%	0.1m	WR100.02
<i>Rulingia luteiflora</i>	+	1.5m	WR117.06
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Stackhousia dielsii</i>	+	0.3m	WR117.01
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR100.14

Westnet Rail Site WR118

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **380384 mE** **6816969 mN**

Habitat Sloping Plain

Soil Orange red brown loam

Rock Type Granite

Vegetation Tall Shrubland of *Acacia acuminata*, *Melaleuca viminea* subsp. *viminea* and *Melaleuca atroviridis* over

Open Shrubland of *Acacia tetragonophylla.*, *Myrtaceae* sp. And *Melaleuca radula* over Very Open

Grassland of **Avena barbata*, over Open Herbland of *Schoenia cassiniana*, *Cephalopterum drummondii* and *Podolepis lessonii*

Veg Condition Very Good

Fire Age Old

Notes Aspect: South West
Topography: Sloping Plain
Bare Ground: 40%
Litter Cover: +% Logs, 1% Twigs, 2% Lvs.
Disturbance: Track, Rail, Soil Piles.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	10%	1-3m	WR116.01
<i>Acacia restiacea</i>	+	0.3m	WR101.22
<i>Acacia tetragonophylla</i>	1%	1.5m	WR100.37
<i>Austrostipa variabilis</i>	+	0.2m	WR116.03
<i>*Avena barbata</i>	2%	0.3m	WR100.31
<i>Borya sphaerocephala</i>	+	0.2m	WR101.13
<i>Calytrix depressa</i>	+	0.1m	WR114.02
<i>Cephalopterum drummondii</i>	3%	0.2m	WRR100.03
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Cheiranthra simplicifolia</i>	+	CR	WR118.03
<i>Chenopodium gaudichaudianum</i>	+	0.3m	WR100.25
<i>Dichopogon capillipes</i>	+	0.2m	WR116.04
<i>Dodonaea inaequifolia</i>	+	0.5m	WR104.02
<i>Enchylaena tomentosa</i>	+	0.2m	WR100.26
<i>*Hypochaeris glabra</i>	+	0.2m	WR118.04
<i>Maireana georgei</i>	+	0.3m	WR118.08
<i>Melaleuca atroviridis</i>	1%	1.5-3m	WR118.01
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	+	1m	WR118.09
<i>Melaleuca radula</i>	1%	1-2m	WR118.02
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	3%	2-3m	WR118.07
<i>Mirbelia depressa</i>	+	0.3m	WR116.05
MYRTACEAE sp.	1%	0.5-1m	WR100.38
<i>Opercularia vaginata</i>	+	0.2m	WR117.02
<i>Podolepis lessonii</i>	1%	0.2m	WR100.20
<i>Podotheca angustifolia</i>	+	0.1m	WR100.21
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Schoenia cassiniana</i>	10%	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02

<i>Thysanotus pyramidalis</i>	+	0.2m	WR118.06
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Velleia rosea</i>	+	0.2m	WR101.14
<i>Wahlenbergia</i> sp.	+	0.1m	WR118.05

Westnet Rail Site WR119

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **382019 mE** **6809222 mN**

Habitat Hill slope

Soil Light orange brown loam with cobbles and exposed rock

Rock Type Granite

Vegetation Open Shrubland of *Melaleuca atroviridis*, *Melaleuca uncinata*, *Acacia aciphylla* and *Persoonia*

hexagona over Low Open Shrubland of *Grevillea levis*, *Acacia ulicina*, *Acacia restiacea*, *Hibbertia*

glomerata subsp. *glomerata*, *Chorizema racemosum* and *Astroloma serratifolium* over Very Open

Grassland of *Aristida contorta*, *Austrostipa elegantissima* and **Avena barbata* over Very Open

Herbland of *Pogonolepis stricta*, *Waitzia acuminata* var. *acuminata*, **Arctotheca calendula* and

Schoenia cassiniana

Veg Condition Very Good

Fire Age Old

Notes Aspect: North
Topography: Hill slope
Bare Ground: 75%
Litter Cover: + Logs, 3% Twigs, 1% Lvs.
Disturbance: Track clearing, Soil Piles, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia aciphylla</i>	2%	1-2m	WR119.08
<i>Acacia neurophylla</i>	+	0.5-0.6m	WR119.09
<i>Acacia restiacea</i>	1%	0.5m	WR101.22
<i>Acacia ulicina</i>	2%	0.5m	WR119.05
<i>*Arctotheca calendula</i>	1%	0.2m	WR100.42
<i>Aristida contorta</i>	4%	0.2m	WR102.18
<i>Astroloma serratifolium</i>	1%	0.3m	WR119.07
<i>Austrostipa elegantissima</i>	1%	0.3m	WR107.31
<i>*Avena barbata</i>	1%	0.3m	WR100.31
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	+	1m	WR119.15
<i>Borya sphaerocephala</i>	+	0.1m	WR101.13
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR101.15
<i>*Bromus rubens</i>	+	0.3m	WR102.19
<i>Cassytha glabella forma dispar</i>	+	CR	WR119.04
<i>Chorizema racemosum</i>	1%	0.3m	WR119.06
<i>Clematicissus angustissima</i>	+	CR	WR119.14
<i>Comesperma integerrimum</i>	+	0.3m	WR119.11
<i>Dodonaea inaequifolia</i>	2%	0.2m	WR104.02
<i>*Echium plantagineum</i>	+	0.3m	WR102.09
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17
<i>Grevillea granulosa</i>	+	1m	WR119.13
<i>Grevillea levis</i>	3%	0.5m	WR115.02
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	1%	0.3-0.5m	WR101.06

<i>Maireana tomentosa</i>	+	0.3m	WR119.03
<i>Malleostemon tuberculatus</i>	+	1.5m	WR119.10
<i>Melaleuca atroviridis</i>	2%	2m	WR118.01
<i>Melaleuca cordata</i>	+	1m	WR119.17
<i>Melaleuca eleuterostachya</i>	+	1m	WR119.16
<i>Melaleuca uncinata</i>	1%	2m	WR119.12
<i>Mirbelia depressa</i>	+	0.3m	WR116.05
* <i>Monoculus monstrosus</i>	+	0.3m	WR105.26
MYRTACEAE sp.	+	1m	WR119.18
<i>Opercularia vaginata</i>	1%	0.2m	WR117.02
<i>Persoonia hexagona</i>	1%	1-2m	WR119.02
<i>Podolepis capillaris</i>	+	0.3m	WR100.13
<i>Pogonolepis stricta</i>	2%	0.1m	WR100.02
<i>Rhodanthe spicata</i>	+	CR	WR102.14
<i>Schoenia cassiniana</i>	1%	0.2m	WR100.15
<i>Sida calyxhymenia</i>	+	0.3m	WR119.01
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Wahlenbergia</i> sp.	+	0.1m	WR118.05
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WR12

Described by Kellie McMaster **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J J **310942 mE** **6824970 mN**

Habitat Gravelly Rise: Crest

Soil Pale Yellow Sand with Sparse Lateritic Gravel

Rock Type

Vegetation Tall Open Shrubland of *Acacia brumalis* over Open Shrubland of *Rhagodia preissii* subsp. *obovata*,

Grevillea candelabroides, *Acacia acuminata* and *Rhagodia drummondii* over Low Open Shrubland of

Acacia blakelyi

Veg Condition Very Good

Fire Age

Notes Aspect: North to South
 Topography: Gravelly Rise - Crest
 Bare Ground: 80%
 Litter Cover: <1% Logs, 10% Twigs, 5% Lvs.
 Disturbance: Adjacent to Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	1%	1.5m	WR12.14
<i>Acacia blakelyi</i>	3%	0.7m	WR05.07
<i>Acacia brumalis</i>	1%	2.1m	WR12.12
<i>Acacia rostellifera</i>	+	0.4m	WR12.17
<i>Acacia</i> sp.	+	1.5m	WR12.27
<i>Acanthocarpus preissii</i>	+	0.8m	WR03.10
<i>Allocasuarina campestris</i>	2%	2.2m	WR02.19
<i>Amyema fitzgeraldii</i>	+		WR12.15
<i>Amyema preissii</i>	+		WR12.16
* <i>Anagallis arvensis</i>	+	0.05m	WR04.06
* <i>Arctotheca calendula</i>	+	1.8m	WR04.01
<i>Austrostipa elegantissima</i>	1%	1m	WR02.30
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WR12.21
<i>Bonamia rosea</i>	+	0.3m	WR12.11
<i>Brachyscome ciliaris</i>	+	0.05m	WR12.07
* <i>Brassica napus</i>	+	0.40m	WR02.22
<i>Calandrinia polyandra</i>	+	0.05m	WR12.05
<i>Conostylis prolifera</i>	+	0.4m	WR12.10
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR06.17
<i>Dioscorea hastifolia</i>	+	CL	WR12.04
<i>Dodonaea inaequifolia</i>	+		WR10.13
<i>Ecdaiocolea monostachya</i>	1%	0.6m	WR08.02
* <i>Ehrharta longiflora</i>	+	0.10m	WR02.23
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR12.09
<i>Eucalyptus eudesmioides</i>	OUT	3m	WR12.30
<i>Gnephosis angianthoides</i>	+	0.05m	WR11.34
<i>Goodenia berardiana</i>	+	0.05m	WR12.08
<i>Grevillea candelabroides</i>	2%	1.8m	WR11.26
* <i>Hypochaeris glabra</i>	+	0.05m	WR11.25
<i>Jacksonia ramulosa</i> MS	+	0.1m	WR11.17

<i>Maireana georgei</i>	+		WR12.25
* <i>Monoculus monstrosus</i>	+	0.9m	WR04.11
* <i>Moraea setifolia</i>	+	0.5m	WR12.24
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+		WR12.18
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	OUT		WR12.29
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.6m	WR12.26
<i>Podolepis capillaris</i>	+	0.1m	WR12.06
<i>Podotheca angustifolia</i>	+	0.10m	WR04.05
<i>Ptilotus obovatus</i>	+	0.5m	WR12.23
<i>Rhagodia drummondii</i>	1%	1.8m	WR11.30
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	4%	1.7m	WR12.19
<i>Senna charlesiana</i>	OUT		WR12.28
<i>Solanum oldfieldii</i>	+	0.4m	WR12.02
<i>Stylidium elongatum</i>	+	0.4m	WR12.01
<i>Stylobasium australe</i>	+	1.2m	WR12.22
<i>Thysanotus manglesianus</i>	+	CL	WR12.03
Unknown	+	0.6m	WR12.13
* <i>Ursinia anthemoides</i>	+	0.2m	WR08.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR02.07
* <i>Zaluzianskya divaricata</i>	+	0.5m	WR12.20

Westnet Rail Site WR120

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa to Morowa

MGA Zone 50J **383853 mE** **6807730 mN**

Habitat Plain/Lower Slope

Soil Light orange brown loam (some clay) with cobbles and pebbles and surface crust in some areas

Rock Type Granite

Vegetation Tall Open Shrubland of *Acacia acuminata*, *Melaleuca eleuterostachya* and *Allocasuarina campestris*
over Shrubland of *Melaleuca uncinata* and *Myrtaceae* sp. Over Very Open Herbland of *Brachyscome ciliocarpa* and **Hypochaeris glabra*

Veg Condition Very Good

Fire Age Old

Notes Topography: Lower slope
Bare Ground: 50%
Litter Cover: + %Logs, 1% Twigs, 20% Lvs.
Disturbance: Track, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	40%	1-4m	WR116.01
<i>Acacia restiacea</i>	+	0.3m	WR101.22
<i>Acacia rostellifera</i>	+	1m	WR120.06
<i>Allocasuarina campestris</i>	1%	3m	WR120.03
<i>*Arctotheca calendula</i>	+	0.1m	WR100.42
<i>Austrostipa elegantissima</i>	+	0.3m	WR103.20
<i>*Avena barbata</i>	+	0.3m	WR100.31
<i>Borya sphaerocephala</i>	+	0.2m	WR101.13
<i>Brachyscome ciliocarpa</i>	2%	0.1m	WR101.15
<i>Calytrix depressa</i>	+	0.1m	WR114.02
<i>Cassutha glabella</i> forma <i>dispar</i>	+	CR	WR103.12
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Comesperma integerrimum</i>	+	CR	WR120.01
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.1m	WR110.13
<i>Dampiera lavandulacea</i>	+	0.3m	WR120.02
<i>Dichopogon capillipes</i>	+	0.3m	WR116.04
<i>Diuris porrifolia</i>	+	0.2m	WR108.15
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
<i>Eremophila eriocalyx</i>			WR120.08
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Grevillea levis</i>	+	0.4m	WR115.02
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	0.1m	WR104.07
<i>*Hypochaeris glabra</i>	1%	0.2m	WR120.05
<i>Melaleuca eleuterostachya</i>	1%	4m	WR119.16
<i>Melaleuca longistaminea</i>	+	1m	WR120.04
<i>Melaleuca uncinata</i>	10%	1.5-2m	WR119.12
<i>Mirbelia depressa</i>	+	0.3m	WR116.05
<i>*Monoculus monstrosus</i>	+	0.3m	WR105.26
MYRTACEAE sp.	1%	1m	WR100.38
<i>Platysace trachymenioides</i>	+	0.3m	WR120.07

<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Thysanotus manglesianus</i>	+	CR	WR101.26
<i>Trachymene ornata</i>	+	0.1m	WR103.01
<i>Wahlenbergia</i> sp.	+	0.1m	WR118.05
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR121

Described by Hayden Ajduk **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40m

Location Mullewa to Morowa

MGA Zone 50J J **384264 mE** **6807367 mN**

Habitat Hill Slope

Soil Orange brown loam with cobbles and pebbles

Rock Type Orange Granite

Vegetation Tall Open Scrub of *Allocasuarina campestris* and *Acacia longiphylloidea* over Open Shrubland of

Melaleuca nematophylla over Low Open Shrubland of *Platysace trachymenioides* over Very Open

Sedgeland of *Ecdeiocolea monostachya* and *Waitzia acuminata* var. *acuminata*

Veg Condition Very Good to Good

Fire Age Old

Notes Aspect: South East
Topography: Hill slope
Bare Ground: 75%
Litter Cover: 2% Logs, 3% Twigs, 5% Lvs.
Disturbance: Historical Clearing, Track and Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia burkittii</i>	+	1.5m	WROPEC28
<i>Acacia longiphylloidea</i>	8%	3m	WR121.06
<i>Acacia neurophylla</i>	+	0.5m	WR121.11
<i>Acacia restiacea</i>	+	0.3m	WR101.22
<i>Allocasuarina campestris</i>	25%	1-3m	WR121.01
<i>Astroloma serratifolium</i>	+	0.3m	WR121.07
* <i>Avena barbata</i>	+	0.3m	WR100.31
<i>Baeckea crispiflora</i>	+	0.4m	WR121.10
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WR101.03
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WR121.08
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	+	1.5m	WR121.09
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	+	1m	WR121.04
<i>Borya sphaerocephala</i>	1%	0.2m	WR101.13
<i>Ecdeiocolea monostachya</i>	1%	0.3m	WR105.25
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR108.19
<i>Grevillea levis</i>	+	0.5-1m	WR102.07
<i>Grevillea paradoxa</i>	+	1m	WR121.02
<i>Hibbertia hypericoides</i>	+	1m	WR121.05
<i>Melaleuca atroviridis</i>	+	1.5m	WR118.01
<i>Melaleuca nematophylla</i>	3%	1-2m	WR121.03
<i>Mirbelia depressa</i>	+	0.3m	WR116.05
<i>Platysace trachymenioides</i>	2%	0.5m	WR120.07
<i>Podolepis lessonii</i>	+	0.2m	WR100.20
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Stylidium elongatum</i>	+	0.2m	WR108.16
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WR122

Described by Emma Carroll **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa to Morowa

MGA Zone 50J J **384972 mE** **6806833 mN**

Habitat Mid to Upper Hill Slope

Soil Light orange brown clayey loam with large areas of exposed rock

Rock Type Granite

Vegetation Tall Open Shrubland of *Acacia acuminata* and *Grevillea hakeoides* subsp. *hakeoides* over Open

Shrubland of *Acacia aciphylla* over Low Open Shrubland of *Melaleuca fulgens* subsp. *steadmanii*,

Acacia neurophylla, *Mirbelia depressa* and *Austrostipa elegantissima* over Open

Herbland of *Borya*

sphaerocephala, *Schoenia cassiniana* and *Pogonolepis stricta*

Veg Condition Very Good

Fire Age Old

Notes Aspect: West

Topography: Hill slope

Bare Ground: 60%

Litter Cover: 1% Logs, 2% Twigs, 1% Lvs.

Disturbance: Track clearing, Soil Piles, Rail, Rubbish.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia aciphylla</i>	4%	1-2m	WR122.03	
<i>Acacia acuminata</i>	5%	4m	WR116.01	
<i>Acacia neurophylla</i>	1%	0.6m	WR121.11	
<i>Aristida contorta</i>	+	0.2m	WR102.18	
<i>Austrostipa elegantissima</i>	+	0.4m	WR107.31	
<i>Austrostipa elegantissima</i>	1%	0.3m	WR103.20	
<i>Borya sphaerocephala</i>	10%	0.2m	WR101.13	
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR101.15	
<i>Cassylia glabella</i> forma <i>dispar</i>	+	CR	WR103.12	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16	
<i>Dichopogon capillipes</i>	+	0.3m	WR116.04	
<i>Diuris porrifolia</i>	+	0.3m	WR108.15	
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR105.25	
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26	
<i>Grevillea hakeoides</i> subsp. <i>hakeoides</i>	1%	2-3m	WR122.02	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.3m	WR109.14	
* <i>Hypochaeris glabra</i>	+	0.2m	WR120.05	
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	3%	0.4m	WR122.01	
<i>Melaleuca radula</i>	+	3m	WR112.02	
<i>Mirbelia depressa</i>	1%	0.5m	WR116.05	
* <i>Monoculus monstrosus</i>	+	0.2m	WR100.16	
<i>Opercularia vaginata</i>	+	0.2m	WR117.02	
<i>Platysace trachymenioides</i>	+	0.3m	WR120.07	
<i>Podolepis lessonii</i>	+	0.2m	WR100.20	
<i>Pogonolepis stricta</i>	1%	0.1m	WR100.02	
<i>Ptilotus obovatus</i>	+	0.3m	WR100.01	
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.1m	WR110.14	
<i>Rhodanthe spicata</i>		0.2m	WR100.44	

<i>Schoenia cassiniana</i>	1%	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Trachymene ornata</i>	+	0.2m	WR103.01
<i>Trachymene ornata</i>	+	0.1m	WR103.01
* <i>Ursinia anthemoides</i>	+	0.1m	WR122.04

Westnet Rail Site WR123

Described by Hayden Ajduk **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa to Morowa

MGA Zone 50J J **387378 mE** **6804661 mN**

Habitat Upper slope of low hill

Soil Light orange brown loam with exposed rock

Rock Type Granite

Vegetation Tall Open Shrubland of *Calycopeplus paucifolius* over Shrubland of *Malleostemon tuberculatus* and *Melaleuca fulgens* subsp. *steadmanii* over Low Open Shrubland of *Grevillea tenuiloba* and *Calytrix depressa* over Open Herbland of *Velleia rosea*, *Waitzia acuminata* var. *acuminata* and *Borya sphaerocephala*

Veg Condition Very good

Fire Age Old

Notes Aspect: West
Topography: Hill slope
Bare Ground: 50%
Litter Cover: 1% Logs, 2% Twigs, 2% Lvs.
Disturbance: Track, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia longiphyllodinea</i>	+	2-3m	WR121.06	
<i>Acacia restiacea</i>	+	0.3m	WR101.22	
<i>Allocasuarina campestris</i>	+	1.5m	WR121.01	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.3m	WR123.09	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WR123.12	
<i>Borya sphaerocephala</i>	2%	0.1m	WR101.13	
<i>Brachyscome ciliocarpa</i>	1%	0.1m	WR101.15	
<i>Caladenia flava</i> subsp. <i>flava</i>	+	0.2m	WR123.14	
<i>Calycopeplus paucifolius</i>	3%	4m	WR123.07	
<i>Calytrix depressa</i>	1%	0.3m	WR123.02	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16	
<i>Clematicissus angustissima</i>	+	CR	WR123.03	
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR123.10	
<i>Dioscorea hastifolia</i>	+	CR	WR123.08	
<i>Drosera macrantha</i> subsp. <i>macrantha</i>	+	CR	WR107.10	
<i>Grevillea tenuiloba</i>	1%	0.6m	WR123.05	
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	+	0.5m	WR123.11	
<i>Malleostemon tuberculatus</i>	20%	1-2.5m	WR123.01	
<i>Malleostemon tuberculatus</i>	+	1.5m	WR123.04	
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	1%	1m	WR123.06	
<i>Podolepis capillaris</i>	2%	0.1m	WR123.13	
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02	
<i>Rhodanthe spicata</i>	+	CR	WR102.14	
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02	
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12	
<i>Velleia rosea</i>	20%	0.2m	WR101.14	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	3%	0.2m	WR100.14	

Westnet Rail Site WR124

Described by Hayden Ajduk **Date** 21/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa to Morowa

MGA Zone 50J **387563 mE** **6804494 mN**

Habitat Rocky Hillslope

Soil Light orange brown loam with cobbles, pebbles, boulders and exposed rock

Rock Type Granite

Vegetation Tall Shrubland of *Allocasuarina campestris* and *Acacia acuminata* over Open Heath of *Melaleuca*

viminea subsp. *viminea*, *Melaleuca longistaminea* over Very open Herbland of *Waitzia acuminata* var.

acuminata, *Schoenia cassiniana* and *Cheilanthes sieberi* subsp. *sieberi*

Veg Condition Very Good/ Excellent

Fire Age Old

Notes Aspect: South East

Topography: Hill slope

Bare Ground: 10%

Litter Cover: 1% Logs, 5% Twigs, 80% Lvs.

Disturbance: Track, Rail, Rock Piles, Piles of Vegetation.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	2%	1-4m	WR116.01
<i>Allocasuarina campestris</i>	20%	1-4m	WR124.09
<i>Aristida contorta</i>	+	0.3m	WR102.18
<i>Astroloma serratifolium</i>	+	0.3m	WR124.06
<i>Austrostipa elegantissima</i>	+	0.3m	WR124.10
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.2m	WR124.12
<i>Borya sphaerocephala</i>	+	0.2m	WR101.13
<i>Calycopeplus paucifolius</i>	+	1.5m	WR123.07
<i>Calycopeplus paucifolius</i>	+	0.3m	WR124.01
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	2%	0.1m	WR124.07
<i>Clematicissus angustissima</i>	+	CR	WR123.03
<i>Comesperma integerrimum</i>	+	CR	WR101.28
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Dichopogon capillipes</i>	+	0.2m	WR124.11
<i>Dioscorea hastifolia</i>	+	CR	WR124.04
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Goodenia berardiana</i>	+	0.2m	WR124.02
* <i>Hypochoeris glabra</i>	1%	0.2m	WR120.05
<i>Lepidosperma scabrum</i>	+	0.3m	WR124.15
<i>Maireana georgei</i>	+	0.3m	WR124.14
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i>	+		WR124.03
<i>Melaleuca longistaminea</i>	2%	1-2.5m	WR124.05
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	40%	1-3m	WR124.08
<i>Mirbelia depressa</i>	+	0.4m	WR124.13
<i>Podolepis capillaris</i>	+	0.2m	WR100.13
<i>Ptilotus obovatus</i>	+	0.3m	WR100.01
<i>Schoenia cassiniana</i>	1%	0.2m	WR100.15
<i>Thysanotus manglesianus</i>	+	CR	WR124.16
<i>Trachymene cyanopetala</i>	+	0.2m	WR100.12
<i>Trachymene ornata</i>	+	0.1m	WR103.01

<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14
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Westnet Rail Site WR125

Described by Emma Carroll **Date** 21/09/2010 **Type** Quadrat 10m x 40m

Location Mullewa to Morowa

MGA Zone 50J 387692 mE 6804417 mN

Habitat Rocky Slope

Soil Light orange brown loam with cobbles and boulders with exposed rock

Rock Type

Vegetation Shrubland of *Acacia acuminata*, *Melaleuca longistaminea*, *Melaleuca radula* and *Melaleuca atroviridis*

over Low Open Shrubland of *Darwinia diosmoides* and *Grevillea tenuiloba* over Very Open Herbland of *Borya sphaerocephala*.

Veg Condition Very good/ Excellent

Fire Age Old

Notes Aspect: West
Topography: Hill slope
Bare Ground: 70%
Litter Cover: 1% Logs, 1% Twigs, 2% Lvs.
Disturbance: Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia aciphylla</i>	+	0.6m	WR122.03
<i>Acacia acuminata</i>	5%	1-3m	WR116.01
<i>Acacia neurophylla</i>	+	1m	WR125.13
<i>Allocasuarina campestris</i>	+	1.2m	WR125.14
<i>Borya sphaerocephala</i>	5%	0.1m	WR101.13
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR125.05
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.5m	WR110.13
<i>Cryptandra arbutiflora</i> var. <i>borealis</i>	+	0.4m	WR125.09
<i>Darwinia diosmoides</i>	2%	0.3-0.5m	WR125.01
<i>Ecdeiocolea monostachya</i>	1%	0.3m	WR105.25
<i>Goodenia havilandii</i>	+	0.1m	WR125.04
<i>Grevillea tenuiloba</i>	1%	0.5m	WR125.02
Indeterminate	+	0.1m	WR125.07
<i>Melaleuca atroviridis</i>	1%	2m	WR125.08
<i>Melaleuca fulgens</i> subsp. <i>steedmanii</i>	+	0.5m	WR122.01
<i>Melaleuca longistaminea</i>	5%	1-2m	WR124.05
<i>Melaleuca radula</i>	2%	1-1.5m	WR125.10
<i>Melaleuca radula</i>	+	1.5m	WR125.11
<i>Mirbelia depressa</i>	+	1m	WR125.12
<i>Orchidaceae</i> sp.	+	0.05m	WR125.15
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Stenopetalum filifolium</i>	+	0.2m	WR125.03
<i>Stylidium leptophyllum</i>	+	0.1m	WR125.16
<i>Thysanotus manglesianus</i>	+	CR	WR124.16
<i>Velleia rosea</i>	+	0.1m	WR125.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR126

Described by Emma Carroll **Date** 21/09/2010 **Type** Quadrat **10m x 40m**

Location Mullewa to Morowa

MGA Zone 50J **387833 mE** **6804297 mN**

Habitat Rocky upper slope

Soil Light orange brown loam with scatterings of cobbles and pebbles

Rock Type Granite Quartz and Calcrete

Vegetation Tall Shrubland of *Acacia longiphylloidea*, *Grevillea paradoxa*, *Acacia sibina* and *Acacia acuminata*

over Open Shrubland of *Mirbelia longifolia*, *Micromyrtus prochytes*, *Eremophila georgei* over Low

Open Shrubland of *Baekkea* sp. Gutha (B.L. Rye 239041 & M.E. Trudgen) and *Ricinocarpos muricatus*

Veg Condition Very good

Fire Age Old

Notes Aspect: North

Topography: Hill slope

Bare Ground: 60%

Litter Cover: 4% Logs, 4% Twigs, 5% Lvs.

Disturbance: Track, Rubbish, Rail, Clearing on Edge

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	1%	1-3m	WR116.01
<i>Acacia longiphylloidea</i>	8%	1-4m	WR121.06
<i>Acacia sibina</i>	1%	3m	WR102.02
<i>Austrostipa elegantissima</i>	4%	0.2m	WR103.20
<i>Baekkea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	1%	0.5-1m	WR126.08
<i>Calytrix depressa</i>	+	0.1m	WR114.02
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR101.16
<i>Dampiera spicigera</i>	+	0.3m	WR126.03
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR108.19
<i>Eremophila georgei</i>	2%	1-2m	WR126.01
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Glischrocaryon aureum</i>	+	0.4m	WR126.10
<i>Gnephosis angianthoides</i>	+	0.1m	WR126.15
<i>Goodenia havilandii</i>	+	0.5m	WR126.04
<i>Goodeniaceae</i> sp.	+	0.1m	WR126.14
<i>Grevillea paradoxa</i>	3%	2-2.5m	WR126.06
<i>Hibbertia hypericoides</i>	1%	0.5-1m	WR126.09
* <i>Hypochaeris glabra</i>	+	0.2m	WR120.05
<i>Micromyrtus prochytes</i>	3%	1m	WR126.07
<i>Mirbelia longifolia</i>	6%	1-1.5m	WR126.12
<i>Pimelea angustifolia</i>			WR126.04b
<i>Pimelea angustifolia</i>	+	0.6m	WR126.05
<i>Pogonolepis stricta</i>	+	0.1m	WR100.02
<i>Rhodanthe spicata</i>	+	0.1m	WR102.14
<i>Ricinocarpos muricatus</i>	1%	1m	WR126.02
<i>Scaevola anchlussifolia</i>	+	0.3m	WR126.11

<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.2m	WR101.02
<i>Stylidium elongatum</i>	+	0.2m	WR126.13
<i>Thysanotus manglesianus</i>	+	0.5m	WR13.04
<i>Velleia rosea</i>	+	0.2m	WR101.14
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR127

Described by Hayden Ajduk **Date** 21/09/2010 **Type** Quadrat **Size** 10m x 40m

Location Mullewa to Morowa

MGA Zone 50J **388645 mE** **6803082 mN**

Habitat Plain

Soil Orange red brown loam with pebbles

Rock Type Granite and Laterite

Vegetation Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia*

acuminata and *Melaleuca uncinata* over Low Open Shrubland of *Astroloma serratifolium*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 60%
 Litter Cover: 5% Logs, 5% Twigs, 30% Lvs.
 Disturbance: Track, Clearing, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	1%	4m	WR116.01
<i>Acacia brumalis</i>	+	0.6m	WR127.04
<i>Astroloma serratifolium</i>	2%	0.5-1.5m	WR103.04
<i>Austrostipa elegantissima</i>	+	0.3m	WR103.20
<i>Austrostipa elegantissima</i>	+	0.3m	WR127.02
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR100.17
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	40%	4-6m	WR111.01
<i>Lomandra effusa</i>	+	0.4m	WR127.01
<i>Melaleuca uncinata</i>	1%	4m	WR119.12
<i>Rhagodia drummondii</i>	+	0.3m	WR127.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR128

Described by Emma Carroll **Date** 21/09/2010 **Type** Quadrat **10m x 40m**

Location Mullewa to Morowa

MGA Zone 50J **390695 mE** **6801023 mN**

Habitat Lower Slope

Soil Light Orange Clayey Loam with Cobbles and Pebbles

Rock Type Granite, Laterite

Vegetation Tall Shrubland of *Acacia sibina*, *Acacia ramulosa* var. *ramulosa*, *Allocasuarina campestris*, *Acacia acuminata* and *Melaleuca atroviridis* over Low Open Shrubland of *Melaleuca cordata*, *Acacia acuarria* and *Myrtaceae* sp.

Veg Condition Good

Fire Age Old

Notes Aspect: South
Topography: Hill slope
Bare Ground: 60%
Litter Cover: 1% Logs, 3% Twigs, 1% Lvs.
Disturbance: Track, Rail, Clearing, Soil Piles.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuarria</i>	1%	1m	WR128.07
<i>Acacia acuminata</i>	1%	2.5m	WR103.08
<i>Acacia ramulosa</i> var. <i>ramulosa</i>	6%	1-3m	WR128.04
<i>Acacia sibina</i>	10%	2-3m	WR102.02
<i>Allocasuarina campestris</i>	4%	2-4m	WR121.01
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Austrostipa elegantissima</i>	+	0.3m	WR103.20
<i>Austrostipa elegantissima</i>	+	0.3m	WR107.31
<i>Calandrinia eremaea</i>	+	0.1m	WR128.11
<i>Cassylia glabella</i> forma <i>dispar</i>	+	CR	WR103.12
<i>Cryptandra apetala</i> var. <i>apetala</i>	+	0.6m	WR128.08
<i>Dampiera lavandulacea</i>	+	0.3m	WR128.05
<i>Grevillea granulosa</i>	+	0.6m	WR128.01
<i>Grevillea paradoxa</i>	+	1m	WR126.06
<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>	+	1m	WR128.12
<i>Melaleuca atroviridis</i>	2%	1-3m	WR128.09
<i>Melaleuca cordata</i>	4%	0.5-1m	WR119.17
* <i>Mesembryanthemum crystallinum</i>	+	0.1m	WR128.10
MYRTACEAE sp.	2%	0.4m	WR128.02
<i>Petrophile conifera</i>	+	1.2m	WR128.06
<i>Podotheca angustifolia</i>	+	0.2m	WR100.21
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.2m	WR110.14
<i>Rhodanthe spicata</i>	+	0.1m	WR102.14
<i>Thryptomene cuspidata</i>	+	1m	WR128.03
<i>Thysanotus manglesianus</i>	+	0.4m	WR124.16
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Trachymene ornata</i>	+	0.2m	WR103.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WR129

Described by Emma Carroll **Date** 21/09/2010 **Type** Quadrat 10m x 40m

Location Mullewa to Morowa

MGA Zone 50J 403722 mE 6773394 mN

Habitat Plain

Soil Light cream brown sandy loam with slight clay

Rock Type Quartz and Laterite

Vegetation Open Shrubland of *Acacia coolgardiensis* subsp. *coolgardiensis*, *Grevillea obliquistigma* subsp.

funicularis and *Senna charlesiana* over Very Open Grassland of *Austrostipa elegantissima*

Veg Condition Very good to good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 75%

Litter Cover: 2% Logs, 3% Twigs, 1% Lvs.

Disturbance: Track,Rail, Clearing, Possible Salinity

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia coolgardiensis</i> subsp. <i>coolgardiensis</i>	15%	1-3m	WR129.01
<i>Acacia dielsii</i>	1%	0.8m	WR129.03
<i>Austrostipa elegantissima</i>	+	0.4m	WR129.08
<i>Austrostipa elegantissima</i>	2%	0.2m	WR103.20
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.4m	WR129.07
<i>Chamelaucium pauciflorum</i>	+	0.4m	WR129.12
<i>Dampiera lavandulacea</i>	1%	0.3m	WR128.05
<i>Darwinia diosmoides</i>	+	0.3m	WR129.10
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Ecdeiocolea monostachya</i>	+	0.2m	WR129.04
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR100.17
<i>Grevillea granulosa</i>	+	0.4m	WR129.11 2
individuals			
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	5%	1-1.5m	WR129.02
<i>Maireana tomentosa</i>	+	0.2m	WRR106.04
* <i>Monoculus monstrosus</i>	+		WR100.16
<i>Rhodanthe spicata</i>	+	0.1m	WR102.14
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Senna charlesiana</i>	1%	1.2m	WR129.05
<i>Solanum lasiophyllum</i>	+	0.2m	WR101.02
<i>Thyridolepis multiculmis</i>	+	0.3m	WR129.06
<i>Thysanotus manglesianus</i>	+	CR	WR129.09
<i>Trachymene cyanopetala</i>	+	0.1m	WR100.12
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WR13

Described by Kellie McMaster **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **307504 mE** **6823512 mN**

Habitat Sand Dune (Crest)

Soil Pale Yellow Sand (Nearly White)

Rock Type N/A

Vegetation Tall Shrubland of *Acacia rostellifera* over Open Shrubland of *Acacia saligna*, *Grevillea candelabroides*, *Allocasuarina campestris* and *Rhagodia drummondii* over Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora** over Very Open Sedgeland of *Dianella revoluta* var. *divaricata* and *Ecdeiocolea monostachya* over Very Open Herbalnd of **Arctotheca calendula* and **Vulpia myuros**

Veg Condition Good to Very Good

Fire Age Old

Notes Aspect: South West to South East
 Topography: Sand Dune (Crest)
 Bare Ground: 35%
 Litter Cover: <1% Logs, 5% Twigs, 30% Lvs.
 Disturbance: Weeds, Nearby Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia latipes</i> subsp. <i>latipes</i>	ADJ	0.6m	WR13.15
<i>Acacia rostellifera</i>	20%	4m	WR13.01
<i>Acacia saligna</i>	1%	1.7m	WR13.03
<i>Acanthocarpus preissii</i>	+	0.4m	WR03.10
<i>Allocasuarina campestris</i>	1%	1.2m	WR13.09
<i>*Anagallis arvensis</i>	+	0.05m	WR04.06
<i>*Arctotheca calendula</i>	1%	0.1m	WR04.01
<i>Austrostipa elegantissima</i>	10%	0.7m	WR02.30
<i>*Briza maxima</i>	+	0.2m	NC
<i>Cassutha glabella</i> forma <i>dispar</i>	+	CL	WR13.12
<i>Comesperma integerrimum</i>	+	CL	WR13.14
<i>Conostylis robusta</i>	+	0.3m	WR13.05
<i>Desmocladius asper</i>	+	0.2m	WR13.02
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.6m	WR06.17
<i>Diuris corymbosa</i>	+	0.15m	NC
<i>Ecdeiocolea monostachya</i>	1%	0.6m	WR08.02
<i>*Ehrharta longiflora</i>	5%	0.6m	WR02.23
<i>Gnephosis angianthoides</i>	+	0.05m	WR11.34
<i>Goodenia berardiana</i>	+	0.1m	WR06.03
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	1%	0.4m	WR09.01
<i>Grevillea candelabroides</i>	1%	1.8m	WR11.26
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	2.5m	WR13.06
<i>Jacksonia ramulosa</i> MS	+		WR11.17
<i>Jacksonia rigida</i>	+	0.5m	WR13.11
<i>Maireana georgei</i>	+	0.6m	WR13.08

<i>*Monoculus monstrosus</i>	+	0.1m	WR04.28
<i>*Moraea setifolia</i>	+		WR12.24
<i>*Pentaschistis airoides</i>	+	0.05m	WR05.01
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Ptilotus polystachyus</i>	+	0.3m	WR06.07
<i>Rhagodia drummondii</i>	1%	1.2m	WR11.30
<i>Rhagodia drummondii</i>	1%	0.6m	WR13.07
<i>Thysanotus manglesianus</i>	+	CL	WR13.04
<i>Trachymene ornata</i>	+	0.1m	WR10.26
Unknown	+	0.8m	WR13.13
<i>*Urospermum picroides</i>	+		WR06.08
<i>*Vulpia myuros</i>	1%	0.10m	WR13.10

Westnet Rail Site WR14

Described by Hayden Ajduk **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **306523 mE** **6822489 mN**

Habitat Sandplain

Soil Pale Yellow Sand

Rock Type

Vegetation Tall Open Shrubland of *Acacia rostellifera* over Shrubland of *Acacia brumalis*, *Allocasuarina campestris*, *Acacia sessilis*, *Grevillea candelabroides* and *Grevillea amplexans* subsp. *amplexans* over

Low Open Shrubland of *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima* and *Aristida holathera* var. *holathera*

Veg Condition Very Good

Fire Age

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 25%
 Litter Cover: 1% Logs, <30% Twigs, 30% Lvs.
 Disturbance: Weeds, Grazing History?, Rabbits

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia brumalis</i>	7%	1.8m	WR14.07
<i>Acacia rostellifera</i>	7%	2m	WR13.01
<i>Acacia sessilis</i>	1-2%	1.1m	WR14.01
<i>Allocasuarina campestris</i>	1%	1.6m	WR02.19
* <i>Anagallis arvensis</i>	+	0.05m	WR04.06
* <i>Arctotheca calendula</i>	+	0.05m	WR04.01
<i>Aristida holathera</i> var. <i>holathera</i>	1%	0.2m	WR11.03
<i>Austrostipa elegantissima</i>	10%	0.6m	WR09.05
<i>Brachyscome ciliaris</i>	+	0.1m	WR12.07
* <i>Briza maxima</i>	+	0.3m	NC
<i>Caladenia longicauda</i> subsp. <i>borealis</i>	ADJ	0.25m	NC
<i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>	ADJ	1.5m	WR14.09
<i>Comesperma integerrimum</i>	+	CL	WR14.05
<i>Commersonia gaudichaudii</i>	1%	0.4m	WR14.06
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.7m	WR06.17
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	+	1.1m	WR14.02
<i>Ecdeiocolea monostachya</i>	+	0.6m	WR08.02
* <i>Ehrharta longiflora</i>	+	0.3m	WR02.23
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	1-2%	0.5-1.2m	WR09.01
<i>Grevillea candelabroides</i>	1%	1.3m	WR11.26
<i>Haemodorum simulans</i>	+	0.4m	WR04.30
<i>Jacksonia rigida</i>	+	0.8m	WR13.11
<i>Keraudrenia hermanniifolia</i>	1-2%	0.4m	WR09.08
<i>Maireana georgei</i>	+	0.5m	WR13.08
<i>Malleostemon hursthousei</i>	+	1.1m	WR14.08
<i>Neurachne alopecuroidea</i>	+	0.3m	WR11.11
* <i>Pentaschistis airoides</i>	+	0.05m	WR05.01

<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	1m	WR14.04
<i>Schoenus pedicellatus</i>	+	0.05m	WR02.35
<i>Stylidium elongatum</i>	+	0.3m	WR14.03
* <i>Ursinia anthemoides</i>	+	0.2m	WR08.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.05m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.05m	WR02.07

Westnet Rail Site WR15

Described by Kellie McMaster **Date** 17/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Morawa

MGA Zone 50J **305262 mE** **6821371 mN**

Habitat Sandplain

Soil Pale Yellow Sand

Rock Type

Vegetation Open Heath of *Acacia blakelyi* and *Acacia rostellifera* over Low Open Shrubland of *Conospermum stoechadis* subsp. *Stoechadis* and *Grevillea amplexans* subsp. *Amplexans*

Veg Condition Excellent

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 40%
 Litter Cover: <1% Logs, 20% Twigs, 20% Lvs.
 Disturbance: N/A

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia blakelyi</i>	30%	1.2m	WR15.10
<i>Acacia comans</i>	+	0.4m	WR15.49
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>	+	0.5m	WR15.26
<i>Acacia latipes</i> subsp. <i>latipes</i>	+	0.4m	WR15.51
<i>Acacia rostellifera</i>	10%	1.2m	WR15.09
<i>Acanthocarpus preissii</i>	+	0.4m	WR03.10
<i>Allocasuarina humilis</i>	+	0.4m	WR15.45
<i>Amphipogon turbinatus</i>	+	0.3m	WR15.04
<i>Arthropodium dyeri</i>	+	0.15m	WR15.07
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WR15.42
<i>Banksia attenuata</i>	+	2.2m	WR15.56
<i>Banksia prionotes</i>	+	1.3m	WR15.55
<i>Banksia scabrella</i>	+	0.4m	WR15.22
<i>Beaufortia squarrosa</i>	+	0.5m	WR15.38
<i>Beaufortia squarrosa</i>	+	0.5m	WR15.36
<i>Brachyloma pirara</i>	+	0.6m	WR15.39
<i>Burchardia congesta</i>	+	0.4m	WR15.33
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	5%	0.7m	WR15.11
<i>Conostylis prolifera</i>	+	0.3m	WR15.03
<i>Conostylis robusta</i>	1%	0.4m	WR15.02
<i>Dampiera lavandulacea</i>	+	0.3m	WR15.18
<i>Dampiera spicigera</i>	+	0.2m	WR15.21
<i>Desmocladius fasciculatus</i>	+	0.2m	WR15.27
<i>Diplopeltis huegelii</i> subsp. <i>subintegra</i>	OUT	1.2m	WR15.31
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.05m	WR15.06
<i>Eremaea acutifolia</i>	+	0.7m	WR15.37
<i>Eucalyptus pyriformis</i>	OUT	2-5m	WR15.54
<i>Gahnia trifida</i>	+	0.4m	WR15.23
<i>Glischrocaryon aureum</i>	+	0.4m	WR15.32
<i>Gompholobium tomentosum</i>	+	0.4m	WR15.15
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	1%		WR09.01

<i>Grevillea candelabroides</i>	+	0.6m	WR11.26
<i>Hakea polyanthema</i>	+	0.5m	WR15.52
<i>Hibbertia desmophylla</i>	+	0.4m	WR15.17
<i>Hibbertia hypericoides</i>	+	0.3m	WR15.47
<i>Hibbertia hypericoides</i>	+	0.4m	WR15.16
Indeterminate	+	0.4m	WR15.50
Indeterminate	+	0.2m	WR15.53
Indeterminate	+	0.8m	WR15.44
Indeterminate	+	0.15m	WR15.13
<i>Isotropis drummondii</i>	+	0.10m	WR15.05
<i>Lachnostachys eriobotrya</i>	+	0.8m	WR15.01
<i>Lepidosperma longitudinale</i>	+	0.4m	WR15.48
<i>Melaleuca depressa</i>	+	0.5m	WR15.46
<i>Melaleuca leuropoma</i>	+	0.5m	WR15.34
<i>Melaleuca leuropoma</i>	+	0.5m	WR15.35
<i>Mesomelaena pseudostygia</i>	+	0.15m	WR15.14
<i>Mesomelaena pseudostygia</i>	+	0.25m	WR15.08
<i>Monadenia bracteata</i>	+	0.2m	WR15.29
<i>Polianthion wichurae</i> (Reissek) K.R. Thiele	+	0.25m	WR15.19
<i>Rulingia densiflora</i>	+	0.2m	WR15.25
<i>Scaevola anchusifolia</i>	+	0.3m	WR15.24
<i>Stirlingia latifolia</i>	+	0.3m	WR15.20
<i>Stylidium adpressum</i>	+	0.05m	WR15.41
<i>Stylidium crossocephalum</i>	+	0.25m	WR15.12
<i>Stylidium leptophyllum</i>	+	0.05m	WR15.40
<i>Thryptomene denticulata</i>	+	0.6m	WR15.30
<i>Thysanotus patersonii</i>	+	CL	WR15.43
<i>Verticordia densiflora</i> var. <i>stelluligera</i>	+	0.4m	WR15.28

Westnet Rail Site WR16

Described by James Sansom **Date** 19/09/2010 **Type** Quadrat 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J 304663 mE 6820982 mN

Habitat Sandy Mid Upper Slope

Soil Sand

Rock Type

Vegetation Low Open Woodland of *Xylomelum angustifolium* and *Scholtzia oligandra* over Shrubland of

Allocasuarina campestris, *Acacia blakelyi* and *Conospermum boreale* subsp. *Ascendens* over Low

Open Shrubland of *Olearia dampieri*, *Acanthocarpus preissii* and *Glischrocaryon aureum*

Veg Condition Good to Very Good

Fire Age Very Old

Notes Aspect: South to South East
 Topography: Mid Upper Slope
 Bare Ground: 25%
 Litter Cover: 1% Logs, 35% Twigs, 15% Lvs.
 Disturbance: Old Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia blakelyi</i>	5%	1.5m	WR15.10
<i>Acacia latipes</i> subsp. <i>latipes</i>	+	0.6m	WR16.17
<i>Acanthocarpus preissii</i>	1%	0.6m	WR11.31
<i>Allocasuarina campestris</i>	6%	1.5m	WR10.12
<i>Alyogyne wrayae</i>	+	0.6m	WR16.19
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	+	0.2m	WR16.10
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.4m	WR16.15
<i>Banksia prionotes</i>	4%	1.6m	WR16.01
<i>Bonamia rosea</i>	+	0.2m	WR12.11
* <i>Briza maxima</i>	+	0.2m	NC
<i>Burchardia congesta</i>	+	.4m	WR15.33
<i>Conospermum boreale</i> subsp. <i>ascendens</i>	5%	1.8m	WR16.09
<i>Conostylis robusta</i>	1%	0.4m	WR15.02
<i>Ecdeiocolea monostachya</i>	+	1.2m	WR16.05
<i>Eragrostis</i> sp.	+	0.7m	WR02.50
<i>Glischrocaryon aureum</i>	1%	0.5m	WR16.02
<i>Grevillea amplexans</i> subsp. <i>amplexans</i>	+	0.5m	WR09.01
<i>Grevillea</i> sp.	+	0.8m	WR16.11
<i>Hibbertia desmophylla</i>	+	0.4m	WR16.06
<i>Hibbertia desmophylla</i>	+	0.5m	WR16.08
<i>Hibbertia hypericoides</i>	+	0.6m	WR16.07
* <i>Hypochaeris glabra</i>	+	0.2m	WR11.25
Indeterminate	+	0.2m	WR15.53
<i>Lechenaultia linarioides</i>	+	0.6m	WR04.19
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>	+	0.4m	WR16.04
<i>Lepidosperma brunonianum</i>	+	0.6m	WR16.16
<i>Mesomelaena pseudostygia</i>	1%	0.5m	WR16.03
* <i>Monoculus monstrosus</i>	+	0.4m	WR04.28

<i>Olearia dampieri</i>	1%	0.6m	WR16.12
<i>Rhagodia drummondii</i>	+	0.5m	WR11.30
<i>Scaevola canescens</i>	+	0.3m	WR16.14
<i>Scholtzia oligandra</i>	2%	3m	WR16.18
<i>Thysanotus manglesianus</i>	+	CR	WR13.04
<i>Trachymene cyanopetala</i>	+	0.1m	WR16.13
<i>Verticordia densiflora</i> var. <i>stelluligera</i>	+	0.7m	WR15.28
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07
<i>Xylomelum angustifolium</i>	1%	3m	WR04.21

Westnet Rail Site WR17

Described by James Sansom **Date** 19/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton To Mullewa

MGA Zone 50J **300948 mE** **6822114 mN**

Habitat Drainage Line

Soil Clayey Sand

Rock Type

Vegetation Low Open Forest of *Eucalyptus camaldulensis* over Open Shrubland of *Acacia saligna* and *Banksia*

sessilis var. *flabellifolia* over Low Open Shrubland of *Hakea trifurcata*, *Acacia rostellifera* and *Acacia*

tetragonophylla over Very Open Grassland of *Ehrharta longiflora*, *Austrostipa elegantissima* and

Briza maxima

Veg Condition Good to Very Good

Fire Age Very Old

Notes Aspect: N/A
Topography: Drainage Line
Bare Ground: 35%
Litter Cover: 1% Logs, 10% Twigs, 50% Lvs.
Disturbance: Drainage Line, Erosion, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia restiacea</i>	+	0.5m	WR17.15
<i>Acacia rostellifera</i>	2%	0.8m	WR17.16
<i>Acacia saligna</i>	2%	1.2m	WR17.17
<i>Acacia tetragonophylla</i>	1%	0.7m	NC
<i>Acacia tetragonophylla</i>	+	0.4m	WR09.02
<i>Amyema fitzgeraldii</i>	+		WR12.15
<i>Austrostipa elegantissima</i>	1%	0.7m	WR02.30
<i>Briza maxima</i>	1%	0.3m	NC
<i>Comesperma integerrimum</i>	+	CR	WR17.03
<i>Dampiera spicigera</i>	+	0.3m	WR17.10
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.5m	WR06.17
<i>Diuris corymbosa</i>	+	0.4m	WR17.06
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	1%	1.2m	WRR02.02
<i>Ehrharta longiflora</i>	2%	0.5m	WR02.23
<i>Eucalyptus camaldulensis</i>	10%	8m	WR17.13
<i>Eucalyptus camaldulensis</i>	20%	6m	WR17.14
<i>Gastrolobium oxylobioides</i>	+	0.6m	WR17.07
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	2m	WR13.06
<i>Hakea trifurcata</i>	3%	0.8m	WR17.01
<i>Hypochaeris glabra</i>	+	0.1m	WR11.25
<i>Juncus radula</i>	+	0.4m	WR17.12
<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>	+	0.7m	WR17.08
<i>Maireana georgei</i>	+	0.3m	WR13.08
<i>Neurachne alopecuroidea</i>	+	0.2m	WR11.11
<i>Olearia dampieri</i>	+	0.6m	WR17.11
<i>Opercularia vaginata</i>	+	0.3m	WR17.09
<i>Podolepis capillaris</i>	+	0.2m	WR04.02

<i>Podotheca angustifolia</i>	+	0.2m	WR04.05
<i>Rhagodia drummondii</i>	+	0.6m	WR17.05
<i>Rhagodia drummondii</i>	+	0.6m	WR11.30
<i>Scaevola virgata</i>	+	0.3m	WR17.02
<i>Stylidium elongatum</i>	+	0.4m	WR17.04
<i>Thysanotus manglesianus</i>	+	CR	WR13.04
* <i>Ursinia anthemoides</i>	+	0.2m	WR08.08

Westnet Rail Site WR18

Described by Hayden Ajduk **Date** 20/09/2010 **Type** Quadrat **50mx50m**

Location Geraldton to Mullewa

MGA Zone 50J **302685 mE** **6821509 mN**

Habitat Sandplain

Soil White Sand

Rock Type

Vegetation Closed Heath of *Scholtzia oligandra*, *Acacia saligna* and *Grevillea candelabroides* over Low Open

Shrubland of *Banksia fraseri* var. *ashbyi*, *Hakea trifurcata*, *Maireana georgei* and *Jacksonia ramulosa*

over Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta calycina*

Veg Condition Very Good

Fire Age Very Old

Notes Aspect: South
Topography: Sandplain
Bare Ground: 25%
Litter Cover: <1% Logs, 20% Twigs, 30% Lvs.
Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia idiomorpha</i>	+	0.6m	WR18.02
<i>Acacia restiacea</i>	+	0.5m	WR17.15
<i>Acacia saligna</i>	5%		WR18.11
<i>Anigozanthos</i> sp.	+	0.2m	NC
<i>*Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Aristida holathera</i> var. <i>holathera</i>	+	0.4m	WR18.03
<i>Austrostipa elegantissima</i>	2%	0.8m	WR02.30
<i>Brachyscome ciliaris</i>	+	0.01m	WR12.07
<i>*Brassica napus</i>	+	0.5m	WR02.22
<i>*Briza maxima</i>	+	0.2m	NC
<i>Calandrinia eremaea</i>	+	0.05m	WR18.07
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.05m	WR18.04
<i>Comesperma integerrimum</i>	+	CR	WR17.03
<i>Conostylis prolifera</i>	+	0.3m	WR15.03
<i>Conostylis prolifera</i>	+	0.3m	WR18.10
<i>Desmocladus asper</i>	+	0.2m	WR18.08
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR06.17
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.05m	WR18.05
<i>Dryandra fraseri</i> var. <i>ashbyi</i>	2%	0.5m	WR18.09
<i>*Echium plantagineum</i>	+	0.5m	WRR03.03 Outside
<i>*Ehrharta calycina</i>	1%	0.5m	WRR03.01
<i>*Ehrharta longiflora</i>	+	0.7m	WR02.23
<i>Grevillea candelabroides</i>	1%	1m	WR11.26
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	1m	WR13.06
<i>Hakea trifurcata</i>	1%	0.8m	WR17.01
<i>*Hypochaeris glabra</i>	+	0.1m	WR11.25
<i>Jacksonia ramulosa</i> MS	1%	0.5m	WR11.17
<i>Maireana georgei</i>	1%	0.6m	WR13.08
<i>Malleostemon hursthousei</i>	+	0.7m	WR18.01

<i>Neurachne alopecuroidea</i>	+		WR11.11
<i>Podolepis capillaris</i>	+	0.2m	WR04.02
<i>Podotheca angustifolia</i>	+	0.2m	WR04.05
<i>Ptilotus polystachyus</i>	+	0.3m	WR06.07
<i>Rhagodia drummondii</i>	+	1m	WR11.30
<i>Schoenus pedicellatus</i>	+	0.1m	WR02.35
<i>Scholtzia oligandra</i>	75%	1.8m	WR16.18
<i>Sowerbaea laxiflora</i>	+	0.2m	WR18.06
<i>Trachymene cyanopetala</i>	+	0.1m	WR11.16
<i>Trachymene ornata</i>	+	0.1m	WR10.26
* <i>Ursinia anthemoides</i>	+	0.3m	WR08.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR19

Described by James Sansom **Date** 20/09/2010 **Type** Quadrat 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J 311495 **mE** 6824847 **mN**

Habitat Slight Slope and Clay Pan

Soil Clayey Sand

Rock Type

Vegetation Low Woodland of *Eucalyptus loxophleba* subsp. *supralaevis* over Low Open Shrubland of *Rhagodia drummondii*, *Scaevola spinescens*, *Melaleuca uncinata* and *Sclerolaena diacantha*

Veg Condition Very Good

Fire Age Very Old

Notes Aspect: West North West
 Topography: Slight Slope and Clay Pan
 Bare Ground: 45%
 Litter Cover: <1% Logs, 27% Twigs, 27% Lvs.
 Disturbance: Adjacent to Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	+	0.5m	WR19.02
<i>Acacia acuminata</i>	+		WR19.02
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Austrostipa elegantissima</i>			WR02.30
<i>Brachyscome ciliaris</i>	+	0.1m	WR12.07
<i>Calandrinia polyandra</i>	+	0.1m	WR19.01
<i>Clematicissus angustissima</i>	+	CR	WR19.05
<i>Convolvulus remotus</i>		CR	WR19.08
<i>Dioscorea hastifolia</i>	+	CR	WR12.04
* <i>Ehrharta longiflora</i>	+	0.5m	WR02.23
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	25%	6m	WR19.12
<i>Melaleuca uncinata</i>	1%	0.6m	WR19.03
* <i>Monoculus monstrosus</i>	+	0.3m	WR04.28
<i>Olearia dampieri</i>		0.6m	WR17.11
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
* <i>Portulaca oleracea</i>	+	0.1m	WR19.11
<i>Ptilotus divaricatus</i>	+	0.6m	WR19.09
<i>Rhagodia drummondii</i>	4%	0.3m	WR19.04
<i>Scaevola spinescens</i>	2%	0.6m	WR11.08
<i>Sclerolaena diacantha</i>	1%	0.1m	WR19.10
<i>Solanum lasiophyllum</i>		0.7m	WR19.07
<i>Stylobasium australe</i>	+	0.5m	WR19.06
<i>Thysanotus manglesianus</i>	+	CR	WR13.04
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07

Westnet Rail Site WR20

Described by Kellie McMaster **Date** 21/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **297401 mE** **6821922 mN**

Habitat Plain

Soil Grey - White Sand

Rock Type

Vegetation Tall Shrubland of *Acacia xanthina* over Open Heath of *Acacia brumalis*, *Acacia rostellifera* and *Rhagodia preissii* subsp. *Obovata* over Low Open Shrubland of *Lechenaultia linarioides* and *Jacksonia ramulosa*

Veg Condition Excellent

Fire Age Moderate

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 5%
 Litter Cover: <1% Logs, 5% Twigs, 90% Lvs.
 Disturbance: Adjacent to Highway and Railway, Few Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia brumalis</i>	50%	1.5m	WR20.01	F
<i>Acacia pulchella</i>	+	0.2m	WR20.05	
<i>Acacia rostellifera</i>	1%	1.5m	WR20.02	
<i>Acacia xanthina</i>	15%	2-3m	WR20.03	
<i>Conostylis robusta</i>	+	0.3m	WR15.02	
<i>Daviesia divaricata</i>	+	0.5m	WR20.09	
* <i>Ehrharta calycina</i>	+	0.3m	WRR03.01	
* <i>Ehrharta longiflora</i>	+	0.6m	WR02.23	
<i>Gompholobium tomentosum</i>	+	0.4m	WR20.13	
<i>Hibbertia hypericoides</i>	+	0.4m	WR20.10	
Indeterminate	4%	1.5m	WROPKM02	F
<i>Jacksonia ramulosa</i> MS	3%	0.4m	WR11.17	F
<i>Lechenaultia linarioides</i>	3%	0.8m	WR04.19	F
<i>Melaleuca leuropoma</i>	+	0.3m	WR20.12	
<i>Muehlenbeckia adpressa</i>	+	CL	WR20.04	
* <i>Pennisetum setaceum</i>	+	0.4m	WRR02.05	
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	1%	1m	WR20.08	
<i>Scaevola canescens</i>	+	0.6m	WR20.06	
<i>Scaevola canescens</i>	+	0.2m	WR20.07	
<i>Thysanotus manglesianus</i>	+	CL	WR13.04	
Unknown	+	0.1m	WR20.11	

Westnet Rail Site WR21

Described by Kellie McMaster **Date** 21/07/2009 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **293469 mE** **6822245 mN**

Habitat Crest of Low Hill

Soil Grey White Sand with Lateritic Gravel

Rock Type

Vegetation Tall Open Shrubland of *Banksia sessilis* var. *flabellifolia* over Shrubland of *Acacia blakelyi* and *Hakea*

trifurcata over Open Low Heath of *Dampiera spicigera* and *Opercularia vaginata* over

Very Open

Grassland of *Austrostipa elegantissima*, **Pennisetum setaceum* and **Briza maxima* over

Very Open

Herbland of *Acanthocarpus preissii*, *Burchardia congesta* and *Haemodorum simulans*

Veg Condition Very Good

Fire Age Old

Notes Aspect: North
 Topography: Crest of Low Hill
 Bare Ground: 1%
 Litter Cover: <1% Logs, <1% Twigs, <1% Lvs.
 Disturbance: Some Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia blakelyi</i>	8%		WR21.15	
<i>Acacia ericifolia</i>		1m	WR21.16	
<i>Acacia tetragonophylla</i>	+	1.3m	NC	
<i>Acacia xanthina</i>	Out	1.6m	WR20.03	
<i>Acanthocarpus preissii</i>	1%	0.5m	WR03.10	
<i>*Arctotheca calendula</i>	+	0.1m	WR04.01	
<i>Austrostipa elegantissima</i>	5%	0.6m	WR02.30	
<i>Brachyscome ciliocarpa</i>	+	0.1m	WR21.01	F
<i>*Briza maxima</i>	1%	0.2m	NC	
<i>Burchardia congesta</i>	1%	0.3m	WR15.33	
<i>Caesia micrantha</i>	+	0.3m	WR21.02	
<i>Caustis dioica</i>	+	0.4m	WR21.11	F
<i>Dampiera lindleyi</i>	+	0.4m	WROPKM42	
<i>Dampiera spicigera</i>	40%	0.2m	WR21.09	F
<i>Desmocladius asper</i>	+	0.2m	WR18.08	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR06.17	
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	8%	3m	WRR02.02	
<i>*Ehrharta longiflora</i>	+	0.6m	WR02.23	
<i>Gompholobium tomentosum</i>	+	0.3m	WR20.13	
<i>Haemodorum simulans</i>	1%	0.4m	WR04.30	
<i>Hakea trifurcata</i>	4%	1.3m	WR17.01	
<i>Hibbertia hypericoides</i>	+	0.5m	WR21.10	F
<i>*Hypochaeris glabra</i>	+	0.1m	WR11.25	
<i>Lepidosperma scabrum</i>	+	0.5m	WR21.06	F
<i>Leptosema aphyllum</i>	+	0.2m	WR21.07	
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.4m	WR21.13	Fruit
<i>Muehlenbeckia adpressa</i>	+	0.3m	WR20.04	F

<i>Neurachne alopecuroidea</i>	+	0.6m	WR11.11	
<i>Olearia dampieri</i>	+	0.7m	WR17.11	
<i>Opercularia vaginata</i>	20%		WR21.14	
* <i>Pennisetum setaceum</i>	1%	0.5m	WRR02.05	
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01	
<i>Pimelea imbricata</i> var. <i>piligera</i>	+	0.3m	WR21.12	F
<i>Schoenus pedicellatus</i>	+	0.1m	WR02.35	
<i>Solanum oldfieldii</i>	+	0.3m	WR21.08	F
<i>Sowerbaea laxiflora</i>	+	0.2m	WR18.06	
<i>Stylidium elongatum</i>	+	0.3m	WR21.03	F
<i>Stylidium elongatum</i>	+	0.3m	WR21.04	F
<i>Stylidium elongatum</i>	+	0.3m	WR21.05	F
<i>Thysanotus manglesianus</i>	+	CL	WR13.04	F
<i>Trachymene ornata</i>	+	0.1m	WR10.26	
<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)	+	0.4m	WR21.17	F
* <i>Ursinia anthemoides</i>	+	0.3m	WR08.08	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.07	

Westnet Rail Site WR22

Described by Kellie McMaster **Date** 21/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J **280513 mE** **6813571 mN**

Habitat Sand Dune / Sand Pile Adjacent to Sand Quarry

Soil Pale Yellow Sand

Rock Type

Vegetation Tall Open Scrub of *Acacia prainii*, *Acacia rostellifera* and *Acacia acuminata* over Low Shrubland of

Grassland of *Scholtzia leptantha*, *Rhagodia preissii* subsp. *obovata* and *Grevillea biternata* over Open

Eragrostis curvula*, *Ehrharta longiflora*, ***Ehrharta calycina*, ***Briza maxima* and ***Pennisetum setaceum*

Veg Condition Degraded

Fire Age Old

Notes Aspect: ??

Topography: Sand Dune / Sand Pile

Bare Ground: 10%

Litter Cover: 3% Logs, 5% Twigs, 70% Lvs.

Disturbance: Rubbish, Weeds, Adjacent to Track, Tracks in the Quadrat, Adjacent to

Quarry

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	1%	2.5m	WR19.02
<i>Acacia prainii</i>	35%	3m	WR22.05
<i>Acacia rostellifera</i>	1%	2.5m	WR22.02
<i>Acacia saligna</i>	+	1.2m	WR22.03
<i>Austrostipa elegantissima</i>	1%	0.8m	WR09.05
<i>Austrostipa elegantissima</i>	+	0.6m	WR02.30
<i>*Brassica napus</i>	+	0.6m	WR02.22
<i>*Briza maxima</i>	5%	0.2m	NC
<i>Corynotheca micrantha</i> var. <i>acanthoclada</i>	1%	0.1m	WR22.07
<i>*Ehrharta calycina</i>	1%	0.7m	WRR03.01
<i>*Ehrharta longiflora</i>	5%	0.5m	WR02.23
<i>*Eragrostis curvula</i>	5%	1.1m	WR22.06
<i>Grevillea biternata</i>	2%	0.6m	WR22.04
<i>Haemodorum simulans</i>	+	0.6m	WR04.30
<i>*Hypochaeris glabra</i>	+	0.6m	WR11.25
<i>*Hypochaeris glabra</i>	+	0.3m	WR11.25
<i>Jacksonia ramulosa</i> MS	+	0.6m	WR11.17
<i>Maireana georgei</i>	+	0.9m	WR13.08
<i>*Monoculus monstrosus</i>	+	0.2m	WR04.28
<i>*Pennisetum setaceum</i>	2%	0.5m	WRR02.05
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	1.3m	WR14.04
<i>Ptilotus polystachyus</i>	+	0.6m	WR06.07
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	1%	0.6m	WR22.08
<i>Scholtzia leptantha</i>	10%	0.5-1m	WR22.01
<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)	+	CL	WR21.17
<i>*Ursinia anthemoides</i>	+	0.2m	WR08.08

Westnet Rail Site WR23

Described by James Sansom **Date** 22/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Geraldton to Mullewa

MGA Zone 50J **288966 mE** **6818392 mN**

Habitat Hill Slope - Top Steep

Soil Brown Sand / Clay With Loose Gravel

Rock Type

Vegetation Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Shrubland of *Eremophila clarkei* and *Acacia tetragonophylla*

Veg Condition Very Good to Excellent

Fire Age Old

Notes Aspect: North West
 Topography: Hill Slope - Top Steep
 Bare Ground: 65%
 Litter Cover: <1% Logs, 10% Twigs, 20% Lvs.
 Disturbance: Adjacent to Track, Farmland and Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia tetragonophylla</i>	5%	1m	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01
<i>Atriplex semilunaris</i>	+	0.3m	WR23.06
<i>Austrodanthonia setacea</i>	+	0.2m	WR23.05
<i>Austrostipa elegantissima</i>	+	0.4m	WR02.30
<i>Clematicissus angustissima</i>	+	CR	WR19.05
* <i>Cotula bipinnata</i>	+	0.1m	WR23.09
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR02.14
<i>Daucus glochidiatus</i>	+	0.1m	WR23.11
<i>Dichopogon capillipes</i>	+	0.4m	WR23.07
<i>Dioscorea hastifolia</i>	+	CR	WR12.04
* <i>Ehrharta longiflora</i>	+	0.5m	WR02.23
<i>Eremophila clarkei</i>	15%	1.2m	WR23.15
<i>Eremophila clarkei</i>	+	0.4m	WR23.14
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR23.04
<i>Erymophyllum tenellum</i>	+	0.1m	WR23.12
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	35%	3m	WR23.13
<i>Goodenia berardiana</i>	+	0.2m	WR23.01
<i>Guichenotia angustifolia</i>	1%	0.4m	WR23.08
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	0.2m	WR13.06
* <i>Lamarckia aurea</i>	+	0.1m	WR23.10
<i>Maireana georgei</i>	+	0.2m	WR13.08
* <i>Monoculus monstrosus</i>	+	CR	WR04.28
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01
* <i>Portulaca oleracea</i>	+	0.1m	WR19.11
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.4m	WROPKM13
<i>Schoenia cassiniana</i>	+	0.1m	WR23.02
<i>Sclerolaena lanicuspis</i>	+	0.2m	WR23.03
<i>Trachymene ornata</i>	+	0.1m	WR10.26
* <i>Urospermum picroides</i>	+	0.2m	WR06.08

Westnet Rail Site WR24

Described by James Sansom **Date** 22/09/2010 **Type** Quadrat 20 x 20m

Location Geraldton to Mullewa

MGA Zone 50J 290999 mE 6820442 mN

Habitat Sandplain - Very Low Hill

Soil White Sand

Rock Type

Vegetation Low Open Woodland of *Banksia sceptrum*, *Nuytsia floribunda* and *Acacia blakelyi* over Open

Low Open Shrubland of *Xanthorrhoea preissii*, *Banksia attenuata* and *Allocasuarina humilis*, over

Grassland of Shrubland of *Hibbertia hypericoides*, *Conostylis robusta*, *Stirlingia latifolia* over Closed *Ehrharta calycina* and *Ursinia anthemoides*

Veg Condition Good

Fire Age Old

Notes Aspect: West
 Topography: Sandplain - Very Low Hill
 Bare Ground: 2%
 Litter Cover: <1% Logs, 5% Twigs, 5% Lvs.
 Disturbance: Adjacent Track and Farm

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia blakelyi</i>	1%	2m	WR24.08	F
<i>Allocasuarina humilis</i>	1%	1.6m	WR24.01	F
<i>Banksia attenuata</i>	3%	1.2m	WR24.02	
<i>Banksia sceptrum</i>	3%	3m	WROPKM45	
* <i>Brassica napus</i>	+	0.5m	WR02.22	
<i>Burchardia congesta</i>	+	0.4m	WR15.33	
<i>Comesperma scoparium</i>	+	0.6m	WR02.33	
<i>Conostylis robusta</i>	2%	0.4m	WR13.05	
<i>Desmodcladus asper</i>	+	0.3m	WR18.08	
* <i>Ehrharta calycina</i>	40%	0.6m	WRR03.01	
<i>Eremaea acutifolia</i>	Adj	0.8m	WR24.07	F
<i>Hibbertia hypericoides</i>	2%	0.6m	WR24.04	F
* <i>Hypochaeris glabra</i>	+	0.5m	WR11.25	
* <i>Lolium perenne x rigidum</i>	1%	0.4m	WR24.06	
* <i>Lupinus cosentinii</i>	+	0.4m	WR06.04	
<i>Melaleuca leuropoma</i>	+	0.5m	WR24.05	
* <i>Monoculus monstrosus</i>	+	0.3m	WR04.28	
<i>Nuytsia floribunda</i>	5%	2.5m	NC	
<i>Stirlingia latifolia</i>	1%	0.4m	WR24.03	
<i>Trachymene ornata</i>	+	0.1m	WR10.26	
* <i>Ursinia anthemoides</i>	40%	0.3m	WR08.08	
<i>Xanthorrhoea preissii</i>	5%	0.6-2m	NC	

Westnet Rail Site WR25

Described by James Sansom **Date** 22/09/2010 **Type** Quadrat 20mx15m

Location Geraldton to Mullewa

MGA Zone 50J 295401 mE 6822717 mN

Habitat Low Lateritic Rise

Soil Clayey Silt Orange with Lateritic Gravel

Rock Type

Vegetation Shrubland of *Allocasuarina campestris*, *Brachyloma pirara*, *Dryandra sessilis* var. *flabellifolia*, *Acacia*

saligna and *Gastrolobium spinosum* over Open Grassland of *Austrostipa elegantissima*, *Brachyloma*

pirara and *Keraudrenia hermanniifolia* over Open Sedgeland of *Dampiera spicigera*

Veg Condition Very Good to Excellent

Fire Age Old

Notes Aspect: N/A
 Topography: Low Lateritic Rise
 Bare Ground: 55%
 Litter Cover: 2% Logs, 25% Twigs, 20% Lvs.
 Disturbance: Possible Historic Clearing

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia saligna</i>	3%	1.5m	WR25.07	
<i>Acacia tetragonophylla</i>		1m		Outside
<i>Allocasuarina campestris</i>	12%	1.5m	WR02.19	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	
<i>Austrostipa elegantissima</i>	5%	0.6m	WR09.05	
<i>Baeckea grandiflora</i>	+	0.5m	WR25.03	
<i>Brachyloma pirara</i>	5%	0.4m	WR25.04	
* <i>Briza maxima</i>	+	0.2m	NC	
<i>Clematicissus angustissima</i>	+	CR	WR19.05	
<i>Dampiera spicigera</i>	15%	0.3m	WR21.09	
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	2%	2m	WRR02.02	Denser in adjacent
<i>Ecdeiocolea monostachya</i>	1%	0.7m	WR25.01	
<i>Gastrolobium spinosum</i>	2%	1m	WR25.02	
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i>	1%	1-2m	WROPKM35	
<i>Haemodorum simulans</i>	+	0.3m	WR04.30	
<i>Hakea trifurcata</i>	+	0.8m	WR17.01	
* <i>Hypochoeris glabra</i>	+	0.1m	WR11.25	
<i>Isopogon divergens</i>	+	1.3m	WR25.08	
<i>Keraudrenia hermanniifolia</i>	1%	0.4m	WR09.08	
<i>Leptosema aphyllum</i>	+	0.2m	WR25.06	
<i>Leucopogon</i> sp. Mid West (J.S. Beard 7388)	+	0.6m	WR25.05	
<i>Melaleuca leuropoma</i>			WR25.09	
<i>Neurachne alopecuroidea</i>	+	0.3m	WR11.11	
* <i>Pennisetum setaceum</i>	+	0.6m	WRR02.05	
* <i>Pentaschistis airoides</i>	+	0.1m	WR05.01	
<i>Thysanotus manglesianus</i>	+	CR	WR13.04	
<i>Trachymene cyanopetala</i>	+	0.1m	WR11.16	
<i>Trachymene ornata</i>	+	0.1m	WR10.26	

<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080)	+	CR	WR21.17
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.3m	WR02.06

Westnet Rail Site WR50

Described by James Sansom **Date** 16/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 330863 mE 6826852 mN

Habitat Sandplain

Soil Yellow Sand

Rock Type N/A

Vegetation Low Woodland of *Callitris arenaria* and *Xylomelum angustifolium* over Low Open Shrubland of

Grassland of *Rhagodia preissii* subsp. *obovata* and *Allocasuarina campestris* over Very Open

Austostipa elegantissima, **Ehrharta longiflora* and **Bromus diandrus*.

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 10%
 Litter Cover: <1% Logs, 40% Twigs, 10% Lvs.
 Disturbance: Weeds and Track

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia spathulifolia</i>	+	0.5m	WR50.03	
<i>Allocasuarina campestris</i>	1%	0.5m	WR01.01	
* <i>Arctotheca calendula</i>	3%	0.1m	NC	
<i>Austrostipa elegantissima</i>	3%	0.5m	WR01.31	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.4m	WR50.16	
<i>Banksia sceptrum</i>	+	5m	WR50.19	OUT
<i>Beaufortia squarrosa</i>	+	0.8m	WR01.18	
* <i>Bromus diandrus</i>	1%	0.2m	WR50.02	
<i>Callistemon phoeniceus</i>	1%	1.5m	WR50.06	
<i>Callitris arenaria</i>	8%	4m	WR01.24	
<i>Calytrix brevifolia</i>	+	0.4m	WR01.07	
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	OUT		WR01.02	Out
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR50.09	
* <i>Ehrharta longiflora</i>	2%	0.2m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	
<i>Eucalyptus jucunda</i>	+	4m	WR01.33	OUT
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	+	0.5m	WR50.13	
* <i>Hypochaeris glabra</i>	+	0.3m	WR50.17	
Indeterminate	+	0.1m	WR50.11	
<i>Jacksonia rigida</i>	+	1m	WR50.04	
<i>Leucopogon hamulosus</i>	+	1m	WR01.17	
<i>Maireana georgei</i>	+	0.3m	WR50.12	
<i>Melaleuca filifolia</i>	+	0.8m	WR50.18	
* <i>Monoculus monstrosus</i>	+	0.1m	WR50.10	
<i>Monotaxis bracteata</i>	+	0.3m	WR01.19	
<i>Petrophile conifera</i>	+	0.5m	WR01.06	
<i>Podotheca angustifolia</i>	1%	0.2m	WR01.25	
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	2%	0.9m	WR50.07	
<i>Thryptomene denticulata</i>	+	0.6m	WR50.20	

<i>*Ursinia anthemoides</i>	+	0.2m	WR50.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR01.20
<i>Xylomelum angustifolium</i>	2%	4m	WR50.15

Westnet Rail Site WR51

Described by Lewis Trotter **Date** 19/09/2010 **Type** Quadrat 20 x 20m

Location Mullewa

MGA Zone 50J 332417 **mE** 6828595 **mN**

Habitat Sandplain

Soil Soft Yellow Sand

Rock Type N/A

Vegetation Tall Open Shrubland of *Acacia rostellifera*, *Banksia sceptrum* and *Allocasuarina campestris* over Shrubland of *Callitris arenaria*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 55%
 Litter Cover: 5% Logs, 30% Twigs, 10% Lvs.
 Disturbance: Nearby Tracks, Rail line

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia rostellifera</i>	1%	3m	WR51.05
<i>Acacia rostellifera</i>	20%	3m	NC
<i>Acanthocarpus preissii</i>	+	0.5m	WR55.10
<i>Allocasuarina campestris</i>	2%		WR01.01
<i>Banksia sceptrum</i>	7%	4m	WR50.19
<i>Callitris arenaria</i>	10%	2m	WR01.24
<i>Corynotheca micrantha</i> var. <i>micrantha</i>	+	0.3m	WR51.06
<i>Dampiera spicigera</i>	+	0.3m	WR51.07
<i>Daviesia benthamii</i> subsp. <i>benthamii</i>	+	0.5m	WR51.03
* <i>Ehrharta longiflora</i>	+	0.5m	WR50.05
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.5m	WR50.14
<i>Glischrocaryon aureum</i>	+	0.4m	WR51.02
<i>Glischrocaryon aureum</i>	+	0.5m	WR51.08
<i>Lachnostachys eriobotrya</i>	+	1.5m	WRR50.05
<i>Lechenaultia linarioides</i>	+	0.4m	WR51.01
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25
<i>Thryptomene denticulata</i>	+		WR51.04
<i>Thysanotus patersonii</i>	+	CR	WR01.04

Westnet Rail Site WR52

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 334940 mE 6829824 mN

Habitat Sandplain

Soil Wet Red - White Clayey Sand

Rock Type N/A

Vegetation Low Open Shrubland of *Tecticornia undulata* and *Hakea bucculenta*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 90%
 Litter Cover: 2% Logs, <1% Twigs, N/A Lvs.
 Disturbance: Fence Line Clearing

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Atriplex codonocarpa</i>	+	0.2m	WR52.07
<i>Atriplex holocarpa</i>	+	CR	WR52.05
* <i>Brassica napus</i>	+	0.3m	WR02.22
* <i>Bromus diandrus</i>	+	0.4m	WR52.08
* <i>Ehrharta longiflora</i>	+	0.2m	WR50.05
<i>Hakea bucculenta</i>	3%	0.5m	WR52.03
<i>Maireana georgei</i>	+	0.3m	WR52.02
* <i>Portulaca oleracea</i>	+		WR52.04
<i>Rhagodia drummondii</i>	+	0.3m	WR52.01
<i>Tecticornia indica</i> subsp. <i>bidens</i>	+	0.2m	WR52.09
<i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i>	+	0.4m	WR52.10
<i>Tecticornia undulata</i>	6%	0.3m	WR52.11
<i>Tecticornia undulata</i>	1%		WR52.06

Westnet Rail Site WR53

Described by Ciaran Sqherza **Date** 17/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **333509 mE** **6829043 mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type

Vegetation Open Shrubland of *Melaleuca viminea* subsp. *viminea* and *Allocasuarina campestris* over Low Open

Shrubland of *Thryptomene* sp. East Yuna (J.W. Green 4639) over Open Grassland of *Austrostipa*

elegantissima over Very Open Herbland of *Monachather paradoxus* and *Waitzia acuminata* var. *acuminata*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: N/A
 Litter Cover: - Logs, 2% Twigs, <1% Lvs.
 Disturbance: Nearby Highway, Clearing, Rubbish, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia dielsii</i>	+	1m	WR53.06	
<i>Acacia longiphylloidea</i>	+	1.5m	WR53.07	F
<i>Allocasuarina campestris</i>	2%	1.5m	WR01.01	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.4m	WR53.10	
<i>Austrostipa elegantissima</i>	10%	0.6m	WR01.31	
* <i>Brassica napus</i>	+	0.5m	WR02.22	F
<i>Chenopodium gaudichaudianum</i>	+	0.4m	WR53.08	
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.6m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.2m	WR01.16	
<i>Ecdiocolea monostachya</i>	+	0.6m	WR53.09	F
* <i>Ehrharta longiflora</i>	+	0.4m	WR50.05	
* <i>Hypochaeris glabra</i>	+	0.2m	WR50.17	
<i>Jacksonia arenicola</i>	+	0.5m	WR53.14	
<i>Laxmannia sessiliflora</i>	+	0.3m	WR53.11	
* <i>Lupinus cosentinii</i>	+	0.3m	WR06.04	
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Melaleuca radula</i>	+	1m	WR53.05	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	7%	1.5m	WR53.03	
<i>Monachather paradoxus</i>	1%	0.5m	WR53.16	
* <i>Monoculus monstrosus</i>	1%	0.2m	WR50.10	
<i>Opercularia spermacoea</i>	+	0.3m	WRR50.09	
<i>Podolepis canescens</i>	+	0.2m	WRR50.03	
<i>Podotheca angustifolia</i>	+	0.3m	WR01.25	
<i>Pterostylis spathulata</i>	+	0.2m	WR53.13	
<i>Schoenia cassiniana</i>	+	0.2m	WR53.15	
<i>Thryptomene</i> sp. East Yuna (J.W. Green 4639)	2%	0.7m	WR53.04	
<i>Trachymene cyanopetala</i>	+	0.1m	WR53.12A	

<i>*Urospermum picroides</i>	+	0.4m	WR53.17
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR01.20

Westnet Rail Site WR54

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 336536 **mE** 6890744 **mN**

Habitat Sandplain

Soil Yellow Sand

Rock Type N/A

Vegetation Low Open Forest of *Callitris arenaria* and *Eucalyptus eudesmioides* over Low Open Shrubland of *Rhagodia drummondii*, *Baeckea* sp. Dudawa (M.E. Trudgen MET 5369), *Comesperma scoparium* and *Santalum acuminatum* over Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* over Very Open Herbland of *Opercularia spermacoea* and *Waitzia acuminata* var. *acuminata*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 5%
 Litter Cover: 5% Logs, 10% Twigs, 70% Lvs.
 Disturbance: Weeds, Grass, Clearing and Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia spathulifolia</i>	+	0.5m	WR50.03
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	1%	0.6m	WR54.14
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WR54.17
<i>Callitris arenaria</i>	30%	4m	WR01.24
<i>Calytrix</i> sp. Paynes Find	+	0.1m	WR54.08
<i>Comesperma integerrimum</i>	+	CR	WR54.06
<i>Comesperma scoparium</i>	1%	0.4m	WR54.05
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR53.02
<i>Ecdeiocolea monostachya</i>	+	0.6m	WR54.04
* <i>Ehrharta longiflora</i>	1%	0.4m	WR50.05
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14
<i>Eucalyptus eudesmioides</i>	5%	3m	WR54.01
<i>Glischrocaryon aureum</i>	+	0.4m	WR54.02
<i>Grevillea hakeoides</i> subsp. <i>hakeoides</i>	+	0.1m	WR54.07
<i>Grevillea</i> sp.	+	1.5m	WR54.03
<i>Grevillea</i> sp.	1%	2m	WR54.03
<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>	+	0.1m	WR54.12
<i>Maireana georgei</i>	+	0.2m	WR50.12
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10
<i>Opercularia spermacoea</i>	+	0.1m	WR54.18
<i>Opercularia spermacoea</i>	1%	0.3m	WRR50.09
<i>Petrophile conifera</i>	+	0.2m	WR01.06
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.5m	WR54.11
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25

<i>Rhagodia drummondii</i>	+	0.5m	WR54.10
<i>Rhagodia drummondii</i>	1%	0.8m	WR54.09
<i>Santalum acuminatum</i>	1%	0.3m	WR54.16
<i>Scholtzia</i> sp. East Yuna (A.C. Burns 6)	+	0.3m	WR54.15
<i>Solanum ellipticum</i>			WR54.15b
* <i>Sonchus oleraceus</i>	+	0.1m	WR54.13
<i>Thysanotus patersonii</i>	+	CR	WR01.04
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	2%	0.2m	WR01.20

Westnet Rail Site WR55

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40m

Location Mullewa

MGA Zone 50J 337862 mE 6831478 mN

Habitat Sandplain

Soil Soft Yellow Sand

Rock Type N/A

Vegetation Low Open Woodland of *Eucalyptus eudesmioides* over Tall Open Shrubland of *Grevillea* sp. over

Open Shrubland of *Acacia rostellifera*, *Santalum acuminatum* and *Rhagodia preissii* subsp. *Obovata*

over Open Grassland of *Bromus diandrus* and *Ehrharta longiflora*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 10%
 Litter Cover: 2% Logs, 10% Twigs, 60% Lvs.
 Disturbance: Weeds, Rail and Track

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia rostellifera</i>	3%	1-1.5m	WR55.06	
<i>Acacia spathulifolia</i>	+	0.4m	WRR50.06	
<i>Acanthocarpus preissii</i>	+	0.4m	WR55.10	
* <i>Arctotheca calendula</i>	1%	0.1m	WR04.01	
* <i>Brassica napus</i>	+		WR02.22	
* <i>Bromus diandrus</i>	10%	0.6m	WR52.08	
<i>Chenopodium gaudichaudianum</i>	+	0.5m	WR55.04	
<i>Dampiera spicigera</i>		0.3m	WR55.12	OUT
<i>Daviesia hakeoides</i> subsp. <i>subnuda</i>		0.4m	WR55.11	OUT
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.5m	WR53.02	
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR55.02	
* <i>Ehrharta longiflora</i>	5%	0.6m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.4m	WR50.14	
<i>Eucalyptus eudesmioides</i>	3%	4m	WR54.01	
<i>Grevillea</i> sp.	2%	3m	WR54.03	
<i>Maireana georgei</i>	+	0.4m	WR55.03	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	1%	0.6m	WR53.03	
<i>Mirbelia trichocalyx</i>	+	0.3m	WR55.08	
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10	
<i>Opercularia spermacoea</i>	+	0.2m	WR54.18	
<i>Opercularia spermacoea</i>	+	0.2m	WRR50.09	
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	1m	WR54.11	
<i>Podolepis canescens</i>	+	0.2m	WR55.09	
<i>Podotheca angustifolia</i>		0.2m	WR01.25	
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	2%	1m	WR50.07	
<i>Santalum acuminatum</i>	2%	2m	WR55.07	
<i>Schoenia cassiniana</i>	+	0.3m	WR53.15	
<i>Solanum hesperium</i>	+	0.4m	WR55.05	
<i>Thyridolepis multiculmis</i>		0.3m	WR55.13	OUT

<i>Thysanotus patersonii</i>	+		WR01.04
<i>Triodia danthonioides</i>	+	1m	WR55.01
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01

Westnet Rail Site WR56

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 340630 **mE** 6832990 **mN**

Habitat Flat / Clay Flat

Soil Soft Wet Brown / Red, Clay / Sand

Rock Type N/A

Vegetation Open Low Heath of *Tecticornia pruinosa* and *Hakea bucculenta*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Flat / Clay Flat
 Bare Ground: 58%
 Litter Cover: <1% Logs, 2% Twigs, N/A Lvs.
 Disturbance: Rail, Weeds, Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Hakea bucculenta</i>	1%	0.4m	WR52.03
Indeterminate	+	0.2m	WR52.11
<i>Senecio laceratus</i>	+	0.1m	WR56.02
<i>Tecticornia indica</i> subsp. <i>bidens</i>			WR52.09 F
<i>Tecticornia pruinosa</i>	40%	0.2m	WR56.01

Westnet Rail Site WR57

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 343598 mE 6834566 mN

Habitat Sandplain

Soil Red - Yellow Sand

Rock Type N/A

Vegetation Tall Open Shrubland of *Acacia rostellifera* over Very Open Grassland of **Bromus diandrus*,
Monachather paradoxus and **Ehrharta longiflora* over Very Open Herbland of
Podolepis canescens
 and *Brachyscome onocarpa*

Veg Condition Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 30%
 Litter Cover: <1% Logs, 2% Twigs, <1% Lvs.
 Disturbance: Weeds. Rail, Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	+	2.5m	WR57.07
<i>Acacia ramulosa</i> var. <i>linophylla</i>	+	1m	WR57.06
<i>Acacia rostellifera</i>	4%	2.5m	WR55.06
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	+	3m	WR57.03
<i>Atriplex codonocarpa</i>	+	0.3m	WR52.07
<i>Brachyscome onocarpa</i>	2%	0.3m	WR57.01
<i>*Bromus diandrus</i>	2%	0.5m	WR52.08
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	1.2m	WR53.02
<i>*Ehrharta longiflora</i>	1%	0.4m	WR50.05
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.3m	WR50.14
<i>Keraudrenia hermanniifolia</i>	1%	0.2m	WROPCS03
<i>Monachather paradoxus</i>	2%	0.4m	WR57.05
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.2m	WR54.11
<i>Podolepis canescens</i>	3%	0.1m	WR55.09
<i>Scaevola anchusifolia</i>	+	0.3m	WR57.02
<i>Senna charlesiana</i>	+	0.3m	WR57.04
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR01.20
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR01.20

Westnet Rail Site WR58

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **346659 mE** **6836355 mN**

Habitat Sand Undulating Plain

Soil White - Yellow Soil With Minor Gravel and Pebble Surface

Rock Type

Vegetation Tall Open Shrubland of *Acacia rostellifera* and *Grevillea* sp. Over Low Open Shrubland of *Grevillea*

vestita subsp. *Isopogoides*, *Pimelea microcephala* subsp. *Microcephala* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* over Very

Open Herbland of *Podolepis canescens* and *Waitzia acuminata* var. *acuminata*

Veg Condition Good

Fire Age Old

Notes Aspect: East

Topography: Undulating Sandy Plain

Bare Ground: 20%

Litter Cover: 10% Logs, 7.5% Twigs, 2% Lvs.

Disturbance: Clearing, Rail, Earth Movement in the Quadrat

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia longiphylloidea</i>			WR58.09	OUT
<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>	+	1m	WR58.05	
<i>Acacia rostellifera</i>	7%	4m	WR55.06	
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01	
<i>Aristida contorta</i>			WR58.08	OUT
<i>Atriplex codonocarpa</i>	+	0.5m	WR52.07	
<i>Austrostipa elegantissima</i>	10%	0.5m	WR01.31	
<i>Comesperma integerrimum</i>	+	CR	WR58.03	
<i>Comesperma scoparium</i>	1%	1m	WR58.06	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	
* <i>Ehrharta longiflora</i>	10%	0.4m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR50.14	
<i>Grevillea</i> sp.	2%	3m	WR54.03	
<i>Grevillea vestita</i> subsp. <i>isopogoides</i>	5%	0.6m	WR58.01	
* <i>Hypochaeris glabra</i>	+	0.2m	WR50.17	
<i>Keraudrenia hermanniifolia</i>	1%	0.5m	WROPCS03	
<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>			WR58.07	OUT
* <i>Monoculus monstrosus</i>	+	0.3m	WR50.10	
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.1m	WR58.04	
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	2%		WR58.02	
<i>Podolepis canescens</i>	2%	0.2m	WR55.09	
<i>Schoenia cassiniana</i>	+	0.3m	WR53.15	
<i>Thysanotus patersonii</i>	+	CR	WR01.04	
<i>Trachymene cyanopetala</i>	+	0.1m	WR53.12	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR01.20	

Westnet Rail Site WR59

Described by Lewis Trotter **Date** 17/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 348229 mE 6837515 mN

Habitat Sand - Loam Flat

Soil Red Brown Loam / Sand

Rock Type

Vegetation Low Open Woodland of *Eucalyptus eudemioides* over Tall Open Shrubland of *Acacia stereophylla*

var. *stereophylla* over Shrubland of *Acacia rostellifera*, *Grevillea obliquistigma* subsp. *funicularis*,

Rhagodia preissii subsp. *obovata* and *Labichea teretifolia* subsp. *grandistipulata* over Very Open

Grassland of *Bromus diandrus* and *Ehrharta longiflora* over Open Herbland of *Cephalipterum*

drummondii, *Lupinus cosentinii*, *Podolepis canescens*, *Waitzia acuminata* var. *acuminata*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sand / Loam Flat
 Bare Ground: 20%
 Litter Cover: <1% Logs, 1% Twigs, 4% Lvs.
 Disturbance: Weeds, Tracks

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuaria</i>	+		WR59.01
<i>Acacia acuaria</i>	+	0.5m	WR59.10
<i>Acacia ramulosa</i> var. <i>linophylla</i>	+	2m	WR59.07
<i>Acacia rostellifera</i>	2%	2m	WR55.06
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	9%	4m	WR57.03
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Atriplex codonocarpa</i>	+	0.3m	WR52.07
<i>Austrostipa elegantissima</i>	+	0.2m	WR01.31
* <i>Brassica napus</i>	+	0.8m	WR02.22
* <i>Bromus diandrus</i>	7%	0.3m	WR52.08
* <i>Bromus diandrus</i>	1%	1m	WR59.05
<i>Bursaria occidentalis</i>	+	2m	WR59.03
<i>Bursaria occidentalis</i>	+	0.4m	WR59.02
<i>Cephalipterum drummondii</i>	10%	0.1m	WR59.12
<i>Chenopodium gaudichaudianum</i>	+	0.6m	WR55.04
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02
<i>Echium</i> sp.	+	0.2m	WROPCS10
* <i>Ehrharta longiflora</i>	5%	0.8m	WR50.05
<i>Eucalyptus eudesmioides</i>	2%	3.5m	WR59.11
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	2%	2m	WR59.06
* <i>Hypochoeris glabra</i>	+	0.3m	WR50.17
<i>Keraudrenia hermannifolia</i>	+	0.4m	WROPCS03
<i>Labichea teretifolia</i> subsp. <i>grandistipulata</i>	1%	0.8m	WR58.07
* <i>Lupinus cosentinii</i>	1%	0.3m	WR06.04

<i>Monachather paradoxus</i>	1%	0.5m	WR53.16
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	0.6m	WR54.11
<i>Podolepis canescens</i>	6%	0.1m	WR55.09
<i>Ptilotus polystachyus</i>	+	0.3m	WR59.13
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	1%	1m	WR50.07
<i>Senna charlesiana</i>	+	1m	WR59.04
* <i>Urospermum picroides</i>	+	0.3m	WR53.17
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.1m	WR01.20

Westnet Rail Site WR60

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **377393 mE** **6818391 mN**

Habitat Sandplain

Soil Yellow Brown Sand

Rock Type

Vegetation Shrubland of *Acacia stereophylla* var. *stereophylla*, *Acacia coolgardiensis* and *Grevillea obliquistigma*

subsp. *Funicularis* over Very Open Grassland of *Amphipogon caricinus* var. *caricinus*

Veg Condition Good to Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 90%
 Litter Cover: 2% Logs, 1% Twigs, 7% Lvs.
 Disturbance: Tracks, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	+	0.8m	WR60.08	Seeds
<i>Acacia coolgardiensis</i>	6%	1.5m	WR60.02	
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	8%	1-1.5m	WR57.03	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	4%	0.35m	WR60.01	
<i>Austrostipa elegantissima</i>	+	0.5m	WR01.31	
<i>Borya sphaerocephala</i>	+	0.3m	WR60.17	F
* <i>Brassica napus</i>	+	0.2m	WR02.22	F
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.15m	WR60.10	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	F
<i>Eucalyptus horistes</i>	+		WR60.18	OUT
<i>Goodenia havilandii</i>	+	0.1m	WR60.07	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	1.5m	WR60.04	F
<i>Hemigenia botryphylla</i> G.R Guerin	+	0.3m	WR60.06	F
* <i>Hypochaeris glabra</i>	+	0.3m	WR50.17	
<i>Lobelia winfridae</i>	+	0.1m	WR60.14	F
<i>Melaleuca atroviridis</i>	+	2m	WR60.03	
<i>Platysace trachymenioides</i>	+	0.6m	WR60.09	
<i>Podotheca angustifolia</i>			WR60.08b	
<i>Pogonolepis stricta</i>	+	0.05m	WR60.13	F
<i>Schoenia cassiniana</i>	+	0.1m	WR60.05	F
<i>Senna charlesiana</i>	+	0.6m	WR60.15	
<i>Thyridolepis multiculmis</i>	+	0.4m	WR60.16	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	F
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
<i>Velleia rosea</i>	+	0.1m	WR60.12	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR01.20	F

Westnet Rail Site WR61

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **375923 mE** **6820309 mN**

Habitat Sandplain

Soil Yellow / Brown Sand

Rock Type

Vegetation Shrubland of *Acacia stereophylla* var. *stereophylla*, *Grevillea obliquistigma* subsp. *funicularis*, *Acacia*

ramulosa var. *linophylla* and *Acacia* sp. Over Low Shrubland of *Grevillea levis* over Very Open

Herbland *Waitzia* Grassland of **Ehrharta longiflora* and *Austrostipa elegantissima* over Very Open

acuminata var. *acuminata* and **Arctotheca calendula*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground:
 Litter Cover:
 Disturbance: Weeds, Tracks, Clearing, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia ramulosa</i> var. <i>linophylla</i>	1%	2m	WR61.04
<i>Acacia rostellifera</i>	+	1.5m	WR55.06
<i>Acacia</i> sp.	1%	1m	WR61.05
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	20%	1.5m	WR57.03
<i>*Arctotheca calendula</i>	1%	0.1m	WR04.01
<i>Atriplex codonocarpa</i>	+	0.5m	WR52.07
<i>Austrostipa elegantissima</i>	2%	0.5m	WR01.31
<i>Brachyscome ciliaris</i>	+	0.1m	WR61.01
<i>Chenopodium gaudichaudianum</i>	+	0.6m	WR55.04
<i>Comesperma integerrimum</i>	+	CR	WR54.06
<i>Cryptandra apetala</i> var. <i>apetala</i>	+	1m	WR61.08
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR53.02
<i>Dodonaea inaequifolia</i>	+	1.5m	WR61.09
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	CR	WR01.16
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.3m	WR50.09
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16
<i>*Ehrharta longiflora</i>	7%	0.5m	WR50.05
<i>Grevillea levis</i>	2%	0.4m	WR61.02
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	5%	2m	WR60.04
<i>Hemigenia botryphylla</i> G.R Guerin	+	0.4m	WR61.06
<i>Hibbertia huegelii</i>	+	0.5m	WR61.12
<i>*Hypochaeris glabra</i>	+	0.15m	WR50.17
Indeterminate	+	CR	WR61.07
<i>Jacksonia arenicola</i>	+	0.5m	WR61.03
<i>Jacksonia arenicola</i>	+	0.5m	WR61.11
<i>Melaleuca atroviridis</i>	+	1.5m	WR60.03
<i>*Monoculus monstrosus</i>	+	0.35m	WR50.10

<i>Platysace trachymenioides</i>	+	0.5m	WR60.09
<i>Podolepis canescens</i>	+	0.1m	WR55.09
<i>Podolepis capillaris</i>	+	0.1m	WR61.10
<i>Podotheca angustifolia</i>	+	0.1m	WR01.25
<i>Pogonolepis stricta</i>	+	0.05m	WR60.13
<i>Solanum lasiophyllum</i>	+	0.4m	WRR51.04
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR01.20

Westnet Rail Site WR62

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **375391 mE** **6820775 mN**

Habitat Plain

Soil Yellow Loamy Clay

Rock Type Granite

Vegetation Shrubland of *Melaleuca cordata* and *Grevillea paradoxa* over Low Open shrubland of *Cryptandra*

apetala var. *apetala* and *Hibbertia stenophylla* over Very Open Grassland of *Homalocalyx aureus*,

Austrostipa elegantissima and *Amphipogon caricinus* var. *caricinus*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 85%
Litter Cover: 2% Logs, 2% Twigs, <1% Lvs.
Disturbance: Roads, Weeds, Clearing

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia coolgardiensis</i>	+	2m	WR60.02	
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	1%	2.5m	WR62.15	
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	+	0.5m	WR62.17	
<i>Allocasuarina campestris</i>	+	1.5m	WR01.01	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	F
<i>Calothamnus chrysantherus</i>	+	1m	WR62.05	
<i>Cassytha glabella</i> forma <i>dispar</i>	+	CR	WR62.16	
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye	+	0.5m	WR62.10	F
<i>Comesperma integerrimum</i>	+	CR	WR62.14	
<i>Cryptandra apetala</i> var. <i>apetala</i>	1%	0.4m	WR61.08	
<i>Dampiera spicigera</i>	+	0.3m	WR62.12	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	
<i>Eucalyptus leptopoda</i>	1%	4m	WR62.01	
<i>Goodenia havilandii</i>	+	0.1m	WR60.07	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	1-1.5m	WR60.04	
<i>Grevillea paradoxa</i>	1%	1m	WR62.07	F
<i>Hemigenia appressa</i> G.R. Guerin	+	0.6m	WR62.02	
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>	+	0.4m	WR62.09	F
<i>Hibbertia stenophylla</i>	1%	0.5m	WR62.04	F
<i>Homalocalyx aureus</i>	2%	0.5m	WR62.08	F
<i>Keraudrenia hermanniifolia</i>	+	0.5m	WROP303	
<i>Malleostemon tuberculatus</i>	+	2m	WR62.03	
<i>Melaleuca atroviridis</i>	+	1m	WR60.03	
<i>Melaleuca cordata</i>	15%	1m	WR62.06	
<i>Mirbelia ramulosa</i>	+	0.4m	WR62.11	F
<i>Monotaxis bracteata</i>	+	0.5m	WR62.13	F
<i>Podotheca angustifolia</i>	+	0.1m	WR01.25	F

<i>Stylidium elongatum</i>	+	0.3m	WROPCS12	F
<i>Thyridolepis multiculmis</i>	+	0.4m	WR60.16	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.15m	WR01.20	F

Westnet Rail Site WR63

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 20 x 20m

Location Mullewa

MGA Zone 50J **374358 mE** **6821987 mN**

Habitat Samphire Flat - Wet Depression

Soil Yellow Brown Mud with Cracking Clay at the Surface

Rock Type

Vegetation Open Low Heath of *Tecticornia indica* subsp. *Bidens*

Veg Condition Very Good

Fire Age Very Old

Notes Aspect: N/A
 Topography: Samphire Flat - Wet Depression
 Bare Ground: 60%
 Litter Cover: - Logs, 2% Twigs, - Lvs.
 Disturbance: Nearby Track, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Didymanthus roei</i>	+	0.3m	WR63.04	F
<i>Frankenia cinerea</i>	+	0.3m	WR63.02	
<i>Hakea bucculenta</i>	+	0.4m	WR52.03	
* <i>Parapholis incurva</i>	+	0.25m	WR63.07	
* <i>Portulaca oleracea</i>	1%	0.2m	WR52.04	
<i>Sclerolaena eurotioides</i>	+	0.2m	WR63.03	F
* <i>Sonchus oleraceus</i>	+	0.2m	WR63.05b	F
<i>Tecticornia halocnemoides</i> subsp. ?	+	0.2m	WR63.05	
<i>Tecticornia indica</i> subsp. <i>bidens</i>	+	0.3m	WR52.09	
<i>Tecticornia indica</i> subsp. <i>bidens</i>	35%	0.4m	WR63.01	
<i>Tecticornia</i> sp.	+	0.5m	NC	F
<i>Tecticornia undulata</i>	+	0.3m	WR63.08	
<i>Tecticornia undulata</i>	+	0.3m	WR63.06	
<i>Verticordia chrysostachys</i> var. <i>pallida</i>	+	0.5m	WROPLT01	

Westnet Rail Site WR64

Described by Ciaran Sgherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **371938 mE** **6825397 mN**

Habitat Plain

Soil Yellow Loam with Clay on Surface

Rock Type

Vegetation Tall Open Shrubland of *Acacia longispinea* over Shrubland of *Acacia coolgardiensis*, *Thryptomene cuspidata*, *Acacia sibina* and *Melaleuca atroviridis* over Very Open Herbland of *Ecdeiocolea monostachya*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 75%
 Litter Cover: 1% Logs, 4% Twigs, 20% Lvs.
 Disturbance: Tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia coolgardiensis</i>	15%	2m	WR60.02	F
<i>Acacia longispinea</i>	2%	3m	WR64.05	
<i>Acacia sibina</i>	1%	2m	WR64.11	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	
<i>Cassylia glabella forma dispar</i>	+	CR	WR62.16	
<i>Cheiranthra simplicifolia</i>	+	CR	WR64.10	
<i>Cheiranthra simplicifolia</i>	+	0.1m	WR64.07	
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye	+	0.3m	WR62.10	
<i>Ecdeiocolea monostachya</i>	2%	0.4m	WR64.03	F
<i>Eremophila clarkei</i>	+	0.3m	WR64.06	
<i>Gilberta tenuifolia</i>	+	0.1m	WR64.04	F
<i>Goodenia havilandii</i>	+	0.05m	WR60.07	
* <i>Hypochaeris glabra</i>	+	0.25m	WR50.17	F
Indeterminate	+	0.4m	WR64.08	
<i>Melaleuca atroviridis</i>	2%	1.5m	WR64.02	
<i>Melaleuca atroviridis</i>	1%	1.5m	WR64.12	
<i>Podrothea angustifolia</i>	+	0.2m	WR01.25	F
<i>Thryptomene cuspidata</i>	4%	1.5m	WR64.01	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	
<i>Trachymene cyanopetala</i>	+	0.5m	WR64.09	
<i>Trachymene ornata</i>	+	0.05m	WR60.11	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR01.20	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F

Westnet Rail Site WR65

Described by Ciaran Sqherza **Date** 20/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **370665 mE** **6827154 mN**

Habitat Low Hill

Soil Yellow - Brown Loam with Pebbles on Surface and Some Clay at the Surface

Rock Type Granite

Vegetation Tall Shrubland of *Acacia stereophylla* var. *stereophylla*, *Melaleuca atroviridis*, *Grevillea obliquistigma*

subsp. *funicularis* and *Acacia stereophylla* var. *stereophylla* over Open Shrubland of *Acacia sibirica*

and *Acacia coolgardiensis* subsp. *coolgardiensis* over Very Open Herbland of *Waitzia acuminata* var.

acuminata and *Gilberta tenuifolia*

Veg Condition Good to Very Good

Fire Age Old

Notes Aspect: North
Topography: Low Hill
Bare Ground: 65%
Litter Cover: 1% Logs, 10% Twigs, 40% Lvs.
Disturbance: Nearby Tracks, Weeds

SPECIES LIST:

Name	over	Height	Specimen	Notes
<i>Acacia coolgardiensis</i> subsp. <i>coolgardiensis</i>	2%	1m	WR65.05	F
<i>Acacia sibirica</i>	5%	1-2m	WR65.03	F
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	1%	4m	WR65.13	F
* <i>Arctotheca calendula</i>	+	0.15m	WR04.01	F
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	
<i>Baeckea</i> sp. <i>Gutha</i> (B.L. Rye 239041 & M.E. Trudgen)	+	1.5m	WR65.10	F
<i>Bellida graminea</i>	+	0.05m	WR65.08	F
<i>Brunonia australis</i>	+	0.05m	WR78.10	F
<i>Cassytha glabella</i> forma <i>dispar</i>	+	CR	WR62.16	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.05m	WR60.10	F
<i>Cheiranthra simplicifolia</i>	+	0.4m	WR65.04	
<i>Comesperma integerrimum</i>	+	CR	WR65.11	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	
<i>Eucalyptus horistes</i>	+	3m	WR65.02	
<i>Gilberta tenuifolia</i>	1%	0.04m	WR78.09	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	3m	WR78.06	F
<i>Grevillea paradoxa</i>	+	1	WR65.09	
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	+	0.3m	WR78.05	F
<i>Keraudrenia hermannifolia</i>	+	0.3m	WROPCS03	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Melaleuca atroviridis</i>	20%	2-3m	WR65.01	
<i>Melaleuca cordata</i>	+	0.5m	WR62.06	
<i>Phyllangium sulcatum</i>	+	0.05m	WR65.07	
<i>Platysace trachymenioides</i>	1%	0.5m	WR78.01	
<i>Podotheca angustifolia</i>	+	0.15m	WR01.25	F
<i>Ricinocarpos velutinus</i>	+	1m	WR65.14	

<i>Scaevola canescens</i>	OUT		WR65.15	
<i>Stenanthemum poicilum</i>	+	0.4m	WR65.12	
<i>Stenanthemum poicilum</i>	+	0.2m	WR65.06	
<i>Thysanotus patersonii</i>	+	CR	WR01.04	F
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR01.20	F

Westnet Rail Site WR66

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 368759 mE 6829867 mN

Habitat Plain

Soil Yellow Sandy Loam with Some Clay at Surface

Rock Type

Vegetation Very open Tree Mallee of *Eucalyptus leptopoda* subsp. *arctata* over Open Shrubland of *Grevillea*

obliquistigma subsp. *funicularis*, *Allocasuarina campestris* and *Acacia neurophylla* subsp. *erugata*

over Low Open Shrubland of *Platysace trachymenioides*, *Dampiera spicigera* and *Verticordia*

eriocephala

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Ground Cover: 60%
Litter Cover: 1% Logs, 6% Twigs, 30% Lvs.
Disturbance: Nearby Tracks, Weeds.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia longispinea</i>	1%	1m	WR64.05	
<i>Acacia neurophylla</i> subsp. <i>erugata</i>	1%	2m	WR66.13	F
<i>Acacia restiacea</i>	+	0.3m	WR66.06	
<i>Acacia sibirica</i>	+	0.7m	WR66.11	
<i>Allocasuarina campestris</i>	2%	2m	WR01.01	F
<i>Alyxia buxifolia</i>	+	1.2m	WR66.02	
* <i>Arctotheca calendula</i>	+	+	WR04.01	F
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	F
<i>Cassytha glabella</i> forma <i>dispar</i>	+	CR	WR62.16	
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye	+	0.5m	WR62.10	
<i>Dampiera spicigera</i>	1%	0.4m	WR62.12	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	
<i>Ecdeiocolea monostachya</i>	+	0.4m	WR66.16	F
<i>Eucalyptus leptopoda</i> subsp. <i>arctata</i>	2%	4m	WR66.01	
<i>Glischrocaryon aureum</i>	1%	0.5m	WR66.08	
<i>Gnephosis angianthoides</i>	+	0.5m	WR66.09	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	6%	2m	WR60.04	
<i>Hakea invaginata</i>	+	1.5m	WR66.15	
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>	+	0.3m	WR62.09	
* <i>Hypochaeris glabra</i>	+	0.7m	WR50.17	F
<i>Keraudrenia hermanniifolia</i>	+	0.5m	WROPCS03	F
<i>Leptomeria preissiana</i>	+	1.5m	WR66.03	
<i>Malleostemon roseus</i>	+	0.1m	WR66.05	
<i>Melaleuca cordata</i>	5%	0.6m	WR62.06	
<i>Melaleuca hamata</i>	+	1.5m	WR66.14	
<i>Petrophile conifera</i>	+	1m	WR01.06	
<i>Pityrodia lepidota</i>	+	0.5m	WR66.12	

<i>Platysace trachymenioides</i>	1%	0.4m	WR66.04	
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25	
<i>Rhodanthe laevis</i>	+	0.2m	WR66.10	F
<i>Trachymene ornata</i>	+	0.2m	WR60.11	
<i>Verticordia eriocephala</i>	1%	0.4m	WR66.07	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR01.20	F

Westnet Rail Site WR67

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **366553 mE** **6832439 mN**

Habitat Plain

Soil Yellow Loamy Sand with Clay on Surface

Rock Type

Vegetation Shrubland of *Acacia acuminata* and *Grevillea obliquistigma* subsp. *funicularis* over Open Grassland of

**Ehrharta longiflora* and *Amphipogon caricinus* var. *caricinus*

Veg Condition Degraded to Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 70%
 Litter Cover: 1% Logs, 2% Twigs, 15% Lvs.
 Disturbance: 70%

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	20%	2m	WR67.05	
<i>Acacia coolgardiensis</i>	1%	3m	WR60.02	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	5%	0.4m	WR60.01	
* <i>Arctotheca calendula</i>	1%	0.2m	NC	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.15m	WR60.10	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.05m	WR01.16	F
* <i>Ehrharta longiflora</i>	10%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.11m	WR50.14	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	1.5m	WR60.04	
* <i>Hypochaeris glabra</i>	+	0.2m	WR67.01	F
<i>Levenhookia leptantha</i>	+	0.1m	WR67.02	F
<i>Monachather paradoxus</i>	+	0.4m	WR53.16	
<i>Podolepis capillaris</i>	+	0.25m	WRR53.02	F
<i>Podotheca angustifolia</i>	+	0.25m	WR01.25	F
<i>Pogonolepis stricta</i>	+	0.1m	WR60.13	F
<i>Rhagodia drummondii</i>	+	1m	WR67.04	
<i>Solanum lasiophyllum</i>	+	0.3m	WRR51.04	
* <i>Vaccaria hispanica</i>	+	0.4m	WR67.03	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.3m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.3m	WR01.20	F

Westnet Rail Site WR68

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **367899 mE** **6831378 mN**

Habitat Plain

Soil Yellow Sandy Loam with Surface Clay

Rock Type

Vegetation Tall Open Shrubland of *Acacia acuminata* over Shrubland of *Acacia coolgardiensis*

Veg Condition Good

Fire Age Moderate

Notes Aspect: N/A
 Topography: Plain
 Ground Cover: 85%
 Litter Cover: 1% Logs, 5% Twigs, Lvs.
 Disturbance: Clearing, Fire

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	5%	2.5m	WR67.05	
<i>Acacia coolgardiensis</i>	15%	1.5-2m	WR60.02	F
<i>Acacia sibirica</i>	+	1m	WR68.06	F
<i>Allocasuarina campestris</i>	+	3m	WR01.01	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
* <i>Arctotheca calendula</i>	+	0.5m	WR04.01	
<i>Astroloma serratifolium</i>	+	0.5m	WR68.03	
<i>Borya constricta</i>	+	0.1m	WR68.09	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.3m	WR60.10	
<i>Cheiranthra simplicifolia</i>	+	0.4m	WR68.04	F
<i>Comesperma integerrimum</i>	+	CR	WR54.06	
<i>Dampiera spicigera</i>	+	0.3m	WR55.12	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR53.02	
<i>Diuris porrifolia</i>	+	0.25m	WR68.08	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.15m	WR01.16	F
<i>Goodenia havilandii</i>	+	0.1m	WR84.03	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	2m	WR60.04	
<i>Hibbertia arcuata</i>			WR68.10b	
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>	+	0.3m	WR62.09	
<i>Melaleuca</i> sp.	+	0.5m	NC	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	+	0.6m	WR53.03	
<i>Mirbelia depressa</i>	+	0.5m	WR68.05	
* <i>Pentastichis airoides</i>	+	0.5m	WR68.10	
<i>Philothea brucei</i> subsp. <i>brucei</i>	+	0.5m	WR68.01	
<i>Philothea brucei</i> subsp. <i>brucei</i>			WR68.11	
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25	F
<i>Pogonolepis stricta</i>	+	0.05m	WR60.13	
<i>Scaevola anchlussifolia</i>	+	0.4m	WR68.02	
<i>Solanum lasiophyllum</i>	1%	0.5m	WRR51.04	F
<i>Stylidium elongatum</i>	+	0.3m	WR68.07	F
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.3m	WR01.20	F

Westnet Rail Site WR69

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **364246 mE** **6834951 mN**

Habitat Plain

Soil Brown Loam

Rock Type Granite

Vegetation Open Shrubland of *Acacia acuminata* and *Senna charlesiana* over Low Shrubland of *Acacia*

andrewsii, *Ptilotus obovatus*, *Maireana georgei* and *Maireana tomentosa* over Open Herbland of

Hyalosperma glutinosum subsp. *Glutinosum*, *Cephalopterum drummondii* and *Waitzia acuminata* var.

i

Veg Condition Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground:

Litter Cover: <1% Logs, 1% Twigs, 10% Lvs.

Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	7%	1.5-2m	WR67.05	
<i>Acacia andrewsii</i>	2%	0.5m	WR69.08	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Austrostipa elegantissima</i>	2%	0.5m	WR01.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WROPCS11	
<i>Borya constricta</i>	+	0.3m	WR68.09	
<i>Brachyscome oncocarpa</i>	+	0.2m	WR57.01	
<i>Cephalopterum drummondii</i>	1%	0.25m	WR59.12	F
<i>Daucus glochidiatus</i>	+	0.3m	WR69.09	
<i>Dodonaea inaequifolia</i>	+	1m	WR61.09	
* <i>Ehrharta longiflora</i>	+	0.5m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.15m	WR50.14	F
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	1%	3m	WR69.11	
<i>Halgania cyanea</i> var. <i>Allambi Stn (B.W. Strong 676)</i>	+	0.5m	WR69.06	
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	5%	0.2m	WR69.02	F
* <i>Hypochoeris glabra</i>	+	0.2m	WR50.17	F
Indeterminate	+	0.1m	WR69.10	
<i>Maireana georgei</i>	1%	0.5m	WR50.12	
<i>Maireana tomentosa</i>	1%	0.4m	WR69.07	F
<i>Maireana tomentosa</i>	1%	0.3m	WRR51.02	
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10	F
* <i>Pentastichis airoides</i>	+	0.1m	WR68.10	
<i>Philoteca brucei</i> subsp. <i>brucei</i>	1%	3m	WR68.11	F
* <i>Portulaca oleracea</i>	+	0.2m	WR52.04	
<i>Ptilotus obovatus</i>	1%	0.7m	WR69.05	F
<i>Sclerolaena densiflora</i>	+	0.2m	WR69.03	
<i>Senna charlesiana</i>	1%	1.5m	WR69.01	F

<i>*Urospermum picroides</i>	+	0.4m	WR53.17	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR69.04	F

Westnet Rail Site WR70

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 363380 mE 6837073 mN

Habitat Plain

Soil Brown Sand

Rock Type

Vegetation Open Shrubland of *Grevillea obliquistigma* subsp. *Funicularis* and *Acacia stereophylla* var.

stereophylla over Low Open Shrubland of *Keraudrenia hermanniifolia* and *Halgania cyanea* var.

Allambi Stn (B.W. Strong 676) over Very Open Grassland of **Ehrharta longiflora*, *Austrostipa*

elegantissima and *Aristida contorta* over Open Herbland of *Cephalipterum drummondii*, *Daucus*

glochidiatus, **Brassica napus*, *Podolepis canescens* and *Podolepis capillaris*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 80%
 Litter Cover: - Logs, 1% Twigs, 1% Lvs.
 Disturbance: Clearing, Nearby Road, Weeds.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	1%	2m	WR57.03	
<i>*Arctotheca calendula</i>	+	0.2m	WR04.01	
<i>Aristida contorta</i>	1%	0.4m	WR70.06	F
<i>Austrostipa elegantissima</i>	2%	0.5m	WR01.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WR70.07	
<i>Borya sphaerocephala</i>	+	0.1m	WR70.03	
<i>*Brassica napus</i>	1%	0.6m	WR02.22	F
<i>Cephalipterum drummondii</i>	5%	0.2m	WR59.12	F
<i>Daucus glochidiatus</i>	4%	0.5m	WR69.09	F
<i>Dichopogon capillipes</i>	+	0.3m	WR70.08	F
<i>Dodonaea inaequifolia</i>	+	1m	WR61.09	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	F
<i>Echium</i> sp.	+	0.4m	WROPCS10	F
<i>*Ehrharta longiflora</i>	5%	0.4m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR50.14	F
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	+	2m	WR70.04	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	2%	1m	WR60.04	F
<i>Halgania cyanea</i> var. Allambi Stn (B.W. Strong 676)	1%	0.5m	WR70.01	F
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	0.2m	WR69.02	F
<i>*Hypochaeris glabra</i>	+	0.2m	WR50.17	
Indeterminate	+	0.3m	WR70.05	
<i>Keraudrenia hermanniifolia</i>	1%	0.6m	WROPCS03	F
<i>Maireana georgei</i>	+	0.3m	WR50.12	
<i>Maireana tomentosa</i>	+	0.5m	WR69.07	
<i>Monachather paradoxus</i>	+	0.4m	WR53.16	

<i>*Monoculus monstrosus</i>	+	0.25m	WR50.10	
<i>*Pentaschistis airoides</i>	+	0.1m	WR68.10	
<i>Podolepis canescens</i>	1%	0.2m	WR55.09	F
<i>Podolepis capillaris</i>	1%	0.2m	WRR53.02	F
<i>Ptilotus obovatus</i>	+	0.4m	WR69.05	F
<i>Rulingia luteiflora</i>			WR70.02	
<i>Senna charlesiana</i>	+	1m	WR69.01	F
<i>Sida calyxhymenia</i>	+	0.3m	WR70.09	F
<i>Solanum lasiophyllum</i>	+	0.4m	WRR51.04	F
<i>Stylidium</i> sp.	+	0.3m	NC	4734
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F

Westnet Rail Site WR71

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **Coordinates** 361604 mE 6838571 mN

Habitat Plain

Soil Brown Loam

Rock Type Granite and Quartz

Vegetation Tall Open Shrubland of *Acacia sclerosperma* subsp. *Sclerosperma*, *Acacia* sp. and *Acacia acuaria*

over Low Shrubland of *Pimelea microcephala* subsp. *Microcephala*, *Rhagodia drummondii*, *Maireana*

tomentosa, *Maireana georgei* and *Atriplex codoncarpa* over Very Open Grassland of *Ehrharta*

longiflora and *Austrostipa elegantissima* over Open Herbland of **Sisymbrium irio* and *Chenopodium*

gaudichaudianum

Veg Condition Good

Fire Age Very Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 30%

Litter Cover: 5% Logs, 5% Twigs, 60% Lvs.

Disturbance: Weeds, Clearing, Nearby Track, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	1%	3m	WR60.08	F
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	3%	4m	WR71.06	F
<i>Acacia</i> sp.	2%	5m	WR71.02	
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	+	2m	WR57.03	
<i>*Arctotheca calendula</i>	+	0.1m	WR04.01	
<i>Atriplex codoncarpa</i>	1%	0.3m	WR71.05	F
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.2m	WROPSC11	F
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.1m	WR71.07	F
<i>Chenopodium gaudichaudianum</i>	5%	0.4m	WR55.04	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR53.02	
<i>Echium</i> sp.	+	0.1m	WROPSC10	
<i>*Ehrharta longiflora</i>	1%	0.5m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.3m	WR50.14	F
<i>Halgania cyanea</i> var. Allambi Stn (B.W. Strong 676)	+	0.3m	WR70.01	
Indeterminate	+	0.3m	WR71.03	
<i>Maireana georgei</i>	1%	0.4m	WR50.12	
<i>Maireana tomentosa</i>	10%	0.4m	WRR51.02	F
<i>Maireana tomentosa</i>	+	0.3m	WR69.07	
<i>*Monoculus monstrosus</i>	+	0.2m	WR50.10	F
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	12%	1m	WR54.11	F
<i>Podolepis canescens</i>	+	0.2m	WR55.09	F
<i>*Portulaca oleracea</i>	+	0.2m	WR52.04	
<i>Rhagodia drummondii</i>	1%	0.6m	WR54.09	F
<i>Sclerolaena densiflora</i>	+	0.2m	WR69.03	

<i>Senna charlesiana</i>	+	1.5m	WR59.04	F
* <i>Sisymbrium irio</i>	3%	0.5m	WR71.04	F

Westnet Rail Site WR72

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **359645 mE** **6840019 mN**

Habitat Plain

Soil Brown Clayey Loam

Rock Type Granite / Quartz

Vegetation Tall Open Shrubland of *Hakea recurva* subsp. *recurva* over Open Shrubland of *Acacia acuminata* and

Acacia acuaria over Very Open Grassland of *Austrostipa variabilis*, *Monachather paradoxus* and

**Ehrharta longiflora* over Very Open Herbland **Arctotheca calendula* and *Cephalopterum drummondii*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 60%

Litter Cover: 1% Logs, 5% Twigs, 20% Lvs.

Disturbance: Rubbish, Clearing, Weeds, Nearby Roads.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	2%	1m	WR60.08	
<i>Acacia acuminata</i>	7%	1.5m	WR67.05	
<i>*Arctotheca calendula</i>	2%	0.2m	WR04.01	F
<i>Austrostipa variabilis</i>	1%	0.6m	WR72.03	F
<i>Cephalopterum drummondii</i>	1%	0.2m	WR59.12	F
<i>Chenopodium gaudichaudianum</i>	1%	0.4m	WR55.04	
<i>Dichopogon capillipes</i>	+	0.4m	WR70.08	
<i>Echium</i> sp.	+	0.3m	WROPCS10	F
<i>*Ehrharta longiflora</i>	1%	0.5m	WR50.05	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	F
<i>Hakea recurva</i> subsp. <i>recurva</i>	2%	3m	WR72.02	
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	0.05m	WR72.01	F
<i>*Limonium lobatum</i>	+	0.3m	WR72.04	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Maireana tomentosa</i>	+	0.5m	WR69.07	F
<i>Monachather paradoxus</i>	2%	0.5m	WR53.16	F
<i>*Monoculus monstrosus</i>	+	0.25m	WR50.10	F
<i>*Pentaschistis airoides</i>	+	0.1m	WR68.10	F
<i>Podolepis canescens</i>	+	0.25m	WR55.09	F
<i>Podolepis capillaris</i>	+	0.3m	WRR53.02	F
<i>Ptilotus obovatus</i>	+	0.5m	WR69.05	F
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	+	0.6m	WR50.07	
<i>Rhodanthe spicata</i>	+	0.2m	WR72.05	F
<i>Sclerolaena densiflora</i>	+	0.15m	WR69.03	
<i>Solanum lasiophyllum</i>	+	0.5m	WRR51.04	F
<i>*Urospermum picroides</i>	+	0.4m	WR53.17	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.25m	WR69.04	F

Westnet Rail Site WR73

Described by Ciaran Sqherza **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **356188 mE** **3841750 mN**

Habitat Plain

Soil Brown Loam

Rock Type

Vegetation Tall Open Shrubland *Acacia acuaria* over Open Shrubland of *Acacia acuminata*, *Acacia coolgardiensis* and *Rhagodia drummondii* over Low Shrubland *Maireana tomentosa* over Open Grassland of **Ehrharta longiflora* over Very Open Herbland of **Gorteria personata*, *Podolepis capillaris*, *Arctotheca calendula*, **Hypochaeris glabra* and *Erodium cygnorum* subsp. *cygnorum*

Veg Condition Degraded to Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 40%
 Litter Cover: <1% Logs, 3% Twigs, 10% Lvs.
 Disturbance: Nearby Road, Clearing, Weeds.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	2%	2.5m	WR60.08	
<i>Acacia acuminata</i>	3%	2m	WR67.05	
<i>Acacia coolgardiensis</i>	2%	2m	WR60.02	F
<i>*Arctotheca calendula</i>	1%	0.25m	WR04.01	F
<i>*Brassica napus</i>	+	0.5m	WR02.22	F
<i>Chenopodium gaudichaudianum</i>	+	1m	WR55.04	F
<i>Echium</i> sp.	+	0.2m	WROPCS10	F
<i>*Ehrharta longiflora</i>	20%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	1%	0.1m	WR50.14	F
<i>Eucalyptus loxophleba</i> subsp. <i>supralaervis</i>	1%	5m	WR73.03	F
<i>*Gorteria personata</i>	1%	0.2m	WR73.01	
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	2m	WR72.02	
<i>*Hypochaeris glabra</i>	1%	0.25m	WR73.02	F
Indeterminate	+	0.2m	NC	F-
Purple				
<i>*Lupinus cosentinii</i>	+	0.3m	WR06.04	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Maireana tomentosa</i>	20%	0.4m	WRR51.02	
<i>Maireana tomentosa</i>	1%	0.4m	WR69.07	
<i>Melaleuca uncinata</i>	+	2m	WR73.04	
<i>*Monoculus monstrosus</i>	+	0.3m	WR50.10	
<i>*Pentaschistis airoides</i>	+	0.2m	WR68.10	F
<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	+	1m	WR54.11	
<i>Podolepis canescens</i>	+	0.25m	WR55.09	F
<i>Podolepis capillaris</i>	1%	0.2m	WRR53.02	F
<i>*Portulaca oleracea</i>	+	0.2m	WR52.04	
<i>Rhagodia drummondii</i>	2%	1m	WR54.09	



Westnet Rail Site WR74

Described by Ciaran Sqherza **Date** 19/09/110 **Type** Quadrat **10 x 40 m**

Location Mullewa

MGA Zone 50J **357407 mE** **6841566 mN**

Habitat Plain

Soil Brown Loam with Some Clay at Surface

Rock Type Quartz and Granite

Vegetation Open Grassland of **Ehrharta longiflora*, *Austrostipa scabra* subsp. *scabra* and **Pentaschistis airoides*

over Open Herbland of *Cephalipterum drummondii*, *Echium* sp., **Monoculus monstrosus*

and *Sclerolaena densiflora*

Veg Condition Degraded to Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 80%
Litter Cover: <1% Logs, 1% Twigs, <1% Lvs.
Disturbance: Clearing, Weeds, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	1.5m	WR67.05	
<i>Acacia andrewsii</i>	+	0.4m	WR69.08	
<i>*Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Atriplex codonocarpa</i>	+	0.2m	WR74.01	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	2%	0.3m	WROPCS11	F
<i>*Brassica napus</i>	+	0.5m	WR02.22	F
<i>Cephalipterum drummondii</i>	7%	0.25m	WR59.12	F
<i>Chenopodium gaudichaudianum</i>	+	0.5m	WR55.04	
<i>Echium</i> sp.	2%	0.5m	WROPCS10	F
<i>*Ehrharta longiflora</i>	10%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	F
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	1.5m	WR72.02	
Indeterminate	+	0.6m	NC	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Maireana tomentosa</i>	+	0.4m	WR69.07	
<i>*Monoculus monstrosus</i>	1%	0.3m	WR50.10	F
<i>*Pennisetum setaceum</i>	+	0.5m	NC	F
<i>*Pentaschistis airoides</i>	1%	0.1m	WR68.10	F
<i>*Portulaca oleracea</i>	+	0.2m	WR52.04	
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	+	0.4m	WR50.07	
<i>Sclerolaena densiflora</i>	1%	0.2m	WR69.03	
<i>Senna charlesiana</i>	+	0.3m	WR59.04	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.25m	WR69.04	F

Westnet Rail Site WR75

Described by Ciaran Sqherza **Date** 19/09/2010 **Type** Quadrat 10 x 40 m

Location Mullewa

MGA Zone 50J 353067 mE 6840985 mN

Habitat Low Rocky Hill

Soil Brown Loam with Some Clay at Surface

Rock Type Granite

Vegetation Open Shrubland of *Acacia acuminata* over Very Open Grassland of *Ehrharta longiflora* and

**Pentaschistis airoides* over Very Open Herbland *Waitzia acuminata* var. *acuminata*,
Cephalopterum drummondii and *Podolepis capillaris*

Veg Condition Degraded to Good

Fire Age Old

Notes Aspect: West
Topography: Low Rocky Hill
Bare Ground: 80%
Litter Cover: 1% Logs, 15% Twigs, 2% Lvs.
Disturbance: Clearing, Weeds, Tracks, Rubbish, Earth Moving.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	+	1.5m	WR60.08	F
<i>Acacia acuminata</i>	5%	1.5m	WR67.05	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WROPCS11	F
<i>Borya sphaerocephala</i>	+	0.2m	WR60.17	F
<i>Cephalopterum drummondii</i>	1%	0.2m	WR59.12	F
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.02m	WR75.04	F
<i>Dichopogon capillipes</i>	+	0.3m	WR70.08	F
<i>Echium</i> sp.	+	0.4m	WROPCS10	F
<i>*Ehrharta longiflora</i>	5%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	F
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>	+	CR	WR75.02	F
Indeterminate	+	0.05m	WR75.03	F
<i>*Lupinus cosentinii</i>	+	0.3m	WR06.04	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Maireana tomentosa</i>	+	0.4m	WR69.07	
<i>*Monoculus monstrosus</i>	+	0.3m	WR50.10	F
<i>*Pentaschistis airoides</i>	1%	0.1m	WR68.10	F
<i>Podolepis capillaris</i>	1%	0.15m	WRR53.02	F
<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>	+	0.15m	WR75.01	F
<i>Sclerolaena densiflora</i>	+	0.3m	WR69.03	
<i>Solanum lasiophyllum</i>	+	0.4m	WRR51.04	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	2%	0.25m	WR69.04	F

Westnet Rail Site WR76

Described by Ciaran Sqherza **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **349800 mE** **6839537 mN**

Habitat Plain

Soil Brown Loam with Some Clay at Surface

Rock Type

Vegetation Shrubland of *Acacia acuminata*, *Acacia rostellifera*, *Senna charlesiana* and *Rhagodia preissii* subsp.

obovata over Low Open Shrubland of *Chenopodium gaudichaudianum*, *Maireana tomentosa* and

Baeckea sp. Walkaway (A.S. George 11249) over Very Open Grassland of **Ehrharta longiflora*,

**Bromus rubens*, *Austrostipa elegantissima*, **Lamarckia aurea* and **Lolium perenne x rigidum* over Open

Herbland of **Arctotheca calendula*, *Cephalipterum drummondii* and *Erodium cygnorum* subsp.

cygnorum

Veg Condition Degraded to Good

Fire Age

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 10%
 Litter Cover: 1% Logs, 15% Twigs, 30% Lvs.
 Disturbance: Weeds, Clearing, Tracks, Rubbish

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	20%	2m	WR67.05	
<i>Acacia andrewsii</i>	+	1m	WR69.08	
<i>Acacia rostellifera</i>	1%	1.5-2m	WR55.06	f
<i>*Arctotheca calendula</i>	5%	0.2m	WR04.01	F
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	F
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.3m	WROPCS11	F
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	1%	0.2m	WR09.04	F
<i>*Brassica napus</i>	+	0.5m	WR02.22	F
<i>*Bromus rubens</i>	10%	0.25m	WR76.02	F
<i>Cephalipterum drummondii</i>	1%	0.2m	WR59.12	F
<i>Chenopodium gaudichaudianum</i>	5%	0.5m	WR55.04	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.4m	WR53.02	
<i>*Ehrharta longiflora</i>	10%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	1%	0.1m	WR50.14	F
<i>Glischrocaryon aureum</i>	+	1m	WR51.02	
<i>*Hypochaeris glabra</i>	+	0.3m	WR50.17	F
Indeterminate	+	CR	NC	F
<i>*Lamarckia aurea</i>	1%	0.2m	WR76.04	F
<i>*Lolium perenne x rigidum</i>	5%	0.3m	WR76.05	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Maireana tomentosa</i>	5%	0.3m	WRR51.02	F
<i>Maireana tomentosa</i>	1%	0.3m	WR69.07	F
<i>*Monoculus monstrosus</i>	+	0.25m	WR50.10	F

<i>Podolepis canescens</i>	+	0.25m	WR55.09	F
<i>Podolepis capillaris</i>	+	0.2m	WRR53.02	F
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	1%	1.5m	WR76.03	
<i>Senna charlesiana</i>	+	1m	WR59.04	F
<i>Senna charlesiana</i>	1%	1.5m	WR76.01	F

Westnet Rail Site WR77

Described by Ciaran Sqherza **Date** 19/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **344733 mE** **6835222 mN**

Habitat Sandplain

Soil Yellow / Brown Sand

Rock Type

Vegetation Open Shrubland of *Acacia rostellifera* over Low Open Shrubland of *Thryptomene stronglylophylla*,

Calytrix sp. Paynes Find, *Rhagodia drummondii*, *Grevillea hakeoides* subsp. *hakeoides*, *Mirbelia*

trichocalyx over Very Open Grassland of **Ehrharta longiflora*, *Monachather paradoxus*

and

Austrostipa elegantissima

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 60%
 Litter Cover: <1% Logs, 3% Twigs, 5% Lvs.
 Disturbance: -

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuarria</i>	+	0.6m	WR77.03	F
<i>Acacia rostellifera</i>	2%	1.5m	WR55.06	F
<i>Acacia saligna</i>	+	0.3m	WR77.11	
<i>Acanthocarpus preissii</i>	+	0.4m	WR55.10	
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	+	0.4m	WR77.07	F
<i>Bursaria occidentalis</i>	+	1.2m	WR59.03	
<i>Calytrix</i> sp. Paynes Find	1%	0.5m	WR77.01	F
<i>Chenopodium gaudichaudianum</i>	+	0.5m	WR55.04	
<i>Comesperma scoparium</i>	+	0.5m	WR77.05	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.6m	WR53.02	
<i>Diplolaena leemaniana</i>	+	0.4m	WR77.15	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.15m	WR01.16	
<i>*Ehrharta longiflora</i>	2%	0.5m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR50.14	F
<i>Eucalyptus eudesmioides</i>	1%	3m	WR77.08	
<i>Grevillea hakeoides</i> subsp. <i>hakeoides</i>	1%	0.5m	WR77.09	F
<i>Grevillea vestita</i> subsp. <i>isopogoides</i>	+	0.4m	WR77.06	
<i>Jacksonia rhadinoclada</i>	+	0.5m	WR77.13	
<i>Keraudrenia hermanniifolia</i>	+	0.5m	WROP303	F
<i>*Lupinus cosentinii</i>	+	0.3m	WR06.04	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Mirbelia trichocalyx</i>	2%	0.4m	WR55.08	
<i>Monachather paradoxus</i>	2%	0.4m	WR53.16	F
<i>Muehlenbeckia</i> sp.	+	0.5m	NC	
<i>Opercularia spermacoea</i>	+	0.4m	WR77.14	
<i>Opercularia vaginata</i>	+	0.4m	WR77.12	

<i>*Pentaschistis airoides</i>	+	0.1m	WR68.10	F
<i>Podolepis canescens</i>	+	0.2m	WR55.09	F
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25	F
<i>Ptilotus polystachyus</i>	+	0.4m	NC	F
<i>Rhagodia drummondii</i>	1%	0.5m	WR77.10	
<i>Rhagodia preissii</i> subsp. <i>obovata</i>	+	0.5m	WR77.04	
<i>Schoenia cassiniana</i>	+	0.2m	WR53.15	F
<i>Thryptomene strongylophylla</i>	3%	0.5m	WR77.02	
<i>Thysanotus patersonii</i>	+	CR	WR01.04	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.25m	WR01.20	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	

Westnet Rail Site WR78

Described by Ciaran Sqherza **Date** 20/09/2010 **Type** Quadrat **40mx10m**

Location Mullewa

MGA Zone 50J **369162 mE** **6829293 mN**

Habitat Plain

Soil Yellow Brown Loam with Pebbles on the Surface

Rock Type Granite

Vegetation Tall Shrubland of *Acacia coolgardiensis* over Low Open Shrubland of *Verticordia capillaris*, *Grevillea*

granulosa, *Cheyniana microphylla* (C.A. Gardner) Rye and *Hibbertia glomerosa* var. *bistrata* over

Very Open Sedgeland of *Ecdeiocolea monostachya*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
Topography: Plain
Bare Ground: 60%
Litter Cover: 1% Logs, 5% Twigs, 20% Lvs.
Disturbance: Nearby Tracks.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	+	2m	WR67.05	F
<i>Acacia coolgardiensis</i>	30%	2-3m	WR60.02	F
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	
<i>Austrostipa elegantissima</i>	+	0.5m	WR01.31	
<i>Borya sphaerocephala</i>	+	0.1m	WR60.17	F
<i>Brunonia australis</i>	+	0.1m	WR78.10	F
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	+	0.1m	WR60.10	
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye	1%	0.4m	WR62.10	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	
<i>Diuris porrifolia</i>	+	0.3m	WR68.08	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	F
<i>Ecdeiocolea monostachya</i>	2%	0.5m	WR78.03	F
<i>Eremophila glandulifera</i>	+	0.2m	WROPCS49	F
<i>Gilberta tenuifolia</i>	+	0.15m	WR78.09	F
<i>Grevillea granulosa</i>	1%	0.5m	WR78.07	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	1m	WR78.06	F
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	+	0.3m	WR78.05	F
<i>Hibbertia glomerosa</i> var. <i>bistrata</i>	1%	0.3m	WR78.05	F
<i>Keraudrenia</i> sp.	+	0.5m	NC	F
<i>Lobelia</i> sp.	+	0.2m	NC	F
<i>Malleostemon tuberculatus</i>	+	1m	WR78.08	F
<i>Melaleuca atroviridis</i>	+	1m	WR78.04	
<i>Mirbelia trichocalyx</i>	+	0.3m	WR55.08	F
* <i>Monoculus monstrosus</i>	+	0.3m	WR50.10	F
<i>Muehlenbeckia</i> sp.	+	0.4m	NC	
<i>Platysace trachymenioides</i>	+	0.4m	WR78.01	
<i>Solanum lasiophyllum</i>	+	0.5m	WRR51.04	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	

<i>Trachymene ornata</i>	+	0.2m	WR60.11	F
<i>Verticordia capillaris</i>	1%	1m	WR78.02	
<i>Verticordia eriocephala</i>			WR78.07b	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR01.20	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F

Westnet Rail Site WR79

Described by Ciaran Sqherza **Date** 22/09/2010 **Type** Quadrat

Location Mullewa

MGA Zone 50J 332871 **mE** 6828766 **mN**

Habitat Plain

Soil Yellow Sand

Rock Type

Vegetation Open Shrubland of *Acacia rostellifera*, *Thryptomene* sp. Wandana, *Rhagodia drummondii* and

Baeckea sp. Dudawa (M.E. Trudgen MET 5369) over Low Open Shrubland of *Grevillea hakeoides*

subsp. *Hakeoides* and *Keraudrenia hermanniifolia* over Open Grassland of *Austrostipa elegantissima*,

**Ehrharta longiflora*, *Austrostipa scabra* subsp. *Scabra* and *Monochather paradoxus* over Very Open

Herbland of *Drosera neesii* subsp. *Borealis*

Veg Condition Good to Very Good

Fire Age Old

Notes Aspect: N/A

Topography: Plain

Bare Ground: 60%

Litter Cover: 1% Logs, 4% Twigs, 20% Lvs.

Disturbance: Weeds, Rubbish, Nearby Tracks and Highway

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia leptospermoides</i> subsp. <i>psammophila</i>	OUT		WR79.11	
<i>Acacia rostellifera</i>	1%	1.5m	WR55.06	F
<i>Acacia rostellifera</i>	+	0.5m	WR79.06	
<i>Acanthocarpus preissii</i>	+	0.4m	WR55.10	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Austrostipa elegantissima</i>	10%	0.5m	WR01.31	
<i>Austrostipa scabra</i> subsp. <i>scabra</i>	1%	0.4m	WROPCS11	F
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	1%	1m	WR79.03	
* <i>Brassica napus</i>	+	0.5m	WR02.22	F
<i>Cassutha glabella</i> forma <i>dispar</i>	+	CR	WR62.16	
<i>Comesperma scoparium</i>	+	1m	WR79.09	F
<i>Dampiera spicigera</i>	+	1.5m	WROPCS99	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.2m	WR01.16	F
<i>Drosera neesii</i> subsp. <i>borealis</i>	2%	0.3m	WR50.09	
* <i>Ehrharta longiflora</i>	5%	0.5m	WR50.05	
<i>Eucalyptus horistes</i>	1%	4m	WR79.01	
<i>Grevillea hakeoides</i> subsp. <i>hakeoides</i>	2%	0.6m	WR79.05	F
<i>Hakea pycnoneura</i>	+	2.5m	WR79.08	
<i>Keraudrenia hermanniifolia</i>	1%	0.3m	WROPCS03	F
<i>Maireana georgei</i>	+	0.4m	WR50.12	
<i>Monochather paradoxus</i>	1%	0.4m	WR79.10	F
<i>Muehlenbeckia</i> sp.	+	0.4m	NC	
* <i>Pentaschistis airoides</i>	+	0.15m	WR68.10	F
<i>Podolepis canescens</i>	+	0.2m	WR55.09	F

<i>Podolepis capillaris</i>	+	0.2m	WRR53.02	F
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25	
<i>Rhagodia drummondii</i>	2%	1m	WR79.04	
<i>Schoenia cassiniana</i>	+	0.1m	WR53.15	F
<i>Solanum hesperium</i>	+	0.2m	WR79.07	
<i>Thryptomene</i> sp. <i>Wandana</i>	2%	1m	WR79.02	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	F
<i>Trachymene ornata</i>	+	0.15m	WR60.11	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.25m	WR02.06	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F

Westnet Rail Site WR80

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat 10 x 40 m

Location Morawa

MGA Zone 50J 400631 mE 6786890 mN

Habitat Sandplain

Soil Red Sand and Gravel

Rock Type Granite Pebbles

Vegetation Tall Open Shrubland of *Acacia ramulosa* var. *linophylla*, *Grevillea obliquistigma* subsp. *funicularis*

and *Grevillea levis* over Open Shrubland of *Acacia ulicina* over Open Grassland of
 ***Lolium perenne* x
rigidum and ***Bromus rubens* over Very Open Herbland of **Arctotheca calendula*

Veg Condition Good to Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 60%
 Litter Cover: <1% Logs, 3% Twigs, 10% Lvs.
 Disturbance: Rail and Tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>		2m	WR60.08	
<i>Acacia ramulosa</i> var. <i>linophylla</i>	3%	2.5m	WR80.06	F
<i>Acacia ulicina</i>	+	0.4m	WR80.11	F
<i>Acacia ulicina</i>	2%	1m	WR80.02	F
<i>Acacia ulicina</i>	+	0.5m	WR80.05	
* <i>Arctotheca calendula</i>	1%	0.2m	WR04.01	
<i>Austrostipa elegantissima</i>		0.4m	WR80.07	
* <i>Brassica napus</i>	+	0.5m	WR02.22	
* <i>Bromus rubens</i>	1%	0.2m	WR76.02	
<i>Cephalopterum drummondii</i>	+	0.2m	WR59.12	F
<i>Comesperma acerosum</i>	+	0.3m	WR79.09	
<i>Crassula colorata</i> var. <i>acuminata</i>	+		WR80.10	
<i>Echium</i> sp.	+	0.3m	WROPCS10	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.3m	WR50.14	
<i>Grevillea levis</i>	1%	2.5m	WR80.03	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	1%	4m	WR80.01	F
<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>	+	0.5m	WR80.04	F
* <i>Lolium perenne</i> x <i>rigidum</i>	10%	0.3m	WR80.08	
<i>Maireana aphylla</i>	+	0.3m	WR80.09	
<i>Maireana tomentosa</i>	1%	0.5m	WRR51.02	
* <i>Monoculus monstrosus</i>	+	0.3m	WR50.10	
* <i>Pentaschistis airoides</i>	+	0.1m	WR68.10	
<i>Podolepis canescens</i>	+	0.5m	WR55.09	
<i>Ptilotus obovatus</i>	+	0.4m	WR69.05	
<i>Ptilotus polystachyus</i>	+	0.3m	NC	
<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>	+	0.4m	WR80.12	F
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
* <i>Urospermum picroides</i>	+	0.5m	WR53.17	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR50.01	

Westnet Rail Site WR81

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Morawa

MGA Zone 50J **400340 mE** **6786989 mN**

Habitat Flat Sandplain

Soil Light Brown / Red Soft Clay / Sand with Surface Layer of Pebbles

Rock Type Calcrete and Granite

Vegetation Open Heath of *Melaleuca viminea* subsp. *viminea*

Veg Condition Good to Degraded

Fire Age Old

Notes Aspect: South
Topography: Flat Sandplain
Bare Ground: <1% Logs, 5% Twigs, 10% Lvs.
Disturbance: Rail, Track, Agriculture Nearby

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	3m	WR67.05	
<i>Acacia ulicina</i>	+	0.4m	WR80.02	F
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01	F
<i>Arthropodium dyeri</i>	+		WR81.03	f
<i>Austrostipa elegantissima</i>	+	0.3m	WR01.31	
<i>Austrostipa variabilis</i>	+	0.9m	WR81.02	
<i>Clematicissus angustissima</i>	+	CR	WR81.07	F
<i>Clematicissus angustissima</i>	+	0.2m	WR81.10	
<i>Comesperma integerrimum</i>	+	CR	WR65.11	
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR80.10	F
<i>Daucus glochidiatus</i>	+	0.8m	WR69.09	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.8m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.2m	WR50.14	
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	+	4m	WR81.11	ASS
<i>Grevillea granulosa</i>	+	0.3m	WR81.06	
Indeterminate	+	0.1m	NC	F
<i>Maireana aphylla</i>	+	0.3m	WR80.09	
<i>Maireana carnosa</i>	+	0.1m	WR81.12	
<i>Melaleuca fulgens</i> subsp. <i>steedmanii</i>	+	0.6m	WR81.09	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	30%	2m	WR81.01	
<i>Mirbelia depressa</i>	+	0.4m	WR68.05	
<i>Podolepis canescens</i>	+	0.2m	WR55.09	F
<i>Podotheca angustifolia</i>	+	0.2m	WR01.25	F
<i>Pogonolepis stricta</i>	+		WR81.04	
* <i>Portulaca oleracea</i>	+	0.1m	WR52.04	
<i>Rhagodia drummondii</i>	+	0.5m	WR81.05	
<i>Senna charlesiana</i>	+	0.3m	WR81.08	
<i>Velleia rosea</i>	+	0.1m	WR81.13	
<i>Velleia rosea</i>	+	0.2m	WR60.12	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR50.01	F

Westnet Rail Site WR82

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat 20 x 20m

Location Mullewa

MGA Zone 50J 400054 mE 6784388 mN

Habitat Sandplain

Soil Red Brown Hard Loam

Rock Type

Vegetation Open Tree Malle of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Shrubland of *Acacia*

acuminata and *Acacia ramulosa* var. *linophylla* over Very Open Grassland of *Austrostipa elegantissima* and *Austrostipa variabilis*

Veg Condition Good to Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 50%
 Litter Cover: <1% Logs, 5% Twigs, 20% Lvs.
 Disturbance: Track on sides, Track Through Middle.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	5%	3m	WR67.05	
<i>Acacia ramulosa</i> var. <i>linophylla</i>	1%	2.5m	WR80.06	
<i>Acacia ulicina</i>	+	0.4m	WR80.02	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	
<i>Austrostipa variabilis</i>	1%	0.3m	WR81.02	
<i>Chenopodium gaudichaudianum</i>	+	0.3m	WR82.03	F
<i>Comesperma integerrimum</i>	+	CR	WR65.11	F
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR80.10	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	+	0.1m	WR01.16	
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	15%	5m	WR82.02	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	1m	WR82.04	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.4m	WR82.08	
<i>Maireana planifolia</i>	1%	0.3m	WR82.01	
<i>Mirbelia depressa</i>	+	1m	WR68.05	F
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10	F
<i>Podolepis canescens</i>	1%	0.2m	WR55.09	F
<i>Podolepis capillaris</i>	+	0.1m	WRR53.02	F
<i>Ptilotus obovatus</i>	+	0.5m	WR69.05	F
<i>Rhagodia drummondii</i>	+	0.8m	WR81.05	F
<i>Rhodanthe spicata</i>	+	0.1m	WR82.07	
<i>Solanum lasiophyllum</i>	+	0.3m	WRR51.04	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	f
<i>Trachymene ornata</i>	+	0.1m	WR60.11	F
<i>Velleia rosea</i>	+	0.1m	WR60.12	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR69.04	F

Westnet Rail Site WR83

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat 10 x 40 m

Location Morawa

MGA Zone 50J 400140 **mE** 6784077 **mN**

Habitat Sandplain

Soil Pale Brown/Red Sand with Some Loam with Scattered Fine Pebbles

Rock Type Calcrete

Vegetation Tall Shrubland of *Melaleuca viminea* subsp. *Vimineae* and *Acacia ramulosa* var. *linophylla* over Open

Shrubland of *Melaleuca fulgens* subsp. *Steedmanii*, *Baeckea* sp. Gutha (B.L. Rye 239041 & M.E.

Trudgen) and *Acacia acuminata* over Low Open Shrubland of *Grevillea granulosa* over Very Open

Grassland of *Amphipogon caricinus* var. *caricinus*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 70%
 Litter Cover: <1% Logs, 2% Twigs, 6% Lvs.
 Disturbance: Tracks, Nearby Rail.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	1m	WR67.05	
<i>Acacia ramulosa</i> var. <i>linophylla</i>	4%	4m	WR80.06	F
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	+	1.5m	WR83.06	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	2%	0.3m	WR60.01	
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01	F
<i>Astroloma serratifolium</i>	+	0.6m	WR83.05	
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	1%	1.5m	WR83.01	F
<i>Cephalopterum drummondii</i>	+	0.1m	WR59.12	F
<i>Dampiera lavandulacea</i>	+	0.4m	WR83.08	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	1m	WR53.02	
<i>Ecdeiocolea monostachya</i>	1%	0.8m	WR83.07	
<i>Grevillea granulosa</i>	2%	0.8m	WR83.02	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	0.5m	WR82.04	
Indeterminate	+	0.1m	NC	F
<i>Melaleuca atroviridis</i>	+	0.9m	WR83.09	F
<i>Melaleuca fulgens</i> subsp. <i>steedmanii</i>			WR83.06	
<i>Melaleuca fulgens</i> subsp. <i>steedmanii</i>	2%	1m	WR81.09	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	6%	3m	WR81.01	
<i>Mirbelia depressa</i>	+	0.6m	WR68.05	F
* <i>Monoculus monstrosus</i>	+	0.1m	WR50.10	F
<i>Platysace trachymenioides</i>	+	0.8m	WR83.03	
<i>Podolepis canescens</i>	+	0.1m	WR55.09	F
<i>Velleia rosea</i>	+	0.1m	WR81.13	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.1m	WR69.04	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR50.01	F

Westnet Rail Site WR84

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Morawa

MGA Zone 50J **400554 mE** **6781795 mN**

Habitat Sandplain

Soil Pale Brown / Red Sand / Loam with Scattered Pebbles

Rock Type Granite

Vegetation Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Allocasuarina campestris*, *Acacia acuminata* and

Acacia sp. Over Open Shrubland of *Melaleuca viminea* subsp. *Vimineae*, *Baeckea* sp. Gutha (B.L. Rye

239041 & M.E. Trudgen) and *Grevillea granulosa* over Very Open Grassland of *Amphipogon*

caricinus var. *caricinus* and *Pogonolepis stricta*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
Topography: Sandplain
Bare Ground: 50%
Litter Cover: <1% Logs, 3% Twigs, 15% Lvs.
Disturbance: Nearby Rail Line, Nearby Road.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	3.5m	WR67.05	F
<i>Acacia ramulosa</i> var. <i>linophylla</i>	10%	4m	WR80.06	F
<i>Acacia</i> sp.	2%	3m	WR84.06	F
<i>Allocasuarina campestris</i>	5%	4m	WR84.02	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Astroloma serratifolium</i>	+	0.4m	WR83.05	
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)	1%	1.9m	WR83.01	F
<i>Dampiera lavandulacea</i>	+	0.6m	WR83.08	F
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	1.2m	WR53.02	
<i>Ecdiocola monostachya</i>	+	0.5m	WR83.07	
* <i>Ehrharta longiflora</i>	+	0.5m	WR50.05	
<i>Goodenia havilandii</i>	+	0.1m	WR84.03	F
<i>Grevillea granulosa</i>	1%	1m	WR84.01	F
<i>Maireana tomentosa</i>	+	0.2m	WR69.07	
<i>Maireana tomentosa</i>	+	0.6m	WRR51.02	
<i>Melaleuca atroviridis</i>	+	0.3m	WR83.09	F
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	4%	1.5m	WR81.01	
<i>Mirbelia depressa</i>	+	1m	WR68.05	F
* <i>Monoculus monstrosus</i>	+	0.1m	WR50.10	F
<i>Platysace trachymenioides</i>	+	0.4m	WR84.04	
<i>Podolepis canescens</i>	+	0.2m	WR55.09	F
<i>Pogonolepis stricta</i>	1%	<0.1m	WR84.05	
<i>Rhagodia drummondii</i>	+	0.8m	WR81.05	
<i>Solanum lasiophyllum</i>	+	0.6m	WRR51.04	F
<i>Thysanotus patersonii</i>	+	CR	WR01.04	

<i>Velleia rosea</i>	+	0.1m	WR81.13	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR69.04	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR50.01	F

Westnet Rail Site WR85

Described by Lewis Trotter **Date** 21/09/2010 **Type** Quadrat 10 x 40 m

Location Morawa

MGA Zone 50J 401470 mE 6779830 mN

Habitat Sandplain

Soil Pale Brown / Red Sand with Scattered Pebbles

Rock Type Granite

Vegetation Tall Shrubland of *Acacia ramulosa* var. *linophylla*, *Acacia* sp and *Melaleuca viminea* subsp. *Viminea*

over Open Shrubland of *Grevillea obliquistigma* subsp. *Funicularis*, *Acacia longispinea* and *Acacia*

acuarina over Very Open Grassland of *Gahnia drummondii* over Very Open Sedgeland of *Ecdeiocolea monostachya*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain
 Bare Ground: 70%
 Litter Cover: <1% Logs, 4% Twigs, 15% Lvs.
 Disturbance: Nearby Rail Tracks and Car Tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuarina</i>	2%	1m	WR85.01	F
<i>Acacia acuarina</i>	+	0.9m	WR60.08	
<i>Acacia longispinea</i>	1%	2m	WR85.03	
<i>Acacia ramulosa</i> var. <i>linophylla</i>	6%	4m	WR80.06	
<i>Acacia</i> sp.	5%	3m	WR84.06	F
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	+	0.5m	WR60.01	
* <i>Arctotheca calendula</i>	+	0.2m	WR04.01	F
<i>Cassutha glabella</i> forma <i>dispar</i>	+	CL	WR85.05	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.9m	WR53.02	
<i>Ecdeiocolea monostachya</i>	2%	0.8m	WR83.07	
<i>Gahnia drummondii</i>	2%	1m	WR85.02	
<i>Grevillea granulosa</i>	+	0.4m	WR85.06	
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	2%	2m	WR82.04	
Indeterminate	+	0.1m	NC	F
<i>Keraudrenia hermannifolia</i>	+	0.3m	WR85.04	F
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	3%	2.2m	WR81.01	
* <i>Monoculus monstrosus</i>	+	0.1m	WR50.10	F
<i>Platysace trachymenioides</i>	+	0.8m	WR84.04	
<i>Velleia rosea</i>	+	0.1m	WR81.13	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR50.01	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR69.04	F

Westnet Rail Site WR86

Described by Ciaran Sqherza **Date** 21/09/2010 **Type** Quadrat **Size** 10 x 40 m

Location Mullewa

MGA Zone 50J **402044 mE** **6778457 mN**

Habitat Plain

Soil Yellow Brown Loam with Clay at Surface

Rock Type

Vegetation Very Open Tree Mallee *Eucalyptus loxophleba* subsp. *supralae* and *Eucalyptus ewartiana* over

Shrubland of *Melaleuca viminea* subsp. *Viminea*, *Acacia ramulosa* var. *linophylla* and

Acacia acuminata over Very Open Herbland of *Amphipogon caricinus* var. *caricinus* and *Waitzia acuminata* var. *acuminata*

Veg Condition Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 80%
 Litter Cover: 1% Logs, 2% Twigs, 15% Lvs.
 Disturbance: Nearby Road, Weeds, Rubbish.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	1%	2m	WR67.05	
<i>Acacia ramulosa</i> var. <i>linophylla</i>	10%	2m	WR80.06	F
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
* <i>Arctotheca calendula</i>	OUT		WR04.01	
<i>Arthropodium dyeri</i>	+	0.3m	WR86.05	
<i>Austrostipa elegantissima</i>	+	0.5m	WR01.31	
* <i>Brassica napus</i>	OUT		WR02.22	
<i>Chenopodium gaudichaudianum</i>	+	0.4m	WR55.04	
<i>Comesperma integerrimum</i>	+	CR	WR65.11	
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.5m	WR53.02	
<i>Drosera neesii</i> subsp. <i>borealis</i>	OUT		WR01.16	
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	F
<i>Eucalyptus ewartiana</i>	1%	5m	WR86.01	
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	1%	5m	WR82.02	
<i>Gahnia drummondii</i>	+	0.4m	WR86.04	
* <i>Hypochoeris glabra</i>	OUT		WR50.17	
Indeterminate	+	0.5m	WR80.?	
Indeterminate	+	0.4m	WR86.03	
<i>Maireana aphylla</i>	+	0.4m	WR80.09	
<i>Melaleuca uncinata</i>	+	0.5m	WR86.07	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	15%	<2m	WR86.02	
* <i>Monoculus monstrosus</i>	OUT		WR50.10	
<i>Tetragonia diptera</i>	+	0.2m	WR86.06	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR50.01	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.25m	WR01.20	F

Westnet Rail **Site** WROPCO

Described by **Date** **Type** **Quadrat**

Location

MGA Zone

mE

mN

Habitat

Soil

Rock Type

Vegetation

Veg Condition

Fire Age

Notes

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i> 6821661, 1 al, Yellow		2m	WROPJS03	302498, individu Flowers
<i>Acacia bidentata</i> 6821888, 1 al, Yellow		0.6m	WROPKM15	300579, individu Flowers
<i>Acacia burkittii</i> 6808032, 2 als		1.5m	WROPEC28	383491, individu
<i>Acacia coolgardiensis</i> subsp. <i>coolgardiensis</i> 6822829, 2 als, Yellow		2m	WROPKM70	294662, individu Flowers
<i>Acacia dielsii</i> 3 individuals		4m	WROPLT19	Wpt 80,
<i>Acacia dielsii</i> 3 individuals		0.30m	WROPLT19	Wpt 79,
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i> 6822697, 1 al, Yellow		0.4m	WROPKM74	294193, individu Flowers
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i> 6821028, 1 al, Yellow		0.7m	WROPJS13	304662, individu Flowers
<i>Acacia latipes</i> subsp. <i>latipes</i> 6821487, Red		1m	WROPCS142	303335, Flowers
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 125, 3 individuals, Flowers		2m	WROPLT26	Wpt Yellow
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 107, 1 individual, Yellow		2m	WROPLT26	Wpt



Flowers <i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 105, 1 individual,	2m	WROPLT26 Wpt	Yellow
Flowers <i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 104, 3 individuals	2m	WROPLT26 Wpt	
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 103, 1 individual	1m	WROPLT26 Wpt	
<i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 109, 4 individuals,	2m	WROPLT26 Wpt	Yellow
Flowers <i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 122, 1 individual,	1.5m	WROPLT26 Wpt	Yellow
Flowers <i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 126, 5 individuals	2m	WROPLT26 Wpt	Yellow
Flowers <i>Acacia leptospermoides</i> subsp. <i>leptospermoides</i> 132, 88 individuals,	1.5m	WROPLT26 Wpt	Yellow
Flowers, on <i>Acacia megacephala</i> 6821837, 3 als, Yellow	1m	WROPKM48 298458,	Populati individu Flowers

<i>Acacia megacephala</i> 6821645, 1	1.1m	WROPKM05 299215, individu
al		
<i>Acacia megacephala</i> 6821683, 1	1m	WROPKM21 299764, individu
al, Yellow		Flowers
<i>Acacia megacephala</i> 6821375, 4	0.8m	WROPKM48 292283, individu
als, Yellow		Flowers
<i>Acacia megacephala</i> 6821823, 150	1m	WROPKM48 298085, individu
als, Yellow		Flowers
. Population		
<i>Acacia megacephala</i> 6820840, 1	1.5m	WROPKM48 291594, individu
al, Yellow		Flowers
<i>Acacia megacephala</i> 6821966, 16	0.5m	WROPKM48 297072, individu
als, Yellow		Flowers
, Population		
<i>Acacia megacephala</i> 6820437, 4	1m	WROPKM48 290966, individu
als		
<i>Acacia megacephala</i> 6820519, 77	0.3-1.3m	WROPKM48 291067, individu
als, Yellow		Flowers
<i>Acacia megacephala</i> 2 individuals,	1.2m	WROPKM48 WP154, Yellow
Flowers		
<i>Acacia megacephala</i> 6820930, 1	1.5m	WROPKM48 291708, individu
al, Yellow		Flowers
<i>Acacia restiacea</i> 6831790, 3	0.3m	WROPKS50 367446, individu
als, Yellow		Flowers
<i>Acacia spathulifolia</i> 6830659, 1	1m	WROPKS103 336407, individu
al, Yellow		Flowers
<i>Acacia spathulifolia</i> 6830764, 6	1.2m	WROPKS103 336607, individu
als, Yellow		Flowers
<i>Acacia spathulifolia</i> 6830809, 2	1.5m	WROPKS103 336676, individu

als, Yellow			Flowers
<i>Acacia spathulifolia</i> 6830878, 50	1.2m	WROPCS103 336811,	individu
als, Yellow			Flowers
<i>Acacia tetragonophylla</i> 6821853, 1	1.5m	WROPJS01 302142,	individu
al			
<i>Alyogyne huegelii</i> 6822708, 2	2.5m	WROPKM44 294223,	individu
als, Purple			Flowers
<i>Alyogyne pinoniana</i> 6828142, 1	1.5m	WROPCS24 332187,	individu
al,			
<i>Alyxia buxifolia</i> * <i>Anagallis arvensis</i> 6826877, 4	0.1m	WROPCS79 WROPLT05 331529,	individu
als, Purple			Flowers
* <i>Anagallis arvensis</i> 387463,6804580, Blue	0.1m	WROPEC36	
* <i>Arundo donax</i> 6813876,	3m	WROPKM54 280537,	Flowers Many
individuals			
<i>Atriplex bunburyana</i> 6826929, 1	0.4m	WROPLT01 330715,	individu
al			
<i>Atriplex bunburyana</i> <i>Atriplex bunburyana</i> 6826930, 10	1.0m	WROPLT01b WROPLT01 331893,	individu
als			
<i>Atriplex bunburyana</i> 6826876, 1	1m	WROPLT01 331003,	individu
al			
<i>Atriplex bunburyana</i> 6826882, 3	0.5m	WROPLT01 330751,	individu
als			
<i>Atriplex paludosa</i> subsp. <i>baudinii</i> 6833296, >20	<0.9m	WROPCS02 341212,	individu
als			

<i>Atriplex semilunaris</i> 6812540, individuals	0.2m	WROPKM58 279922, Many
<i>Austrostipa scabra</i> subsp. <i>scabra</i> 6839971, >50 als, Brown	0.6m	WROPKS11 350147, individu Flowers
<i>Baeckea crispiflora</i> 6779712, 2 als,	0.4m	WROPKS135 401528, individu
<i>Baeckea crispiflora</i> 0385344, 6806726, 3 als, Pink/ White	0.5- 1m	WROPHA09 individu Flowers
<i>Baeckea decipiens</i> 6808032, 3 als, White	0.6m	WROPEC29 383491, individu flowers
<i>Baeckea decipiens</i> 0383953, 6807493, 40 als, White	0.4m	WROPHA12 individu Flowers
<i>Baeckea grandiflora</i> 1 individual, Flowers	0.4m	WROPKM37 WP124, Pink
<i>Baeckea grandiflora</i> 6822590, 1 al	1.1m	WROPKM78 293996, individu
<i>Baeckea grandiflora</i> 6822215, 1 al, Pink Flowers	0.4m	WR25.03 293102, individu
<i>Baeckea pentagonantha</i> 6827744, 1 al, White Flowers	0.4m	WROPKS29 332058, individu
<i>Baeckea pentagonantha</i> individuals, White	0.3m	WROPKS29 10 Flower
<i>Baeckea pentagonantha</i> 6827969, 1 al, White Flowers	0.7m	WROPKS29 332126, individu
<i>Baeckea pentagonantha</i> 6828844, 3 als, White	1m	WROPKS97 333074, individu
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 6828758, 8 als, White	1m	WROPKS93 332879, individu Flowers
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 6808423, 10 als, White/ Pink	1-1.5m	WROPEC26 382891, individu

<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 6779854, 2	0.4m	WROPCS133401462,	flowers. individu
als, Pink Flowers			
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 6807379.		WROPEC03 384278,	
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 0387817, 6804297, 3	0.6m	WROPHA02	individu
als, White			Flowers
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 135, 5 individuals,	1.6m	WROPLT42 Wpt	White
Flowers			
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 140, 4 individuals	1m	WROPLT42 Wpt	White
Flowers			
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 6806789, 2	0.5m	WROPEC55 385065,	individu
als, White			Flowers
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 0387750, 6804376, 25	0.6m	WROPHA02	individu
als, White			Flowers
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 0385724, 6806333, 10	0.3- 0.6m	WROPHA02	individu
als, White			Flowers
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369) 0385043, 6806763, 15	0.5- 1.5m	WROPHA10	individu
als, White			Flowers
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. 6819053, 1 Trudgen) individual, Pink Flowers	1m	WROPCS88 376930,	
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. Trudgen)			
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. 6781981, 10 Trudgen) individuals, Pink Flowers	1m	WROPCS122400487,	

<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. 6784142, 20 Trudgen) individuals, Pink Flowers	0.6m	WROPCS115 400140,
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. 6808423, 2 Trudgen) individuals, White/ Pink	1m	WROPEC24 382891, flowers.
<i>Baeckea</i> sp. Gutha (B.L. Rye 239041 & M.E. 6808032, 2 Trudgen) individuals, White/ Pink	1.5m	WROPEC31 383491, flowers
<i>Banksia benthamiana</i> 1 individual	5m	WROPLT22 Wpt 93,
<i>Banksia prionotes</i> 6826915, 2 als	3-4m	WROPLT04 331229, individu
<i>Banksia prionotes</i> 6821579, 7 als	6m	WROPKM46 292500, individu
<i>Banksia sceptrum</i> 6821791, 5-10 individuals	4m	WROPKM45 292795,
<i>Banksia sceptrum</i> 6827485, 1 al	4m	WROPKM33 329585, individu
<i>Beaufortia squarrosa</i> 6826876, 2 als	1.2m	WROPLT02 330876, individu
<i>Beaufortia squarrosa</i> 6826901, 2 als	1.8m	WROPLT02 331115, Individu
<i>Beaufortia squarrosa</i> 6826916, 1 al	1.6m	WROPLT02 331179, individu
<i>Beaufortia squarrosa</i> 6826871, 1 al	1.6m	WROPLT02 331586, individu
<i>Bonamia rosea</i> 4 individuals, Flowers	0.3m	WROPLT03 Wpt 34, White
<i>Bonamia rosea</i> 6826892, 1 al, White Flowers	0.9m	WROPLT03 331077, individu
<i>Boronia cymosa</i> 4 individuals, Flowers	0.2m	WROPKM39 WP124, Pink
<i>Brachyloma pirara</i> 6821944, 5 als	0.3m	WROPKM08 300700, individu

* <i>Brassica napus</i> 113, 2 individuals, Flowers <i>Brunonia australis</i> ordinates <i>Brunonia australis</i> 138, 4 individuals, Flowers <i>Caladenia flava</i> subsp. <i>flava</i> 6807156 <i>Caladenia longicauda</i> subsp. <i>borealis</i> 6821081, 1 al <i>Calandrinia eremaea</i> 4 individuals, Flowers <i>Callistemon phoeniceus</i> 6820213, 1 al <i>Calothamnus sanguineus</i> 6821010, 1 al, Red Flowers <i>Calytrix brevifolia</i> 6822071, 4 als, Pink Flowers <i>Calytrix brevifolia</i> 6821899, 17 als, Pink , Population <i>Chamelaucium pauciflorum</i> 6826167, 5 als, White <i>Chamelaucium pauciflorum</i> 6825263, 5 als, White <i>Cheiranthra simplicifolia</i> 1 individual, Purple Flowers <i>Cheiranthra simplicifolia</i> <i>Chorizema racemosum</i> 6804587, Flowers <i>Chorizema racemosum</i> Orange	1m 0.3m 0.3m 0.10m 2.5m 1m 0.4m 0.3m 1m 0.6m 1.2m 0.5m	WROPLT29 WROPEC16 WROPLT44 WROPEC09 WROPJS05 WROPLT08 WROPKM66 WROPKM68 WROPCS157 WROPCS157 WROPCS83 WROPCS83 WROPLT15 WROPEC21b WROPEC35 WROPEC62	Wpt No co- Wpt 384567, 303732, Wpt 36, 290773, 291799, 306538, 306463, 371390, 372038, Wpt 56, 387451, Pea	Yellow Blue 303732, individu Pink individu individu individu Flowers individu Flowers Deep Orange Pea
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* <i>Corymbia citriodora</i> 6+ individuals	15m	WROPKM50 WP160,
<i>Cryptandra arbutiflora</i> var. <i>borealis</i> 1 individual	0.6m	WROPKM30 WP115,
<i>Cyanostegia angustifolia</i> 1 individual,	1m	WROPLT16 wpt 57, Light
Purple Flowers		
<i>Cyphanthera racemosa</i> 6827158, 1	0.6m	WROP38 332080, individu
al, White Flowers		
<i>Dampiera eriocephala</i> 6831723, 1	0.25m	WROP43 367578, individu
al		
<i>Dampiera krauseana</i> 106, Purple	0.1m	WROPLT27 Wpt Flowers
, Population		
<i>Dampiera lavandulacea</i> 6807156		WROPEC08 384567,
<i>Dampiera lavandulacea</i> 6784234, 4	0.3m	WROP112 400126, individu
als, Blue Flowers		
<i>Dampiera lavandulacea</i> 6784087, 2	0.4m	WROP112 400149, individu
als		
<i>Dampiera lindleyi</i> 20+ individuals,	0.3m	WROP42 WP124, White
Purple Flowers		
<i>Dampiera spicigera</i> 6828888, 2	0.25m	WROP99 333161, individu
als, Purple		
<i>Dampiera spicigera</i> 6828949, 50	0.25m	WROP99 333298, individu
als, Purple		
, Population		
<i>Dampiera spicigera</i> 6821143, 3	0.4m	WROP148 303698, individu
als, Purple		
<i>Dampiera spicigera</i> 6821881, 6	0.4m	WROP156 306452, individu
als, Purple		
<i>Dampiera spicigera</i> 6828455, 4	0.35m	WROP17 332317, individu
als, Purple		
<i>Darwinia diosmoides</i> 6829020, 2	1m	WROP102 333459, individu

als, White			Flowers
<i>Darwinia diosmoides</i>		WROPCS107	
<i>Darwinia diosmoides</i>	0.3m	WROPHA03	
0387807, 6804325, 50			individu
als, White			Flowers
<i>Darwinia diosmoides</i>	0.4m	WROPCS127 401363,	
6780086, 2			individu
als, White			Flowers
<i>Darwinia diosmoides</i>	0.5m	WROPCS102 336676,	
6830809, 1			individu
als, Pink Flowers			Flowers
<i>Darwinia diosmoides</i>		WROPEC12 387726,	
6804390. 30			individu
als			Flowers
<i>Darwinia pauciflora</i>	0.7m	WROPKM27 319744,	
6824995, 6			individu
als, White			Flowers
<i>Daviesia benthamii</i> subsp. <i>benthamii</i>	0.5m	WROPCS131 401444,	
6779896, 2			individu
als			Flowers
<i>Daviesia benthamii</i> subsp. <i>benthamii</i>	0.6m	WROPJS08a 304725,	
6821038, 2			individu
als, Red Flowers			Flowers
<i>Dicrastylis soliparma</i>	0.6m	WROPEC48 385772,	
6806353, 1			individu
al, Pink/White			Flowers
<i>Didymanthus roei</i>	0.3m	WROPEC47 395287,	
6794783, 2			individu
als			Flowers
<i>Diplopeltis huegelii</i> var. <i>subintegra</i>	1m	WROPLT36 Wpt	
101, 2 individuals,			Pink
Flowers			Flowers
<i>Diuris corymbosa</i>	0.3m	WROPCS80 369166,	
6829328, 20			individu
als, Yellow			Flower

<i>Diuris corymbosa</i> 6781577, 15	0.5m	WROPCS124400662,
als, Yellow		individu Flowers
<i>Diuris corymbosa</i> 6829187, 125	0.3m	WROPCS80 369269,
als, Yellow		individu Flower
<i>Diuris corymbosa</i> 6781850, 25	0.25m	WROPCS124400538,
als, Yellow		individu Flowers
<i>Diuris corymbosa</i> 6829245, 20	0.3m	WROPCS77 369206,
als, Yellow		individu Flower
<i>Diuris corymbosa</i> 6831817, 2	0.4m	WROPCS52 367435,
als,		individu Yellow/
Orange Flowers		
<i>Diuris corymbosa</i> 6831446, 8		WROPCS52 367858,
als		individu
<i>Diuris corymbosa</i> 6831826, 9	0.3m	WROPCS52 367409,
als,		individu Yellow/
Orange Flowers		
<i>Diuris corymbosa</i> 6831870, 50	0.35m	WROPCS52 367319,
als, Yellow		individu
<i>Diuris corymbosa</i> 6831907, 38	0.3m	WROPCS52 367270,
als, Yellow		individu
<i>Diuris corymbosa</i> 6832652, 1		WROPCS52 366413,
al		individu
<i>Diuris corymbosa</i> 6832690,	0.3m	WROPCS52 366388,
Flower		Yellow
<i>Diuris corymbosa</i> 6829298, 3		WROPCS52 369165,
als		individu
<i>Diuris corymbosa</i> 6031379, 7		WROPCS52 367900,
als		individu
<i>Diuris corymbosa</i> 6831413, 4		WROPCS52 367882,
als		individu
<i>Diuris corymbosa</i> 6780070, 3	0.3m	WROPCS130401368,
		individu

als, Yellow				Flowers
<i>Diuris corymbosa</i> 6829423, 20			WROPCS52 369078,	individu
als				
<i>Diuris corymbosa</i> 6829541, 4			WROPCS52 368989,	individu
als				
<i>Diuris porrifolia</i> 5 individuals,	0.4m	WROPLT07	Wpt 85,	Yellow
Flowers				
<i>Diuris porrifolia</i> 6818824, 14	0.25m	WROPCS85	377090,	individu
als, Yellow				
<i>Diuris porrifolia</i> 6804554, 2	0.25m	WROPCS171	387533,	individu
als, Yellow				
<i>Diuris porrifolia</i> 4 individuals,	0.4m	WROPLT07	Wpt 86,	Yellow
Flowers				
<i>Diuris porrifolia</i> 1 individual,	0.40m	WROPLT07	Wpt 35,	Yellow
Flowers				
<i>Diuris porrifolia</i> 20 individuals,	0.4m	WROPLT07	Wpt 82,	Yellow
Flowers				
<i>Diuris porrifolia</i> 5 individuals.	0.3m	WROPLT07	Wpt 83,	Yellow
Flowers				
<i>Diuris porrifolia</i> 6806362, 12	0.3m	WROPCS171	385759,	individu
als, Yellow				
<i>Diuris porrifolia</i> 2 individuals,	0.3m	WROPLT07	Wpt 84,	Yellow
Flowers				
<i>Diuris porrifolia</i> 30 individuals,	0.4m	WROPLT07	Wpt 81,	Yellow
Flowers				
<i>Diuris porrifolia</i> 1 individual,	0.4m	WROPLT07	Wpt 43,	Yellow
Flowers				
<i>Diuris porrifolia</i> 0385732, 6806345, 2	0.2m	WROPHA07		individu
als, Yellow Flowers				

<i>Diuris porrifolia</i> 6806850, 10	0.4m	WROPEC59	384934,
als, Yellow			individu Flowers
<i>Diuris porrifolia</i> 6821833, 12	0.2m	WROPJS09	306426,
als, Yellow/Red			individu Flowers
<i>Diuris porrifolia</i> 1 Individual,	0.40m	WROPLT07	Wpt 67,
Flower			Yellow
<i>Diuris porrifolia</i> 141, 20 individuals,	0.3m	WROPLT07	Wpt
Flowers			Yellow
<i>Diuris porrifolia</i> 3 individuals,	0.4m	WROPLT07	Wpt 39,
Flowers			Yellow
<i>Diuris setacea</i> 6821723, 4	0.4m	WROPJS02	302432,
als, Yellow/Red			individu Flowers
<i>Diuris</i> sp. 6833864, 170		WROPCS60	365361,
als			individu
<i>Dodonaea inaequifolia</i> 6807379.		WROPEC01	384278,
<i>Dodonaea microzyga</i> var. <i>acrolobata</i> 6831844, 2	0.5m	WROPCS54	367365,
als			individu
<i>Dryandra fraseri</i> var. <i>ashbyi</i> 127, 1 individual	1m	WROPLT38	Wpt
<i>Echium</i> sp. 6837250, >100	0.4m	WROPCS10	347880,
individuals, Purple			Flowers
<i>Echium</i> sp. 6837097, >20	0.3m	WROPCS10	347663,
als, Purple			individu Flowers
<i>Echium</i> sp. 6837422, 20	0.5m	WROPCS10	348101,
als, Purple			individu Flowers
<i>Echium</i> sp. 6836972, 5	0.3m	WROPCS10	347507,
als, Purple			individu Flowers
<i>Echium</i> sp. 6832041, 5	0.3m	WROPCS10	338976,
als, Purple			individu Flowers
<i>Echium</i> sp. 6821532,		WROPCS10	302710,

<i>Eremaea acutifolia</i> 6820752, 1	0.6m	WROPKM67 291444,
al, Orange		individu Flowers
<i>Eremaea acutifolia</i> 6820749, 1	0.5m	WROPKM67 291431,
al, Orange		individu Flowers
<i>Eremaea acutifolia</i> 6820466, 2	0.6m	WROPKM67 291021,
als, Orange		individu Flowers
<i>Eremophila clarkei</i> 6808423, 5	1-1.5m	WROPEC22 382891,
als, light blue		individu flowers.
<i>Eremophila georgei</i> 6821133, 20	1m	WROPCS89 374889,
als, Pink Flowers		individu
<i>Eremophila glandulifera</i> 6831752, 1	0.25m	WROPCS49 367516,
al, Pink Flowers		individu
<i>Eremophila glandulifera</i> 2 individuals,	0.2m	WROPLT14 Wpt 55,
Flowers		Pink
<i>Eucalyptus aff. ewartiana</i> 6803996	5m	WROPEC41 387985,
<i>Eucalyptus horistes</i> 6808032, 2	4m	WROPEC30 383491,
als, Yellow		individu flowers
<i>Eucalyptus loxophleba</i> 6837326, 10	4m	WROPCS09 347968,
als		individu
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> 387463,6804580, 6	4-8m	WROPEC37
als.		individu
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> 6834250, 3	5m	WROPCS04 342946,
als, White		individu Flowers

<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i> 6821046, 1	5m	WROPJS06 303849,	individu
al			
<i>Eucalyptus salubris</i> 6837097, 2	4m	WROPES06 347663,	individu
als,			
<i>Exocarpos aphyllus</i> 6802603, 10	0.6m	WROPEC44 389148,	indivifu
als, Yellow			Flowers
<i>Freesia</i> sp. 6822262, 2	0.2m	WROPKM72 296146,	individu
als, White			Flowers
<i>Freesia</i> sp. 6822262, 3	0.2m	WROPKM73 296146,	individu
als, Yellow			Flowers
* <i>Fumaria capreolata</i> 6817883, lots	0.6m	WROPKM63 287961,	of
individuals, White			and
Black Flowers			
<i>Gastrolobium spinosum</i> 2 individuals,	1.2m	WROPKM38 WP124,	Yellow/
Red Flowers			
<i>Geleznovia verrucosa</i> 6835534, 2	0.3m	WROPES108 345292,	individu
als, Yellow			Flowers
<i>Gompholobium cinereum</i> 6831723, 1	0.25m	WROPES42 367578,	individu
al, Pink Flowers			
<i>Gompholobium tomentosum</i> 6821118, 3	0.6m	WROPES149 303731,	individu
als, Yellow			Flowers
<i>Gompholobium tomentosum</i> 120, 2 individuals	0.6m	WROPLT34 Wpt	
<i>Gompholobium tomentosum</i> 6821383, 1	0.5m	WROPES143 303504,	individu
al,			
<i>Goodenia berardiana</i> 6808032, 2	0.3m	WROPEC27 383491,	individu
als, Yellow			flowers
<i>Goodenia berardiana</i>		WROPEC21e	
<i>Grevillea asparagoides</i> 6828257, 1	0.7m	WROPES22 332223,	individu
al, Red Flowers			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822632, 4	1.5m	WROPKM35 295566,	individu

als, Pink			Flowers
. Population			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822753, 18	1-2m	WROPKM35 295403,	individu
als, Population			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822687, 2	1.4m	WROPKM35 295471,	individu
als, Pink Flowers			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822554, 5	1.5m	WROPKM35 295657,	individu
als, Pink			Flowers
. Population			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822868, 10	1-2m	WROPKM35 294782,	individu
als, Pink			Flowers
. Population			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822713, 15	1.3m	WROPKM35 295462,	individu
als, Pale Pink			Flowers
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822698, 1	1.3m	WROPKM35 295502,	individu
al, Pale Pink			Flowers
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822790, 2	1m	WROPKM36 295590,	individu
als, Pale Pink			Flowers
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 2 individuals,	1.4m	WROPKM35 WP124,	Pale
Pink Flowers			
<i>Grevillea bracteosa</i> subsp. <i>howatharra</i> 6822725, 4	1m	WROPKM35 295400,	individu
als, Pink Flowers			
<i>Grevillea candelabroides</i> 6829609, 2	1m	WROPKS72 368945,	individu
als			
<i>Grevillea commutata</i> 6812332, 1	2m	WROPKM57 279565,	individu
al, Pink/White			Flowers

<i>Grevillea granulosa</i> 0385115, 6806727, 4	0.5m	WROPHA06	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 6829298, 4	0.3m	WROPCS73 369165,	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 6829541, 10		WROPCS73 368989,	individu
als			
<i>Grevillea granulosa</i> 0383753, 6807828, 4	1m	WROPHA06	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 115, 3 individuals,	1m	WROPLT18 Wpt	Red
Flowers			
<i>Grevillea granulosa</i> 6831723, >20	1m	WROPCS44 367578,	individu
als			
<i>Grevillea granulosa</i> 0385755, 6806314, 6	0.5- 0.6m	WROPHA06	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 139, 1 individual	0.5m	WROPLT18 Wpt	
<i>Grevillea granulosa</i> 112, 4 individuals,	1m	WROPLT18 Wpt	Red
Flowers			
<i>Grevillea granulosa</i> 6825209, 3	0.7m	WROPCS90 372075,	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 111, 16 individuals,	1.5m	WROPLT18 Wpt	Red
Flowers			
<i>Grevillea granulosa</i> 0385480, 6806686, 5	0.5- 1m	WROPHA06	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 142, 65 individuals,	1m	WROPLT18 Wpt	Red
Flowers,			Populati
on			
<i>Grevillea granulosa</i> 6818905, 3	1m	WROPCS86 377033,	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 6779701, 1	0.3m	WROPCS111 401540,	individu
al, Red Flowers			
<i>Grevillea granulosa</i> 6783689, 3	0.7m	WROPCS111 400212,	individu
als, Red Flowers			
<i>Grevillea granulosa</i> 6783902, 75	0.3-1m	WROPCS111 400164,	

als, Red Flowers,				individu
Population <i>Grevillea granulosa</i> 6807379, 4	0.5-1m	WROPEC02	384278,	Individu
als. Red Flowers <i>Grevillea granulosa</i> 2 individuals,	0.50m	WROPLT18	Wpt 69,	Red
Flowers <i>Grevillea granulosa</i> 6783806, 6	0.6m	WROPCS111	400171,	individu
als, Red Flowers <i>Grevillea granulosa</i> 6784234, 3	1m	WROPCS111	400126,	individu
als, Red Flowers <i>Grevillea granulosa</i> 114, 3 individuals,	1m	WROPLT18	Wpt	Red
Flowers <i>Grevillea granulosa</i> 6806279, 40	0.6m	WROPCS174	385839,	individu
als, Red Flowers,				
Population <i>Grevillea granulosa</i> 6806723, 27	0.3m	WROPCS174	385475,	individu
als, Red Flowers,				
Popoulation <i>Grevillea granulosa</i> 6783526, 2	1m	WROPCS111	400242,	individu
als <i>Grevillea granulosa</i> 6781981, 95	<1m	WROPCS111	400487,	individu
als, Red Flowers,				
Population <i>Grevillea granulosa</i> 0383922, 6807519, 2	0.5m	WROPHA06		individu
als, Red Flowers <i>Grevillea granulosa</i> 6781608, 6	0.4m	WROPCS125	400646,	individu
als, Red Flowers,				
Population <i>Grevillea granulosa</i> 6829609, 5	0.7m	WROPCS73	368945,	individu
als, Red Flowers <i>Grevillea granulosa</i> 6780086, 8	0.7m	WROPCS125	401363,	individu
als, Red Flowers,				
Population <i>Grevillea granulosa</i>	0.60m	WROPLT18	Wpt 68,	

2 individuals,

Flowers

Red

<i>Grevillea levis</i> 145, 4 individuals,	1m	WROPLT43 Wpt
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> 6818956, 5 als, Cream Flowers	1.2m	WROPCS87 376991, individu Yellow/
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i> 6804492, 1 al, Yellow	1m	WROPCS169 387621, individu Flowers
<i>Grevillea paradoxa</i> 6831723, >30 als, Red Flowers	1m	WROPCS47 367578, individu
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i> 102, 1 individual	3m	WROPLT25 Wpt
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i> 6825435, 1 al, Pink Flowers	1.1m	WROPJS16 318064, individu
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i> 6826938, 5 als, Red Flowers?	3m	WROPCS39 331974, individu
<i>Grevillea phanerophlebia</i> 118, 1 individual	2m	WROPLT32 Wpt
<i>Grevillea phanerophlebia</i> 6821964, 1 al	1.5m	WROPKM20 304570, individu
<i>Grevillea pinaster</i> 1 individual, Flowers	1.8m	WROPKM25 WP113, Red
<i>Grevillea pinaster</i> <i>Grevillea pinaster</i> 6824845, 1 al, Red Flowers	1.5m	WROPJS16b WROPKM23 310362, individu
<i>Grevillea pinaster</i> 6824814, 3 als, Red Flowers	0.7m	WROPJS15 311547, individu
<i>Grevillea pinaster</i> 6824730, 3 als, Red Flowers	1m	WROPKM23 311799, individu
<i>Grevillea pinaster</i> 6824716, 10+ als, Red Flowers	1m	WROPKM23 311704, individu
<i>Grevillea pinaster</i> 6824901, 3 als, Red Flowers	1.2m	WROPKM23 311307, individu
<i>Grevillea tenuiloba</i> 136, 3 individuals	1m	WROPLT41 Wpt
<i>Grevillea tenuiloba</i> 6804558, 15 als	0.3m	WROPCS170 387524, individu
<i>Grevillea tenuiloba</i>	0.4m	WROPCS170 387594,

6804514, 2				individu
als				
<i>Grevillea tenuiloba</i>	0.8m	WROPLT41	Wpt	
134, 1 individual,				Orange
Flowers				
<i>Grevillea tenuiloba</i>		WROPEC11	387726,	
6804390. 6				individu
als				
<i>Grevillea tenuiloba</i>	0.5m	WROPHA04		
0387750, 6804376, 3				individu
als, Orange				Flowers
<i>Grevillea tenuiloba</i>	0.5m	WROPHA04		
0387573, 6804480, 1				individu
al, Orange				Flowers
<i>Grevillea tenuiloba</i>	0.5m	WROPEC49	387293,	
6804956, 5				individu
als, Orange				Flowers
<i>Grevillea tenuiloba</i>	0.1m	WROPHA04		
0385584, 6806588, 2				individu
als				
<i>Grevillea vestita</i> subsp. <i>isopogoides</i>	2m	WROPLT28	Wpt	
110, 5 individuals				
<i>Hakea subsulcata</i>		WROPEC46	392037,	
680075				
<i>Halgania gustafsenii</i> var. <i>Mid West</i>	0.3m	WROPKM41	WP124,	
4 individuals,				Purple
with Yellow				Centre
Flowers				
<i>Halgania cyanea</i> var. <i>Allambi Stn (B.W. Strong 676)</i>	0.4m	WROPCS132	401444,	
6779896, 1				individu
al, Purple Flowers				
<i>Hemigenia botryphylla</i> <i>G.R Guerin</i>		WROPEC13	387968,	
6803980. 14				individu
als.				
<i>Hemigenia botryphylla</i> <i>G.R Guerin</i>	0.3m	WROPCS134	401513,	
6779759, 1				individu
al, Purple Flowers				
<i>Hemigenia botryphylla</i> <i>G.R Guerin</i>		WROPEC20	397073,	
6792769. 10				individu
als				

<i>Hemigenia coccinea</i> 6805136, 1	0.3m	WROPEC51 387212,
al, Red Flowers		individu
<i>Hemigenia coccinea</i> 6806249, 1	0.4m	WROPCS173 385888,
al, Pink/Red		individu
<i>Hemigenia coccinea</i> 6867003		WROPEC10 384730,
<i>Hemigenia coccinea</i> 6806274, 4	0.3m	WROPCS175 385834,
als, Red Flowers		individu
<i>Hemigenia macphersonii</i> 0385642, 6806494, 1	1.2m	WROPHA08
al, White Flowers		individu
<i>Hemigenia scabra</i> 6828405, 4	0.5m	WROPCS18 332288,
als, White		individu
<i>Hemigenia scabra</i> <i>Hemigenia scabra</i> 6828188, 1	0.6m	WROPLT03b WROPCS18 332200,
al, White Flowers		individu
<i>Hibbertia desmophylla</i> 6821433, 7	0.4m	WROPCS140 302988,
al, Yellow		individu
<i>Hibbertia glomerosa</i> var. <i>bistrata</i> 6831723, 2	0.3m	WROPCS45 367578,
als		Flowers
<i>Hibbertia glomerosa</i> var. <i>bistrata</i> 6826167, 3	0.3m	WROPCS84 371390,
als, Yellow		individu
<i>Hibbertia hypericoides</i> <i>Homalocalyx thryptomenoides</i> 6823282, 2	0.8m	WROPEC23b WROPKM11 307322,
als, Pink Flower		individu
<i>Homalocalyx thryptomenoides</i> 6820986, 2	0.6m	WROPJS07 304351,
als, Pink Flowers		individu
<i>Homalocalyx thryptomenoides</i> 6826811, 10	0.5m	WROPCS41 331627,
als, Pink Flowers		individu
Indeterminate 6808423, 48	1m	WROPCS178 382885,
als, Red Flowers,		individu
Population		

Indeterminate 119, 5 individuals, Flowers	0.6m	WROPLT33	Wpt White
Indeterminate 1 individual, purple Flowers	0.3m	WROPLT09	Wpt38, White/P
Indeterminate 6828385, 5 als	1.2m	WROPCS19	332258, individu
Indeterminate 6823944, 20+ als, Red/Yellow	0.7m	WROPKM22	308179, individu Flowers
Indeterminate 6808135, 1 al, Red Flowers	0.5m	WROPEC65	383061, individu
Indeterminate Indeterminate 6818103, 50+ als, Yellow	1-3m	WROPKM WROPKM51	288435, individu Flowers
Indeterminate 6808527, 23 als, Red Flowers	1m	WROPEC64	382749, individu
Indeterminate 15 individuals, Flowers	0.4m	WROPLT23	Wpt 99, White
Indeterminate 6809157, 13 als, Red Flower	0.5m	WROPEC63	382001, individu
Indeterminate 0385020, 6806772, 1 al, Blue Flowers	0.2m	WROPHA11	individu
Indeterminate 6804395, 3 als, Green	0.25m	WROPCS167	387783, individu Flowers
Indeterminate 6804593 Indeterminate 6827694, 1 al, White Flowers	0.3m	WROPEC34 WROPCS36	387438, 332041, individu

Indeterminate 6831907, 38 als, yellow	0.3m	WROPCS57 367270, individu flowers
Indeterminate 6802578, 10 als, Purple	0.5m	WROPEC43 389136, individu Flowers
Indeterminate 6808423, 1 als, White	1.5m	WROPEC25 382891, individu flowers.
Indeterminate 6792769, 10 als		WROPEC19 397073, individu
Indeterminate 6821423, 2 als, Yellow + Flowers	1.5m	WROPCS138 302943, individu Red
Indeterminate 6804986, 4 als, Orange	0.6m	WROPEC50 387287, individu Flowers
Indeterminate 6806780, 4 als, Red Flowers	0.5m	WROPEC54 385080, individu
Indeterminate 6806815, 6 als, Red Flowers	0.7m	WROPCS78 WROPEC57 385013, individu
Indeterminate 6822079, 1 al, Red Flowers	3.5m	WROPKM02 300986, individu
Indeterminate 6831907 Indeterminate 6821532, >30 als, Pink/White	1.5-2m	WROPCS52a 367270, WROPCS137 302710, individu Flowers
Indeterminate 6784234, 1 al, Pink Flowers	0.4m	WROPCS113 400126, individu
Indeterminate 6821641, 1 al	9m	WROPKM04 299178, individu
Indeterminate 1 individual, Flowers	0.2m	WROPLT09 Wpt 78, White
Indeterminate 6804437, 2 als, Green	0.3m	WROPCS167 387717, individu

Indeterminate 6822967, 1	0.5m	WROPKM10 307071,	Flowers
al			individu
Indeterminate 6831723, 10	0.35m	WROPCS46 367578,	Flowers
als, Pink Flowers			individu
Indeterminate 6821374, 1	0.5m	WROPKM16 305203,	Flowers
al			individu
<i>Isopogon divergens</i> individuals, Pink	1m	WROPCS71 3	Flowers
<i>Jacksonia arenicola</i> 6806815, 1	0.6m	WROPEC58 385013,	Flowers
al, Orange			individu
<i>Jacksonia cupulifera</i> 1 indivudal,	0.4m	WROPKM32 WP116,	Flowers
Flowers			Yellow
<i>Jacksonia foliosa</i> 6824730, 1	1.7m	WROPKM01 310215,	Flowers
al, Red/Yellow			individu
<i>Jacksonia rhadinoclada</i> <i>Jacksonia velutina</i> 6828281, 1	1.2m	WROPLT13 WROPCS20 332222,	Flowers
al,			individu
<i>Jacksonia velutina</i> 6828349, 1	1.2m	WROPCS20 332252,	Flowers
al, Red/Yellow			individu
<i>Juncus radula</i> 6817949, lots	1.2m	WROPKM64 288125,	Flowers
individuals			of
<i>Keraudrenia hermanniifolia</i> 6834006, ~ 10	<0.6m	WROPCS03 342498,	Flowers
als, Purple			individu
<i>Keraudrenia hermanniifolia</i> 6803975		WROPEC14 389984,	Flowers
<i>Keraudrenia velutina</i> subsp. <i>elliptica</i> 6807379.		WROPEC04 384278,	Flowers
Flowers			Purple

* <i>Lamarckia aurea</i> 6807156		WROPEC07	384567,
<i>Lechenaultia floribunda</i> 6813450, 10+	0.4m	WROPKM60	280521, individu
als, Blue Flowers			
<i>Lechenaultia linarioides</i> 117, 1 individual,	1m	WROPLT31	Wpt Yellow
Flowers			
<i>Lechenaultia macrantha</i> 6787503, >20	0.3m	Wreath Flw	400483, individu
als, Pink and			Yellow
Flowers			
<i>Lechenaultia macrantha</i> 6804170, 2	0.2m	WROPEC39	387895, individu
als			
<i>Lepidosperma aphyllum</i>		WROPCOLL	
<i>Leptosema aphyllum</i> 1 individual,	0.3m	WROPKM24	WP112, Red
Flowers			
<i>Leptosema aphyllum</i> 6821088, 1	0.2m	WROP151	303900, individu
al, Red Flowers			
<i>Leptospermum oligandrum</i> 5 individuals	0.8m	WROPLT20	Wpt 94,
<i>Leptospermum oligandrum</i> 1 individual,	1m	WROPLT20	Wpt 90, White
Flowers			
<i>Leptospermum oligandrum</i> 1 individual,	1m	WROPLT20	Wpt 89, White
Flowers			
<i>Leptospermum oligandrum</i> 2 individuals,	1m	WROPLT20	Wpt 88, White
Flowers			
<i>Leptospermum oligandrum</i> 6802578, 50	0.5-1m	WROPEC42	389136, individu
als, White			Flowers
<i>Leptospermum oligandrum</i> 3 individuals,	1m	WROPLT20	Wpt 87, White
Flowers			
<i>Leptospermum oligandrum</i> 6821010, 1	1m	WROPKM69	291799, individu
al, White Flowers			
<i>Leptospermum oligandrum</i> 1 individual,	1m	WROPLT20	Wpt 91, White
Flowers			
* <i>Limonium sinuatum</i> 6814270, 6	0.3m	WROPKM61	281026, individu
als, White			

<i>Logania flaviflora</i> 3 individuals	0.1m	Flowers WROPLT11 Wpt 42,
* <i>Lycium ferocissimum</i> 6813770, 2 als, White	1.5m	WROPKM55 280528, individu
<i>Maireana aphylla</i> 6812609, individuals	0.5m	Flowers WROPKM56 279999, Many
<i>Maireana georgei</i> 6821888, 1 al	0.3m	WROPKM14 300579, individu
<i>Maireana georgei</i> 6812540, individuals	0.2m	WROPKM59 279922, Many
<i>Maireana thesioides</i> 6807172, 1 al	0.4m	WROPEC61 384517, individu
<i>Melaleuca atroviridis</i> 6800287, Like Stem		WROPEC45 391831, Mulga
<i>Melaleuca barlowii</i> 4 individuals	0.8m	WROPLT21 Wpt 92,
<i>Melaleuca cordata</i> 10 individuals	0.5m	WROPLT17 Wpt 61,
<i>Melaleuca cordata</i> 6827495, 50+ als	2m	WROPKM34 329642, individu
<i>Melaleuca cordata</i> 2 individuals,	1m	WROPLT17 Wpt 58,
<i>Melaleuca cordata</i> 3 individuals	1m	WROPLT17 Wpt 59,
<i>Melaleuca cordata</i> 18 individuals	0.5m	WROPLT17 Wpt 60,
<i>Melaleuca cordata</i> 2 individuals	0.30m	WROPLT17 Wpt 72,
<i>Melaleuca cordata</i> 2 individuals	0.50m	WROPLT17 Wpt 73,
<i>Melaleuca cordata</i> 25 individuals	0.5m	WROPLT17 Wpt 62,
<i>Melaleuca cordata</i> 2 individuals	0.40m	WROPLT17 Wpt 74,
<i>Melaleuca cordata</i> 1 individual	0.50m	WROPLT17 Wpt 76,
<i>Melaleuca cordata</i> 2 individuals	0.60m	WROPLT17 Wpt 75,

<i>Melaleuca cordata</i> 1 individual	0.80m	WROPLT17 Wpt 71,
<i>Melaleuca cordata</i> 1 individual	1.5m	WROPLT17 Wpt 70,
<i>Melaleuca cordata</i> 9 individuals	1.5m	WROPLT17 Wpt 77,
<i>Melaleuca cordata</i> 15 individuals	0.5m	WROPLT17 Wpt 63,
<i>Melaleuca cordata</i> 10 individuals	1m	WROPLT17 Wpt 66,
<i>Melaleuca cordata</i> 35 individuals	0.5m	WROPLT17 Wpt 64,
<i>Melaleuca cordata</i> 50 individuals	1m	WROPLT17 Wpt 65,
<i>Melaleuca depressa</i> 6821242, 2	2m	WROPKM47 292028, individu
als		
<i>Melaleuca depressa</i> 6821374, 1	0.4m	WROPKM18 305203, individu
al		
<i>Melaleuca depressa</i> 6821374, 1	0.6m	WROPKM17 305203, individu
al		
<i>Melaleuca depressa</i> 6821966, 1	0.3m	WROPKM79 297072, individu
al, White/Yellow		
Flowers		
<i>Melaleuca eleuterostachya</i> 6804446, 5	2-4m	WROPEC38 387643, individu
als		
<i>Melaleuca fulgens</i> subsp. <i>steadmanii</i> 6783957,	1m	WROPES117 400165, Domina
te, Red Flowers		
<i>Melaleuca leuropoma</i> 6821499,	0.3m	WROPES141 303311,
<i>Melaleuca nematophylla</i> 6807379. Pink		WROPEC05 384278,
Flowers		
<i>Melaleuca nematophylla</i> 0383930, 6807517, 8	0.8m	WROPHA13 individu
als		
<i>Melaleuca radula</i> 6822687, 1	0.7m	WROPKM71 295471, individu
al, Pink/White		Flowers
<i>Melaleuca radula</i> 2 individuals,	1.1m	WROPKM26 WP114, Pink
Flowers		
<i>Melaleuca tinkeri</i> 6828844, 1	0.6m	WROPES92 333074, individu
al, Pink Flowers		
<i>Melaleuca tinkeri</i> 6826752, 1	1.2m	WROPES92 332878, individu

al, Pink Flowers <i>Melaleuca tinkeri</i> 6824904, 1	0.8m	WROPKM29 315127, individu
al, Pink Flowers <i>Melaleuca uncinata</i> 6821901, 1	1.3m	WROPKM07 300682, individu
al <i>Melaleuca viminea</i> subsp. <i>viminea</i> 6807379.		WROPEC06 384278, White
Flowers <i>Micromyrtus prochytes</i> 6831311, 1	1.5m	WROP66 367939, individu
al, White/Pink <i>Mirbelia trichocalyx</i> 6821703, 5	4m	WROPKM12 299104, individu Flowers
als, Yellow <i>Monotaxis bracteata</i> 6821297, 1	0.3m	WROP66 303578, individu Flowers
al, White Flowers <i>Monotaxis bracteata</i> 6804170, 2	0.2m	WROPEC40 387895, individu Flowers
als, White <i>Muehlenbeckia adpressa</i> 123, 2 individuals.	1m	WROPLT30 Wpt Pale
Flowers <i>Muehlenbeckia adpressa</i> 0383657, 6807936, 1	3m	WROPHA14 individu
al <i>Muehlenbeckia adpressa</i> 116, 3 individuals,	0.6m	WROPLT30 Wpt
<i>Nuytsia floribunda</i> 6821423, 4	2.5m	WROPJS04 303112, individu
als <i>Olearia stuartii</i> <i>Opercularia vaginata</i> 2 individuals	0.20m	WROPEC21d WROPLT10 Wpt 41,
<i>Petrophile brevifolia</i> 6822071, 3	0.5m	WROP66 306538, individu
als, White Flowers		Yellow/

<i>Petrophile pilostyla</i> subsp. <i>syntoma</i> 1 individual, Flowers	1.4m	WROPKM31 WP115, White
<i>Philotheca brucei</i> subsp. <i>brucei</i> 6831249, 1 al, White Flowers	0.6m	WROPKS64 367972, individu
<i>Philotheca brucei</i> subsp. <i>brucei</i> 6808423, 1 als, Yellow	1m	WROPEC23 382891, individu flowers.
<i>Pimelea angustifolia</i> 6804307 <i>Pimelea angustifolia</i> 6821055, 1 al, White Flowers	0.4m	WROPEC17 387816, WROPJS14 304678, individu
<i>Pimelea microcephala</i> subsp. <i>microcephala</i> 6821770, 1 al, Yellow	1.5m	WROPKM03 298481, individu Flowers
<i>Pimelea microcephala</i> subsp. <i>microcephala</i> 6815683, 1 al	3m	WROPKM53 283990, individu
<i>Pityrodia lepidota</i> 6831550, 1 al	0.5m	WROPKS70 367790, individu
<i>Platysace maxwellii</i> 6831723, 5 als	0.5m	WROPKS48 367578, individu
<i>Platysace trachymenioides</i> 6824995, 10+ als,	0.5m	WROPKM28 319744, individu
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i> 6821888, 50 als, Purple	0.2m	WROPKM13 300579, individu Flowers
<i>Ptilotus spathulatus</i> 6805069, 1 al, White Flowers	0.2m	WROPEC52 387198, individu
<i>Ricinocarpos velutinus</i> 6797889, 25 als		WROPEC18 393435, individu
<i>Rulingia densiflora</i> 6821240, 1 al, White Flowers	1m	WROPKS146 303608, individu
* <i>Acetosa vesicaria</i> 6826050, >50 als, Pink	0.4m	NC 371486, individu
<i>Santalum acuminatum</i>		WROPEC21aMixed

collections			
<i>Scaevola anchlussifolia</i>	0.2m	WROPLT12	Wpt 45,
1 individual,			white
flowers			
<i>Scaevola canescens</i>	0.5m	WROPCS26	332146,
6828006, 1			individu
al, White Flowers			
<i>Scaevola canescens</i>	1m	WROPCS26	332180,
6828117, 1			individu
al, White Flowers			
<i>Scaevola spinescens</i>	1m	WROPCS152	303900,
6821088, 3			individu
al, White Flowers			
<i>Scaevola virgata</i>	0.2m	WROPKM40	WP124,
2 individuals,			White
Flowers			
* <i>Schinus terebinthifolius</i>	6m	WROPKM62	287961,
6817883, 2			individu
als			
<i>Scholtzia Kojarena</i>	1m	WROPKM49	291067,
6820519, 1			individu
al, Pink Flowers			
<i>Scholtzia leptantha</i>	1m	WROPKM65	290478,
6819586, lots			of
individuals			
<i>Scholtzia parviflora</i>	3m	WROPKM76	292464,
6821526, 2			individu
als, Pink Flowers			
<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>	0.4m	WROPCS55	367365,
6831844, 1			individu
al, Purple Flowers			
* <i>Sonchus oleraceus</i>	1.2m	WROPKM52	283990,
6815683,			Many
individuals,			Yellow
Flowers			
<i>Stackhousia monogyna</i>	0.4m	WROPKM19	305203,
6821374, 1			individu
al, Yellow/White			
Flowers			
<i>Stenopetalum filifolium</i>		WROPEC21c	
<i>Stylidium confluens</i>		WROPCS75	369078,
6829298,			donkey
orchids			
<i>Stylidium confluens</i>	0.25m	WROPCS63	368032,
6831150, 3			

als, Pink Flowers			individu
<i>Stylidium elongatum</i> 6831817, 15	0.4m	WROPCS12 367435,	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i> 0386935, 6805355, 1	0.2m	WROPHA01	individu
al, Pink Flowers			individu
<i>Stylidium elongatum</i> 6833460		WROPCS12 365731,	
<i>Stylidium elongatum</i> 6831034, 4		WROPCS12 368095,	individu
als			individu
<i>Stylidium elongatum</i> 6828888, 30	0.3m	WROPCS98 333161,	individu
als, Pink			Flowers
, Population			
<i>Stylidium elongatum</i> 6806776, 15	0.3m	WROPEC53 385094,	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i> 0383819, 6807715, 3	0.2m	WROPHA01	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i> 6031379, 1		WROPCS12 367900,	individu
al			individu
<i>Stylidium elongatum</i> 6821374, Pink	0.4m	WROPCS144 303517,	
Flowers			
<i>Stylidium elongatum</i> 6821118, 2	0.3m	WROPCS144 303731,	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i> 6831446, 1		WROPCS12 367858,	individu
al			individu
<i>Stylidium elongatum</i> 6829423, 3		WROPCS12 369078,	individu
als			individu
<i>Stylidium elongatum</i> 0385043, 6806761, 2	0.3m	WROPHA01	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i> 6821110, 3	0.3m	WROPCS144 304003,	individu
als, Pink Flowers			individu
<i>Stylidium elongatum</i>	0.3m	WROPCS144 306423,	

6821864, 3				Individu
als, Pink				Flowers
<i>Stylidium elongatum</i> 0385480, 6806686, 1	0.1m	WROPHA01		individu
al				
<i>Stylidium elongatum</i> 6821191, 1	0.3m	WROPCS144 303658,		individu
al, Pink Flowers				
<i>Stylidium elongatum</i> 6832147, 1	0.3m	WROPCS12 366803,		individu
al, Pink Flowers				
<i>Stylidium elongatum</i> 6827694, 2	0.3m	WROPCS12 332041,		individu
als, Pink Flowers				
<i>Stylidium elongatum</i> 6827744, 1	0.3m	WROPCS12 332058,		individu
al, Pink Flowers				
<i>Stylidium elongatum</i> 6827782,	0.3m	WROPCS12 332071,		Individ
ual, Pink				Flowers
<i>Stylidium elongatum</i> 6827917, 2	0.4m	WROPCS12 332114,		individu
als, Pink Flowers				
<i>Stylidium elongatum</i> 6827962, 3	0.4m	WROPCS12 332130,		individu
als, Pink Flowers				
<i>Stylidium elongatum</i> 6828062, 1	0.4m	WROPCS12 332162,		individu
al, Pink Flowers				
<i>Stylidium elongatum</i> 6828117, 1	0.4m	WROPCS12 332180,		individu
al, Pink Flowers				
<i>Stylidium elongatum</i> 6828281, 3	0.3m	WROPCS14 332222,		individu
als, Pink Flowers				
<i>Stylidium elongatum</i> 6827530, 10	0.4m	WROPCS12 332027,		individu
als, Pink Flowers				
<i>Stylidium elongatum</i> 1 individual,	0.4m	WROPLT06 Wpt 33,		Light
Purple Flowers				
<i>Stylidium elongatum</i> 6827849, 2	0.3m	WROPCS12 332093,		individu
als, Pink Flowers				

<i>Stylidium elongatum</i> 6831922, 110 als, Pink Flowers	0.3m	WROPCS12 367142, individu
<i>Stylidium elongatum</i> 6831788, 1 al, Pink Flowers	0.4m	WROPCS14 367427, Individu
<i>Stylidium elongatum</i> 6831717, 1 al, Pink Flowers	0.3m	WROPCS12 367528, individu
<i>Stylidium elongatum</i> 4+ individuals, Flowers	0.4m	WROPKM43 WP124, Pink
<i>Stylidium elongatum</i> 6820684, 3 als, Pink Flowers	0.35m	WROPCS12 375513, individu
<i>Stylidium elongatum</i> 1 individual, ink Flowers	0.30m	WROPLT06 Wpt 37, White/P
<i>Stylidium elongatum</i> 1 individual, Flowers	0.3m	WROPLT06 Wpt 40, Pink
<i>Stylidium elongatum</i> 1 individual, Flowers	0.30m	WROPLT06 Wpt 98, Purple
<i>Stylidium elongatum</i> 1 individual, Flowers	0.30m	WROPLT06 Wpt 98, Purple
<i>Stylidium elongatum</i> 3 individual, Flowers	0.40m	WROPLT06 Wpt 97, Purple
<i>Stylidium elongatum</i> 6832525, 1 al, Pink	0.35m	WROPCS12 366528, individu
<i>Stylidium elongatum</i> 1 individual, Flowers	0.30m	WROPLT06 Wpt 96, Purple
<i>Stylidium elongatum</i> 6822129, 1 al, Pink Flowers	0.3m	WROPCS144 306524, individu
<i>Stylidium elongatum</i> 6 individuals, Flowers	0.40m	WROPLT06 Wpt 95, Purple
<i>Stylidium elongatum</i> 6831967, 10 als. Pink	0.4m	WROPCS12 367167, individu
<i>Stylidium elongatum</i> 0387595, 6804075, 1 al, Pink Flowers	0.2m	WROPHA01 individu

<i>Stylidium elongatum</i> 143, 1 individual, Flowers	0.4m	WROPLT06	Wpt Pink
<i>Stylidium leptophyllum</i> 6807075, 1 al	0.3m	WROPEC60	384636, individu
<i>Stylidium leptophyllum</i> 6806789, 1 al, Orange Flower	0.2m	WROPEC56	385065, individu
<i>Stylidium leptophyllum</i> 6780070, 1 al,	0.25m	WROPCS128401368,	individu
<i>Stylidium leptophyllum</i> 6804991, also ten. 4 individuals		WROPEC15	387285, Grev
<i>Stylidium leptophyllum</i> 0387574, 6804485, 2 als	0.05m	WROPHA05	individu
<i>Stypandra glauca</i> 6783992, 4 als, Purple	0.4m	WROPCS116400164,	individu Flowers
<i>Stypandra glauca</i> 6781895, 3 als, Purple	3m	WROPCS116400524,	individu Flowers
<i>Thryptomene denticulata</i> 121, 1 individual, hite Flower	0.8m	WROPLT35	Wpt Pink/W
<i>Thryptomene hyporhytis</i> 6804616. 10 als, White	0.6m	WROPEC33	387433, individu Flowers
<i>Thryptomene</i> sp. 6828783, 3 als, Pink Flowers	0.5m	WROPCS95	332927, individu
<i>Thryptomene strongylophylla</i> 6830764, 2 als, Pink Flowers	0.5m	WROPCS104336607,	individu
<i>Thysanotus manglesianus</i> 6831249, 3 als, Purple	CR	WROPCS65	367972, individu Flowers
<i>Tricoryne</i> sp. Mullewa (G.J. Keighery 12080) 6822050, 1 al	0.2m	WROPKM09	300822, individu
Unknown 6822590, 1 al	1.3m	WROPKM77	293427, individu

<i>Velleia rosea</i> 6831907		WROPCS57a 367270.
<i>Verticordia capillaris</i> 6835534, 1	0.4m	WROPCS109 345292, individu
al,		
<i>Verticordia capillaris</i> 6780070, 10	0.4m	WROPCS129 401368, individu
als		
<i>Verticordia chrysostachys</i> var. <i>pallida</i> 6826885, 7	1m	WROPCS40 331895, individu
als		
<i>Verticordia chrysostachys</i> var. <i>pallida</i> 6828783, 1	0.5m	WROPCS94 332927, individu
al, ?		
<i>Verticordia chrysostachys</i> var. <i>pallida</i> 101, 1 individual	1.2m	WROPLT24 Wpt
<i>Verticordia densiflora</i> var. <i>stelluligera</i> 6821433, 5	0.6m	WROPCS139 302988, individu
als,		
<i>Verticordia monadelpha</i> var. <i>monadelpha</i> 6827820, 1	0.5m	WROPCS33 332088, individu
al,		
<i>Verticordia monadelpha</i> var. <i>monadelpha</i> 6821985, 5	2m	WROPCS159 306521, individu
als,		
<i>Verticordia muelleriana</i> subsp. <i>minor</i> 6821146, 1	0.7m	WROPJS08b 304877, individu
al		
<i>Verticordia muelleriana</i> subsp. <i>minor</i> 124, 1 individuals	1m	WROPLT37 Wpt
<i>Verticordia nobilis</i> 128, 20 individuals,	0.8m	WROPLT39 Wpt
Yellow/Orange Flowers, Population		
<i>Verticordia nobilis</i> 6822094, 3	0.4m	WROPCS163 306546, individu
als, Yellow		Flowers
<i>Verticordia nobilis</i> 6822092, 1	0.4m	WROPJS12 306574, individu
al, Red Flowers		
<i>Verticordia nobilis</i> 6822092, 1	0.6m	WROPJS11 306574, individu
al, Yellow		Flowers
<i>Verticordia nobilis</i> 6822129, 1	0.4m	WROPCS163 306524, individu
al, Yellow		Flowers
<i>Verticordia picta</i> 6821881, 1	0.6m	WROPCS155 306452,

al, Pink Flowers			individu
<i>Verticordia picta</i> 6821961, 23	0.6m	WROPCS155 306509,	
als, Pink			individu
, Population			Flowers
<i>Verticordia picta</i> 6822092, 1	0.7m	WROPJS10 306574,	
al, Pink Flowers			individu
<i>Verticordia picta</i> 6822129, 5	0.5m	WROPCS155 306524,	
als, Pink Flowers			individu
<i>Verticordia picta</i> 6822002, 10	1m	WROPCS155 306529,	
als, Pink Flowers			individu
<i>Verticordia picta</i> 129, 25 individuals,	1m	WROPLT40 Wpt	
Flowers, Population			Pink
<i>*Wahlenbergia capensis</i> 6820957, 4	0.3m	WROPKM75 291660,	
als, Blue Flowers			individu
<i>Wurmbea tenella</i> 6804616.	0.2m	WROPEC32 387433,	
<i>Eucalyptus wandoo</i> subsp. <i>pulverea</i> 6821834,	10-14m	WROPKM06 300589,	

Westnet Rail Site WRR01

Described by Kellie McMaster **Date** 17/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 308323 mE 6824022 mN

Habitat Creek Bank

Soil N/A

Rock Type

Vegetation Open Woodland of *Eucalyptus camaldulensis* over Tall Open Shrubland of *Casuarina obesa* over

Closed Grassland of *Bromus diandrus* and *Ehrharta longiflora*

Veg Condition Degraded

Fire Age Old

Notes Aspect: West
Topography: Creek Bank
Bare Ground: 0%
Litter Cover:
Disturbance: Weeds, Tracks Clearances

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia saligna</i>	1%	1-2m	WRR01.06	
<i>Acacia saligna</i>	+	2.5m	WRR01.04	
* <i>Arctotheca calendula</i>	+	0.05m	WR04.01	
<i>Atriplex amnicola</i>	+	1.5m	WRR01.08	
<i>Atriplex amnicola</i>	+	0.6m	WRR01.05	
* <i>Brassica napus</i>	+	0.8m	WR02.22	
* <i>Bromus diandrus</i>	95%	0.8m	WRR01.07	
<i>Casuarina obesa</i>	4%	6-8m	WRR01.02	33-35
* <i>Ehrharta longiflora</i>	2%	1m	WR02.23	
<i>Eragrostis dielsii</i>	+	0.2m	WRR01.10	
<i>Eucalyptus camaldulensis</i>	8%	12m	WRR01.01	30, 31
* <i>Lolium perenne x rigidum</i>	+	0.6m	WRR01.09	
* <i>Lupinus cosentinii</i>	+	0.7m	WR06.04	
<i>Stylobasium australe</i>	+	0.6m	WRR01.11	
<i>Stylobasium australe</i>	+	0.6m	WRR01.03	

Westnet Rail Site WRR02

Described by James Sansom **Date** 19/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 302921 **mE** 6821390 **mN**

Habitat Sand Hill

Soil White / Grey Sand

Rock Type

Vegetation Tall Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Acacia saligna* and *Scholtzia oligandra* over

Shrubland of *Acacia brumalis*, *Grevillea candelabroides* and *Hakea preissii* over Open Grassland of

Pennisetum setaceum* and *Ehrharta longiflora*

Veg Condition Degraded to Good

Fire Age Very Old

Notes Aspect: N/A

Topography: Sand Hill

Bare Ground: 35%

Litter Cover: <1% Logs, 10% Twigs, 30% Lvs.

Disturbance: Tracks, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia brumalis</i>	10%	2m	WRR02.06
<i>Acacia saligna</i>	10%	4m	WRR02.07
* <i>Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Banksia prionotes</i>	+	1.5m	WR16.01
* <i>Briza maxima</i>	+	0.2m	
<i>Cassytha glabella forma dispar</i>	1%	1.5m	WRR02.03
<i>Dianella revoluta</i> var. <i>divaricata</i>	1%	0.5m	WRR02.01
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	15%	3m	WRR02.02
* <i>Ehrharta longiflora</i>	1%	0.5m	WR02.23
<i>Goodenia berardiana</i>	+	0.1m	WR06.03
<i>Grevillea candelabroides</i>	1%	2m	WR11.26
<i>Hakea preissii</i>	1%	1.3m	WRR02.04
<i>Hakea pycnoneura</i>	+	3m	WRR02.09
<i>Maireana georgei</i>	+	0.3m	WR13.08
* <i>Monoculus monstrosus</i>	+	0.2m	WR04.11
<i>Muehlenbeckia adpressa</i>	+	0.2m	WRR02.08
* <i>Pennisetum setaceum</i>	10%	0.5m	WRR02.05
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Rhagodia drummondii</i>	1%	0.6m	WR11.30
<i>Scholtzia oligandra</i>	2%	2.5m	WR16.18
<i>Trachymene cyanopetala</i>	+	0.1m	WR11.16
* <i>Ursinia anthemoides</i>	+	0.2m	WR08.08
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06

Westnet Rail Site WRR03

Described by James Sansom **Date** 19/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 299390 **mE** 6821617 **mN**

Habitat Sandy Crest

Soil Sand

Rock Type

Vegetation Tall Open Scrub of *Dryandra sessilis* var. *flabellifolia* over Open Shrubland of *Rhagodia drummondii*

over Open Grassland of **Ehrharta calycina* and, **Pennisetum setaceum* and ***Ehrharta longiflora* over

Very Open Herbland of **Arctotheca calendula*

Veg Condition Very Good

Fire Age Very Old

Notes Aspect: N/A
 Topography: Sandy Crest
 Bare Ground: 15%
 Litter Cover: 2% Logs, 1% Twigs, 1% Lvs.
 Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>*Arctotheca calendula</i>	3%	0.1m	WR04.01
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	35%	3m	WRR02.02
<i>*Echium plantagineum</i>	+	0.5m	WRR03.03 Outside
<i>*Ehrharta calycina</i>	10%	1.2m	WRR03.01
<i>*Ehrharta longiflora</i>	2%	0.5m	WR02.23
<i>*Hypochaeris glabra</i>	+	0.1m	WR11.25
<i>*Pennisetum setaceum</i>	10%		WRR02.05
<i>*Pentaschistis airoides</i>	+	0.1m	WR05.01
<i>Podotheca angustifolia</i>	+	0.1m	WR04.05
<i>Rhagodia drummondii</i>	2%	1.2m	WR17.05
<i>Thysanotus manglesianus</i>	+	CR	WRR03.02

Westnet Rail Site WRR05

Described by James Sansom **Date** 20/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 311368 **mE** 6824876 **mN**

Habitat Sandy Slope to Drainage Line Further Down

Soil Quartz / Sandy Clay

Rock Type

Vegetation Low Open Woodland of *Eucalyptus loxophleba* subsp. *supralaevis* over Tall Open Scrub of

Melaleuca acuminata over Low Open Shrubland of *Rhagodia drummondii*

Veg Condition Very Good

Fire Age Very Old

Notes Aspect: East North East
 Topography: Sandy Slope
 Bare Ground: 90%
 Litter Cover: - Logs, 5% Twigs, 5% Lvs.
 Disturbance: Adjacent to Track, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>*Arctotheca calendula</i>	+	0.1m	WR04.01
<i>Austrostipa elegantissima</i>	+	0.5m	WR02.30
<i>Brachyscome ciliaris</i>	+	0.2m	WR12.07
<i>*Brassica napus</i>	+	0.6m	WR02.22
<i>Calandrinia polyandra</i>	+	0.1m	WR19.01
<i>Clematicissus angustissima</i>	+	CR	WR19.05
<i>*Ehrharta longiflora</i>	+	0.5m	WR02.23
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	5%	4m	WR19.12
<i>Melaleuca acuminata</i>	30%	4m	WRR05.01
<i>Podotheca angustifolia</i>	+	0.2m	WR04.05
<i>Rhagodia drummondii</i>	2%	0.4m	WR17.05

Westnet Rail Site WRR06

Described by Kellie McMaster **Date** 21/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 295085 mE 6822974 mN

Habitat Drainage Line

Soil Laterite with Silty Clay

Rock Type

Vegetation Woodland of *Eucalyptus camaldulensis* over Tall Shrubland of *Acacia saligna*, *Exocarpos sparteus*, *Melaleuca viminea* subsp. *viminea* and *Grevillea biternata* over Open Shrubland of *Grevillea pinaster* and *Acacia tetragonophylla* over Grassland of **Briza maxima*, **Pennisetum setaceum* and **Ehrharta longiflora*

Veg Condition Good to Very Good

Fire Age Moderate to Old

Notes Aspect: N/A
 Topography: Drainage Line
 Bare Ground: 1%
 Litter Cover: <1% Logs, 2% Twigs, 90% Lvs.
 Disturbance: Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia saligna</i>	15%	3m	WRR06.03
<i>Acacia tetragonophylla</i>	2%	2m	
<i>Amyema fitzgeraldii</i>	+		WR12.15
<i>*Briza maxima</i>	60%	0.1m	NC
<i>*Ehrharta longiflora</i>	1%	0.4m	WR02.23
<i>Eucalyptus camaldulensis</i>	15%	12m	WRR06.01
<i>Exocarpos sparteus</i>	1%	5m	WRR06.04
<i>Gahnia trifida</i>	+	0.7m	WRR06.06
<i>Grevillea biternata</i>	1%	2.5m	WRR06.08
<i>Grevillea pinaster</i>	3%	1-1.5m	WRR06.02
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	1.6m	WR13.06
<i>Halgania gustafsenii</i> var. <i>Mid West</i>	+	0.2m	WROPKM41
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	2%	3m	WRR06.05
<i>Olearia dampieri</i>	+	0.7m	WR17.11
<i>*Pennisetum setaceum</i>	1%	0.6m	WRR02.05
<i>*Urospermum picroides</i>	1%	1m	WR06.08

Westnet Rail Site WRR07

Described by Kellie McMaster **Date** 21/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 292185 mE 6821334 mN

Habitat Low Rise / Sloping Sandplain

Soil White Grey Sand

Rock Type

Vegetation Tall Shrubland of *Dryandra sessilis* var. *flabellifolia*, *Adenanthos cygnorum* subsp. *Cygnorum*, *Acacia blakelyi* and *Acacia rostellifera* over Open Grassland of *Ehrharta longiflora* and *Briza maxima*

Veg Condition Good to Very Good

Fire Age

Notes Aspect: N/A
 Topography: Low Rise / Sloping Sandplain
 Bare Ground: 5%
 Litter Cover: <1% Logs, 2% Twigs, 92% Lvs.
 Disturbance: Adjacent to Rail and Road, Weeds

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia blakelyi</i>	4%	6.5m	WR21.15
<i>Acacia rostellifera</i>	4%	4.5m	WRR06.07
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	8%	1.5-2.5m	WRR07.01
* <i>Brassica napus</i>	+	0.5m	WR02.22
* <i>Briza maxima</i>	5%	0.2m	NC
<i>Conostylis robusta</i>	+	0.2m	WR13.05
<i>Dryandra sessilis</i> var. <i>flabellifolia</i>	8%	5-6m	WRR02.02
* <i>Ehrharta longiflora</i>	20%	0.4m	WR02.23
* <i>Hypochaeris glabra</i>	+	0.1m	WR11.25
<i>Scholtzia leptantha</i>	+	0.5m	WRR07.02
* <i>Ursinia anthemoides</i>	+	0.05m	WR04.14
* <i>Ursinia anthemoides</i>	+	0.1m	WR08.08

Westnet Rail Site WRR08

Described by Kellie McMaster **Date** 21/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 289945 **mE** 6818026 **mN**

Habitat

Soil

Rock Type

Vegetation Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *supralaevis* over Open Grassland of

Herbland of ***Ehrharta longiflora*, **Pennisetum setaceum* and ***Bromus diandrus* over Open
Lupinus cosentinii*, *Echium plantagineum*, ***Anagallis arvensis*, **Hypochaeris glabra*,
**Melilotus indicus* and
Enchylaena tomentosa

Veg Condition Completely Degraded to Degraded

Fire Age Young

Notes Aspect:
 Topography:
 Bare Gorund:
 Litter Cover:
 Disturbance: Old Farm Paddock not Rehabilitated, Recently Burnt

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia rostellifera</i>			WRR08.05
<i>*Anagallis arvensis</i>			WR04.06
<i>*Bromus diandrus</i>			WR06.12
<i>*Echium plantagineum</i>			WRR03.03
<i>*Ehrharta longiflora</i>			WR02.23
<i>Enchylaena tomentosa</i>			WRR08.04
<i>Enchylaena tomentosa</i>			WRR08.03
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>			WRR08.01
<i>*Hypochaeris glabra</i>			WR11.25
<i>*Lupinus cosentinii</i>			WR06.04
<i>*Melilotus indicus</i>			WRR08.02
<i>*Pennisetum setaceum</i>			WRR02.05

Westnet Rail Site WRR09

Described by Kellie McMaster **Date** 21/09/2010 **Type** R R

Location Geraldton to Mullewa

MGA Zone 50J 286362 mE 6817236 mN

Habitat Roadside Verge/ Lateritic Rise

Soil White Clayey Sand with Gravel

Rock Type

Vegetation Tall Shrubland of *Acacia rostellifera* and *Acacia brumalis* over Open Shrubland of *Acacia alata* var.

biglandulosa over Low Open Shrubland of *Maireana georgei* over Closed Grassland of *Pennisetum*

setaceum, ***Ehrharta longiflora* and ***Briza maxima*

Veg Condition Degraded

Fire Age Old

Notes Aspect: West North West
 Topography: Lateritic Rise
 Bare Ground: 25%
 Litter Cover:
 Disturbance: Weeds, Historically Cleared?

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia alata</i> var. <i>biglandulosa</i>	7%	1m	WRR09.01
<i>Acacia brumalis</i>	1%	2-5m	WRR09.02
<i>Acacia rostellifera</i>	9%	2-3m	WRR09.03
<i>*Briza maxima</i>	10%	0.1m	NC
<i>Clematicissus angustissima</i>	+	CL	WR19.05
<i>Convolvulus remotus</i>	+	CL	WRR09.06
<i>*Echium plantagineum</i>	+	0.2m	WRR03.03
<i>*Ehrharta longiflora</i>	10%	0.5m	WR02.23
<i>Maireana georgei</i>	2%	0.3m	WRR09.04
<i>*Pennisetum setaceum</i>	50%	0.5m	WRR02.05
<i>Ptilotus divaricatus</i>	+	0.3m	WRR09.05
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	+	0.3m	WROPKM13

Westnet Rail Site WRR100

Described by Emma Carroll **Date** 18/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 378921 mE 6813329 mN

Habitat Plain

Soil Light orange red brown loam

Rock Type Quartz and Granite

Vegetation Open Shrubland of *Acaica brumalis* over Low Open Shrubland of *Acacia andrewsii* and *Acacia* sp.

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 75%
 Litter Cover: +% Logs, 1% Twigs, 2% Lvs.
 Disturbance: Cleared, Only a few original species left

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia andrewsii</i>	2%	1m	WRR100.04
<i>Acacia brumalis</i>	6%	1-3m	WRR100.01
<i>Acacia</i> sp.	1%	2m	WRR100.02
* <i>Avena barbata</i>	+	0.3m	WR100.31
<i>Cephalipterum drummondii</i>	+	0.3m	WRR100.03
<i>Dodonaea inaequifolia</i>	+	0.4m	WROPEC01

Westnet Rail Site WRR101

Described by Emma Carroll **Date** 19/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 393928 mE 6797056 mN

Habitat Plain

Soil Orange brown sandy loam

Rock Type N/A

Vegetation Very Open Tree mallee of *Eucalyptus loxophleba* subsp. *supralaevis*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 50%
 Litter Cover: 2% Logs, 5% Twigs, 10% Lvs.
 Disturbance: Track, Introduced species, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia burkittii</i>	+	0.8m	WR106.06
<i>Acacia</i> sp.	+	1m	WR10.38
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Atriplex bunburyana</i>	+	0.4m	WRR101.01
* <i>Avena barbata</i>	1%	0.4m	WR100.31
<i>Enchylaena tomentosa</i>	1%	0.2m	WR100.26
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	5%	5m	WR111.01
<i>Maireana aphylla</i>	+	0.5m	WRR101.02
<i>Rhagodia drummondii</i>	+	0.2m	WR110.05
<i>Sclerolaena diacantha</i>	+	0.2m	WRR101.03
<i>Senna charlesiana</i>	+	0.5m	WR100.07

Westnet Rail Site WRR102

Described by Emma Carroll **Date** 19/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 394828 **mE** 6795274 **mN**

Habitat Plain

Soil Red orange brown clayey loam

Rock Type

Vegetation Very Open Shrubland of *Acacia acuminata* over Very Open Low Shrubland of *Atriplex codonocarpa* and *Rhagodia drummondii*

Veg Condition Degraded

Fire Age Old

Notes Aspect:N/A
 Topography: Plain
 Bare Ground: 80%
 Litter Cover: 0% Logs, 0% Twigs, 0% Lvs.
 Disturbance: Cleared, Salt effected

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Atriplex codonocarpa</i>			WR110.19
* <i>Medicago polymorpha</i>			WR110.18
* <i>Portulaca oleracea</i>			WR100.10
<i>Rhagodia drummondii</i>			WR110.05
<i>Tecticornia undulata</i>			WRR102.01

Westnet Rail Site WRR103

Described by Emma Carroll **Date** 19/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 396090 **mE** 6793902 **mN**

Habitat Plain

Soil Red orange brown loam

Rock Type N/A

Vegetation Tall Open Scrub of *Acacia acuminata* and *Acacia anthochaera*.

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 60%
 Litter Cover: 5% Logs, 5% Twigs, 20% Lvs.
 Disturbance: Track,Rail, Clearing

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	20%	4m	WR116.01
<i>Acacia anthochaera</i>	20%	4m	WR111.02
* <i>Arctotheca calendula</i>			WR100.42
<i>Chenopodium gaudichaudianum</i>			WRR103.02
* <i>Ehrharta longiflora</i>			WR102.24
<i>Enchylaena tomentosa</i>			WR100.26
<i>Maireana tomentosa</i>			WRR103.01
<i>Podolepis lessonii</i>			WR100.20
<i>Ptilotus obovatus</i>	+		WR100.01
<i>Sclerolaena densiflora</i>	+		WR100.03

Westnet Rail Site WRR104

Described by Emma Carroll **Date** 20/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 384823 **mE** 6806930 **mN**

Habitat Plain

Soil Light orange brown loam with surface crust

Rock Type Quartz and Laterite

Vegetation Very Open Tree Mallee of *Eucalyptus loxophleba* subsp. *Supralaevis* over Tall Shrubland of

Melaleuca uncinata, *Acacia sibina* and *Melaleuca eleuterostachya* over Low Open Shrubland of *Acacia andrewsii*.

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 80%
 Litter Cover: 5% Logs, 5% Twigs, 5% Lvs.
 Disturbance: Track, Clearing, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia andrewsii</i>	2%	0.4m	WR100.38
<i>Acacia brumalis</i>	1%	2m	WR115.05
<i>Acacia restiacea</i>	+	0.5m	WR101.22
<i>Acacia sibina</i>	2%	2-3m	WR102.02
<i>Acanthocarpus canaliculatus</i>	+	0.3m	WRR104.02
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	4%	7m	WR111.01
<i>Gyrostemon ramulosus</i>	+	0.3m	WRR104.04
Indeterminate	+	2m	WRR104.03
<i>Melaleuca eleuterostachya</i>	1%	5m	WRR104.01
<i>Melaleuca uncinata</i>	10%	2.5m	WR105.18
<i>Podolepis capillaris</i>	+	0.2m	WR100.13
<i>Ptilotus obovatus</i>	+	0.3m	WR100.01
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Sclerolaena densiflora</i>	+	0.2m	WR100.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WRR105

Described by Emma Carroll **Date** 21/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 394533 **mE** 6795588 **mN**

Habitat Plain

Soil Red orange brown loam

Rock Type

Vegetation Shrubland of *Acacia anthochaera*, *Senna charlesiana* and *Acacia colletioides* over Low Open

Shrubland of *Rhagodia drummondii* and *Enchylaena tomentosa*

Veg Condition Good/ Very Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 30%
 Litter Cover: 1% Logs, 1% Twigs, 1% Lvs.
 Disturbance: Track, Salinity, Clearing, Rail

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia anthochaera</i>	15%		WRR105.04
<i>Acacia anthochaera</i>	10%		WRR105.02
<i>Acacia colletioides</i>	1%	1.5m	WRR105.01
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Atriplex codonocarpa</i>	+	0.2m	WR110.19
<i>Austrostipa elegantissima</i>	+		WR107.31
<i>Chenopodium gaudichaudianum</i>	+	CR	WR100.25
<i>Enchylaena tomentosa</i>	2%	0.3m	WR100.26
* <i>Moraea setifolia</i>	+	0.1m	WRR105.03
* <i>Portulaca oleracea</i>	+	0.1m	WR100.10
<i>Rhagodia drummondii</i>	2%	0.5m	WR112.06
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Senna charlesiana</i>	1%	1-2m	WR100.07

Westnet Rail Site WRR106

Described by Emma Carroll **Date** 22/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 403191 **mE** 6775980 **mN**

Habitat Plain

Soil Red orange brown loam

Rock Type

Vegetation Tall Open Shrubland of *Acacia anthochaera* over Low Open Shrubland of *Ptilotus obovatus* and

Solanum lasiophyllum over Herbland of *Cephalopterum drummondii*, **Vaccaria hispanica* and *Podolepis capillaris*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 70%
 Litter Cover: 0% Logs, + Twigs, + Lvs.
 Disturbance: Track, Clearing, Rail, Introduced Species

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuaria</i>	+	0.5m	WRR106.03
<i>Acacia andrewsii</i>	+	0.3m	WRR100.04
<i>Acacia anthochaera</i>	2%	1-3.5m	WRR106.02
<i>Atriplex bunburyana</i>	+	0.4m	WRR106.07
<i>Cephalopterum drummondii</i>	30%	0.2m	WRR106.01
<i>Chenopodium gaudichaudianum</i>	+	0.3m	WRR106.05
<i>Dichopogon capillipes</i>	+	0.1m	WRR106.08
<i>Enchylaena tomentosa</i>	+	0.3m	WR100.26
* <i>Lupinus cosentinii</i>	+	0.3m	NC
* <i>Monoculus monstrosus</i>	+	0.2m	WR100.16
<i>Podolepis capillaris</i>	1%	0.2m	WR100.13
<i>Podolepis lessonii</i>	+	0.2m	WR100.20
* <i>Portulaca oleracea</i>	+	0.2m	WR100.10
<i>Ptilotus obovatus</i>	2%	0.4m	WR100.01
<i>Salsola tragus</i>	+	0.3m	WR100.19
<i>Sclerolaena densiflora</i>	+	0.2m	WR100.03
<i>Sida calyxhymenia</i>	+	0.2m	WRR106.06
<i>Solanum lasiophyllum</i>	1%	0.3m	WR101.02
* <i>Vaccaria hispanica</i>	1%	0.2m	WR102.18

Westnet Rail Site WRR107

Described by Hayden Ajduk **Date** 21/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 403735 **mE** 6772639 **mN**

Habitat Plain

Soil Brown sandy loam with white surface

Rock Type

Vegetation Tall Open Shrubland of *Melaleuca atroviridis* and *Acacia* sp.

Veg Condition Good/ Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 90%
 Litter Cover: 1% Logs, 1% Twigs, 2% Lvs.
 Disturbance: Track, Clearing, Salt effected

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia</i> sp.	1%	2m	WRR107.02
* <i>Arctotheca calendula</i>	+	0.1m	WRR107.06
<i>Crassula colorata</i> var. <i>acuminata</i>	+	0.1m	WR100.23
<i>Crassula colorata</i> var. <i>colorata</i>	+	0.01m	WR110.13
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Enchylaena tomentosa</i>	+	0.2m	WR100.26
<i>Gnephosis angianthoides</i>	+	0.1m	WRR107.08
* <i>Lolium perenne</i> x <i>rigidum</i>	+	0.2m	WRR107.04
<i>Melaleuca atroviridis</i>	5%	1-3m	WRR107.01
<i>Monachather paradoxus</i>	+	0.2m	WRR107.07
<i>Podolepis lessonii</i>	+	0.2m	WR100.20
* <i>Portulaca oleracea</i>	+	0.1m	WR100.10
<i>Sclerolaena densiflora</i>	+	0.1m	WR100.03
<i>Senecio glossanthus</i>	+	0.1m	WRR107.05
<i>Tecticornia indica</i> subsp. <i>bidens</i>	+	0.3m	WRR107.03
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.1m	WR100.14

Westnet Rail Site WRR108

Described by Emma Carroll **Date** 22/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 403757 mE 6771559 mN

Habitat Drainage channel between new and very old rail lines.

Soil Light orange brown clayey loam with scatterings of cobbles and pebbles

Rock Type

Vegetation Tall Open Scrub of *Acacia* sp.

Veg Condition Good/ Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Drainage line
 Bare Ground: 40%
 Litter Cover: 5% Logs, 2% Twigs, 30% Lvs.
 Disturbance: Diggings, Rail, Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia</i> sp.	30%	1-4m	WRR108.01
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
<i>Austrostipa elegantissima</i>	+	0.3m	WR107.31
<i>Dianella revoluta</i> var. <i>divaricata</i>	+	0.3m	WR100.46
<i>Gnephosis angianthoides</i>	+	0.1m	WRR107.08
<i>Schoenia cassiniana</i>	+	0.2m	WR100.15
<i>Solanum lasiophyllum</i>	+	0.3m	WR101.02
<i>Verticordia eriocephala</i>	1%	0.4m	WRR108.02
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR100.14

Westnet Rail Site WRR109

Described by Hayden Ajduk **Date** 22/09/2010 **Type** R R

Location Mullewa to Morowa

MGA Zone 50J 403751 **mE** 6770701 **mN**

Habitat Plain

Soil Light orange brown sandy loam

Rock Type

Vegetation Tall Open Scrub of *Acacia ramulosa* var. *linophylla* and *Acacia sibina*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 50%
 Litter Cover: 1% Logs, 5% Twigs, 20% Lvs.
 Disturbance: Track, Clearing, Rail.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia acuminata</i>	1%	1m	WR103.08
<i>Acacia ramulosa</i> var. <i>linophylla</i>	30%	2-4m	WRR109.01
<i>Acacia sibina</i>	1%	2-4m	WR102.02
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.3m	WRR109.06
* <i>Arctotheca calendula</i>	+	0.2m	WR100.42
* <i>Avena barbata</i>	+	0.3m	WR100.31
<i>Baeckea</i> sp. Dudawa (M.E. Trudgen MET 5369)	+	0.5m	WRR109.02
<i>Cassylia glabella</i> forma <i>dispar</i>	+	CR	WR103.12
<i>Dodonaea inaequifolia</i>	+	0.4m	WR104.02
<i>Eucalyptus</i> sp.	1%	6m	WRR109.08
<i>Gnaphosia angianthoides</i>	+	0.1m	WRR107.08
<i>Hibbertia glomerata</i> subsp. <i>glomerata</i>	+	0.5m	WRR109.03
Indeterminate	+	0.6m	WRR109.04
<i>Keraudrenia hermanniifolia</i>	1%	0.6m	WRR109.07
<i>Platysace trachymenioides</i>	+	0.4m	WRR109.05
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR100.14

Westnet Rail Site WRR110

Described by Ciaran Sqherza **Date** 21/09/2010 **Type** R R

Location Morawa

MGA Zone 50J **mE** **mN**

Habitat Plain

Soil Yellow Sandy Loam

Rock Type Granite

Vegetation Shrubland of *Calycopeplus paucifolius* and *Acacia aciphylla* over Low Open Shrubland of

Allocasuarina campestris and *Mirbelia depressa*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground:
 Litter Cover:
 Disturbance:

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia aciphylla</i>	2%	1m	WRR110.02	
<i>Allocasuarina campestris</i>	1%	0.9m	WRR110.03	
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	1%	0.4m	WR60.01	
<i>Borya sphaerocephala</i>	+	0.2m	WR60.17	
<i>Calycopeplus paucifolius</i>	10%	1.5m	WRR110.01	
<i>Grevillea granulosa</i>	+	0.6m	WROPCS86	F
<i>Hemigenia coccinea</i>			WROPCS175	
<i>Hibbertia</i> sp.	+	0.4m	NC	F
<i>Mirbelia depressa</i>	1%	0.6m	WR68.05	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR02.06	F

Westnet Rail Site WRR50

Described by Ciaran Sqherza **Date** 17/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 332151 mE 6828183 mN

Habitat Sandplain - Slight Rise

Soil Yellow Sand

Rock Type

Vegetation Low Open Woodland of *Callitris arenaria* over Shrubland of *Acacia brumalis*, *Acacia spathulifolia* and

Thryptomene denticulata over Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta*

longiflora over Very Open Herbland of *Podotheca angustifolia*, *Bonamia rosea* and *Waitzia acuminata* var. *acuminata*

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Sandplain - Slight Rise
 Bare Ground:
 Litter Cover:
 Disturbance: Rubbish, Weeds, Clearing, Nearby Tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia brumalis</i>	5%	1m	WRR50.02	F
<i>Acacia spathulifolia</i>	3%	1.5m	WRR50.06	
<i>Austrostipa elegantissima</i>	1%	0.5m	WR01.31	
<i>Bonamia rosea</i>	1%	0.2m	WRR50.04	
<i>Callitris arenaria</i>	2%	2m	WR01.24	
<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i>	+	0.6m	WR01.02	F
* <i>Ehrharta longiflora</i>	2%	0.4m	WR50.05	
<i>Grevillea petrophiloides</i> subsp. <i>petrophiloides</i>	+	1.5m	WRR50.07	
<i>Lachnostachys eriobotrya</i>	1%	0.6m	WRR50.05	F
<i>Melaleuca filifolia</i>	+	1.5m	WRR50.01	
* <i>Monoculus monstrosus</i>	+	0.2m	WR50.10	
<i>Opercularia spermacoccea</i>	+	0.3m	WRR50.09	
<i>Podolepis canescens</i>	+	0.3m	WRR50.03	
<i>Podotheca angustifolia</i>	1%	0.3m	WR01.25	
<i>Rhagodia drummondii</i>	+	0.5m	WRR50.10	
<i>Thryptomene denticulata</i>	1%	1m	WRR50.08	F
<i>Waitzia acuminata</i> var. <i>acuminata</i>	1%	0.2m	WR50.01	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	3%	0.15m	WR01.20	

Westnet Rail Site WRR51

Described by Lewis Trotter **Date** 17/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 353941 **mE** 6841417 **mN**

Habitat Sand and Gravel Plain (Highly Disturbed)

Soil Red - Brown Sand with Rocks, Cobbles and Pebbles Surface Layer

Rock Type Granite

Vegetation Open Shrubland of *Acacia stereophylla* var. *stereophylla* over low shrubland of *Maireana tomentosa* and *Atriplex codoncarpa* over Grassland of **Bromus rubens*

Veg Condition Degraded to Completely Degraded

Fire Age Old

Notes Aspect:
Topography: Sand and Gravel Plain
Bare Ground: 15%
Litter Cover: 1% Logs, 1% Twigs, <1% Lvs.
Disturbance: Nearby Rail, Earth Movement.

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia rostellifera</i>	+	1.5m	WR55.06
<i>Acacia stereophylla</i> var. <i>stereophylla</i>	2%	2m	WR57.03
<i>*Arctotheca calendula</i>	+	0.2m	WR04.01
<i>Atriplex codoncarpa</i>	1%	0.5m	WR52.07
<i>*Bromus rubens</i>	50%	0.4m	WRR51.03
<i>Chenopodium gaudichaudianum</i>	+	1m	WR55.04
<i>Echium</i> sp.	+	0.3m	WROPCS10
<i>Maireana tomentosa</i>	10%	0.3m	WRR51.02
<i>*Petrohragia dubia</i>	+	0.4m	WRR51.01
<i>Solanum lasiophyllum</i>	+	0.1m	WRR51.04

Westnet Rail Site WRR53

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 368183 **mE** 6830842 **mN**

Habitat Plain

Soil Yellow Loamy Sand with Clay on Surface

Rock Type

Vegetation Open Shrubland of *Acacia anthochaera* over Very Open Herbland of *Podolepis capillaris* and
**Arctotheca calendula*

Veg Condition Degraded to Completely Degraded

Fire Age

Notes Aspect: N/A
Topography: Plain
Bare Ground: 95%
Litter Cover: 1% Logs, 1% Twigs, <1% Lvs.
Disturbance: Clearing, Weeds, Earthmoving, Rubbish.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuminata</i>	+	0.5m	WRR53.03	
<i>Acacia anthochaera</i>	5%	2m	WRR53.01	F
* <i>Arctotheca calendula</i>	1%	0.1m	WR04.01	F
<i>Podolepis capillaris</i>	1%	0.2m	WRR53.02	F

Westnet Rail Site WRR54

Described by Ciaran Sqherza **Date** 18/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 358064 mE 6841512 mN

Habitat Plain

Soil Brown Clayey Loam

Rock Type Quartz and Granite

Vegetation Very Open Grassland of *Ehrharta longiflora* and *Pennisetum setaceum*

Veg Condition Degraded

Fire Age

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 90%
 Litter Cover: - Logs, <1% Twigs, - Lvs.
 Disturbance: Clearing, Nearby Tracks, Rubbish.

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>Acacia acuaria</i>	+	1.5m	WR60.08	F
<i>Acacia acuminata</i>	+	1m	WR67.05	
<i>Acacia andrewsii</i>	1%	1m	WR69.08	
* <i>Brassica napus</i>	1%	0.6m	WR02.22	F
* <i>Ehrharta longiflora</i>	2%	0.4m	WR50.05	F
<i>Erodium cygnorum</i> subsp. <i>cygnorum</i>	+	0.1m	WR50.14	F
<i>Grevillea obliquistigma</i> subsp. <i>funicularis</i>	+	1.5m	WR60.04	F
<i>Hakea recurva</i> subsp. <i>recurva</i>	+	1m	WR72.02	
<i>Mirbelia depressa</i>	+	0.5m	WRR54.01	F
* <i>Pennisetum setaceum</i>	1%		NC	
<i>Rhodanthe spicata</i>	+	0.1m	WR72.05	F
<i>Solanum lasiophyllum</i>	+	0.5m	WRR51.04	
<i>Waitzia acuminata</i> var. <i>acuminata</i>	+	0.2m	WR69.04	F

Westnet Rail Site WRR55

Described by Ciaran Sqherza **Date** 19/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 351752 **mE** 6840540 **mN**

Habitat Plain

Soil Brown Loam with Some Clay on Surface

Rock Type

Vegetation Herbland of **Brassica napus*, **Echium plantagineum*, **Arctotheca calendula* and **Lolium perenne x rigidum*

Veg Condition Completely Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 40%
 Litter Cover: - Logs, <1% Twigs, <1% Lvs.
 Disturbance: Clearing , Weeds, Tracks

SPECIES LIST:

Name	Cover	Height	Specimen	Notes
<i>*Arctotheca calendula</i>	5%	0.2m	NC	F
<i>*Brassica napus</i>	30%	0.6m	NC	F
<i>*Echium plantagineum</i>	10%	0.4m	WROPCS10	F
<i>*Lolium perenne x rigidum</i>	2%	0.4m	WRR55.01	F

Westnet Rail Site WRR60

Described by Ciaran Sqherza **Date** 20/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 367580 mE 6831726 mN

Habitat Plain

Soil Yellow / Brown Loam with Clay and Rocks on Surface

Rock Type Granite

Vegetation Low Open Shrubland of *Grevillea granulosa*, *Jacksonia rhadinoclada* and *Dampiera spicigera*

Veg Condition Good to Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Plain
 Bare Ground: 95%
 Litter Cover: <1% Logs, 5% Twigs, 2% Lvs.
 Disturbance: Clearing

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Cassutha glabella forma dispar</i>	+	CR	WR62.16
<i>Dampiera spicigera</i>	1%	0.3m	WR55.12 F
<i>Eremophila glandulifera</i>	+	0.3m	WROPCS49 F
<i>Grevillea granulosa</i>	2%	0.5m	WROPCS44
<i>Grevillea paradoxa</i>	1%	1m	WROPCS47 F
<i>Hibbertia glomerosa var. bistrata</i>	+	0.25m	WROPCS45 F
<i>Jacksonia rhadinoclada</i>	2%	0.3m	WRR60.01
<i>Keraudrenia hermanniifolia</i>	+	0.3m	WRR60.02
<i>Keraudrenia hermanniifolia</i>	+	0.4m	WROPCS03 F

Westnet Rail Site WRR61

Described by Lewis Trotter **Date** 21/09/2010 **Type** R R

Location Morawa

MGA Zone 50J 400222 **mE** 6786183 **mN**

Habitat Drainage Channel, Wet Flat

Soil White Wet Clay / Sand

Rock Type N/A

Vegetation Shrubland of *Atriplex amnicola* and *Atriplex suberecta* over Low Shrubland of **Lolium perenne* x *rigidum* and *Tecticornia pruinosa*

Veg Condition Good to Degraded

Fire Age Old

Notes Aspect: N/A
 Topography: Drainage Channel
 Bare Ground: 15%
 Litter Cover: - Logs, 10% Twigs, - Lvs
 Disturbance: Drainage Under Rail, Nearby Track

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Atriplex amnicola</i>	8%	1m	WRR61.03
<i>Atriplex suberecta</i>	2%	1m	WRR61.04
<i>*Lolium perenne x rigidum</i>	15%	0.4m	WR80.08
<i>Tecticornia pruinosa</i>	5%	0.5m	WRR61.02 F
<i>Tecticornia pruinosa</i>	1%	0.3m	WRR61.01

Westnet Rail Site WRR62

Described by Lewis Trotter **Date** 22/09/2010 **Type** R R

Location Mullewa

MGA Zone 50J 368746 **mE** 6829881 **mN**

Habitat Flat

Soil Hard Yellow Brown Sand

Rock Type

Vegetation Open Heath of *Melaleuca cordata* and *Isopogon* sp. over Low Open Shrubland of *Cheyniana microphylla* (C.A. Gardner) Rye

Veg Condition Good

Fire Age Old

Notes Aspect: N/A
 Topography: Flat
 Bare Ground: 50%
 Litter Cover: 1% Logs, 5% Twigs, 1% Lvs.
 Disturbance: New Rail and Tracks

SPECIES LIST:

Name	Cover	Height	Specimen Notes
<i>Acacia quadrimarginea</i>	+	4m	NC
<i>Allocasuarina campestris</i>	+	0.8m	WRR62.03
<i>Cheyniana microphylla</i> (C.A. Gardner) Rye	2%	0.3m	WRR62.01 F
<i>Isopogon</i> sp.	1%	1.4m	WRR62.04 F
<i>Melaleuca cordata</i>	30%	2m	WRR62.02
<i>Waitzia acuminata</i> var. <i>acuminata</i> +	0.2m	WR69.04	F