Marillana Creek

Riparian Flora and Vegetation Survey

Prepared for BHP Billiton Iron Ore Pty Ltd
October 2015

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Executive Summary

BHP Billiton Iron Ore Pty Ltd (BHP Billiton Iron Ore) commissioned Onshore Environmental Consultants Pty Ltd (Onshore Environmental) to undertake a detailed riparian flora and vegetation survey along a 32 km section of Marillana Creek, situated adjacent to the Marillana (Yandi) open pit iron ore mine, approximately 100 km north-west of the town of Newman in the Pilbara region of Western Australia. The survey design incorporated the establishment of permanent monitoring transects and plots to quantify plant biodiversity parameters upstream, adjacent to, and downstream of the mining operations.

Level 2 Flora and Vegetation Assessment

A total number of 399 plant taxa (including varieties and subspecies) from 58 families and 186 genera were recorded from the study area at June 2015. There were no plant taxa gazetted as Threatened Flora pursuant to subsection (2) of section 23F of the WC Act, or listed under the EPBC Act recorded from the study area. Six Priority flora taxa as defined by DPaW were recorded from the study area; *Amaranthus centralis* (Priority 3), *Aristida lazaridis* (Priority 2), *Goodenia nuda* (Priority 4), *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (Priority 3), *Ipomoea racemigera* (Priority 2) and *Rostellularia adscendens* var. *latifolia* (Priority 3). There were 22 introduced (weed) species recorded from the study area. None of these taxa are listed as a Declared Pest under the BAM Act.

A total of 22 vegetation associations were described and mapped from the study area. None of the vegetation associations had any affiliation with Federal or State listed Threatened Ecological Communities (TECs), or State listed Priority Ecological Communities (PECs). Vegetation condition ranged from *excellent* to *degraded,* with seventy percent of the study area rated as *very good.*

Riparian Vegetation Monitoring

A total of 70 plant taxa, including 59 natives and 11 introduced weed species, was recorded along the five 20 m by 1 m belt transects established along the main drainage channel of Marillana Creek. Species richness for individual transects ranged from 15 to 39 taxa. Perennial plant density averaged 2.88 plants m^{-2} (2,880 per ha equivalent) and mean ground cover was 82.4 percent.

A total of seven tree species were recorded within the five 20 m by 20 m assessment plots; *Acacia citrinoviridis, Eucalyptus camaldulensis, Eucalyptus victrix, Melaleuca argentea, Acacia coriacea* subsp. *coriacea, Atalaya hemiglauca* and *Acacia ampliceps.* Tree density ranged from 175 to 875 trees per hectare, averaging 415 trees per hectare. Mean tree health scores for all five plots generally reflected a healthy canopy, with the lower rating for *Melaleuca argentea* at Site MM5 caused by flood damage to younger trees.

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1.0 INTRODUCTION

1.1 Preamble

In 2015 Onshore Environmental was commissioned by BHP Billiton Iron Ore to undertake a baseline flora and vegetation survey of riparian vegetation and aquatic flora along Marillana Creek. The report is a general report and does not assess any specific development proposal.

BHP Billiton Iron Ore currently operate the Marillana (Yandi) open pit iron ore mine, which is located approximately 100 km north-west of the town of Newman in the Pilbara region of Western Australia. The study area to be surveyed is identified in Figure 1 and covers riparian vegetation of the creek for a length of approximately 32 km (~10km^2).

1.2 Previous Surveys

In 2010, Onshore Environmental completed a review of previous flora and vegetation surveys within a 132 km^2 area surrounding the Yandi mine (Onshore Environmental 2011):

- Onshore Environmental (2011) Flora and Vegetation Review Yandi ML 270SA.

The aim of the project was to consolidate and update vegetation and flora data previously recorded from the Yandi area. The review identified a total of 31 previous flora and vegetation surveys that had been completed within or in close proximity to the Yandi study area since mining commenced in 1991. These surveys are listed below and described in more detail in Section 3.1.1.

Surveys previously completed within, or partly within, the study area are:

- Dames and Moore (1991) *Yandi Baseline Vegetation Survey Marillana Creek – Part 1, Precommissioning of Yandicoogina Iron Ore Mine*;
- AGC Woodward Clyde (1995) *Marillana and Weeli Wolli Creeks and Paleochannel Vegetation and Flora Survey*;
- Ecologia Environment (1995) *Yandi Stage 2 Iron Ore Project Biological Assessment Survey*;
- Halpern Glick Maunsell (1996) *Yandi Stage 2 Iron Ore Project Survey of Flora of Interest*;
- Halpern Glick Maunsell (1997) *Marillana Creek Iron Ore Project Survey for Goodenia stellata and Flora of Interest*;
- BSD (1997) *A survey of Mexican Poppy (Argemone ochroleuca) at Marillana Creek*;
- Ecologia Environment (1998) *Yandi Vegetation and Soil Survey*;
- Halpern Glick Maunsell (1999) *Marillana Creek Western Access Corridor Biological Assessment*;
- Halpern Glick Maunsell (1999) *Marillana Creek Iron Ore Project Review of Biological Reporting*;
- BHPIO (2000) *Yandi Priority Flora Species Survey*;
- Biota (2002) *Mining Area C Rail Rare Flora Survey;*
- Biota (2003) *Mining Area C Rail Corridor – Seasonal Rare Flora Survey Phase II;*

- Ecologia Environment (2003a) *Yandi IOWA Conveyor: Rare and Priority Flora Survey*;
- Ecologia Environment (2003b) *Yandi IOWA Conveyor - Amendment to Rare and Priority Flora Survey;*
- Maunsell (2003) *Yandi Life of Mine Flora and Fauna*;
- Ecologia Environment (2004) *Yandi Stockyard and Overland Conveyor Fauna and Flora Assessment*;
- Ecologia Environment (2007b) *Yandi Mine Extension RGP5 EIA Flora Survey Interim Report Post Phase 1 Survey;*
- Ecologia Environment (2008) *Two Phase Assessment of the Flora and Vegetation of the Proposed Marillana Creek (Yandi) Mine Extension Areas RGP5 – KBR*;
- ENV Australia (2009a) *Western 6, 7, and 8 Flora and Vegetation Assessment*;
- ENV Australia (2009b) *Western 2 & Western 1 Waste Dump Flora and Assessment*;
- GHD (2010) *Report for Yandi W1 and W4 OSA Targeted Rare and Priority Flora Survey*; and
- BHP Billiton Iron Ore (2010b) *Declared Rare Flora (DRF) and Priority flora search at Yandi - Proposed haul road crossing at Marillana Creek.*

Surveys previously completed in close proximity to the study area are:

- Ecologia Environment (2001) *Yandi Proposed Air Strip Environmental Clearance Survey*;
- Biota (2002) *Proposed Yandi Airstrip Flora Survey*;
- Ecologia Environment (2002) *Yandi Airstrip and Access Road Rare and Priority Flora Survey*;
- Maunsell (2004) *Yandi Flora and Vegetation Survey Lease M47 292 and E4 Drill Lines*;
- Ecologia Environment (2006) *Yandi Rail Corridor DRF and Priority Flora Assessment;*
- ENV Australia (2008) *RGP5 M270SA Flora and Vegetation Assessment;*
- ENV Australia (2009c) RGP5 *Yandi Flora Survey and Assessment of Barimunya Airport and a Potential Borrow Area*;
- ENV Australia (2009d) *Central 3 Flora and Vegetation Assessment*; and
- Ecologia Environment (2007a) *Marillana ML70/270 SA Sec 2 Flora and Vegetation Assessment*.

In 2014 Onshore Environmental consolidated vegetation mapping of the Yandi tenement with other regional vegetation mapping from BHP Billiton Iron Ore's Pilbara tenure into one regional Geographic Information System (GIS) database (Onshore Environmental 2014).

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Marillana Ck W

Yandi

Marillana Creek

Marillana Ck Central 5

Western 4

Hamersley Iron Railway

Marillana Ck E1

Marillana Ck E

Resources Group Phils Creek

Yandicoogina - Junction Group Hairpin

Marillana Ck E3

Marillana Ck E5

Marillana Creek

Marillana Ck E6

Water Stand

693000 696000 699000 702000 705000 708000 711000 714000 717000 720000 723000 726000 729000

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MARILLANA CREEK RIPARIAN

FIGURE 1
Location of the study area

Legend

Marillana Creek Riparian Study Area

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1.3 Climate

The Pilbara region has an arid to tropical climate with two distinct seasons; a hot summer from October to April and a mild winter from May to September. The majority of annual rainfall is received during the hot summer months. Summer and autumn rainfall is typically associated with cyclonic activity and thunderstorms, with falls being of higher intensity and shorter duration contributing to an erratic annual range (ANRA 2013).

Annual average rainfall for the Pilbara ranges from 180 mm to over 400 mm (Beard 1975). The long-term average for the nearby Marillana Weather Station is 318.5 mm. Most of the annual precipitation occurs between the four months from December to March. The average maximum summer temperature ranges between 38ºC and 40ºC, while winter maximum temperatures range from 28ºC to 30.5ºC (BOM 2014).

There was significant summer rainfall received prior to the June 2015 field survey, with January, February and May 2015 receiving average falls, March 2015 receiving almost three times the long term monthly average (133.4 mm), and April 2015 receiving above average monthly falls (93.8 mm) (Figure 2, BOM 2015). Seasonal conditions at the time of survey were excellent.

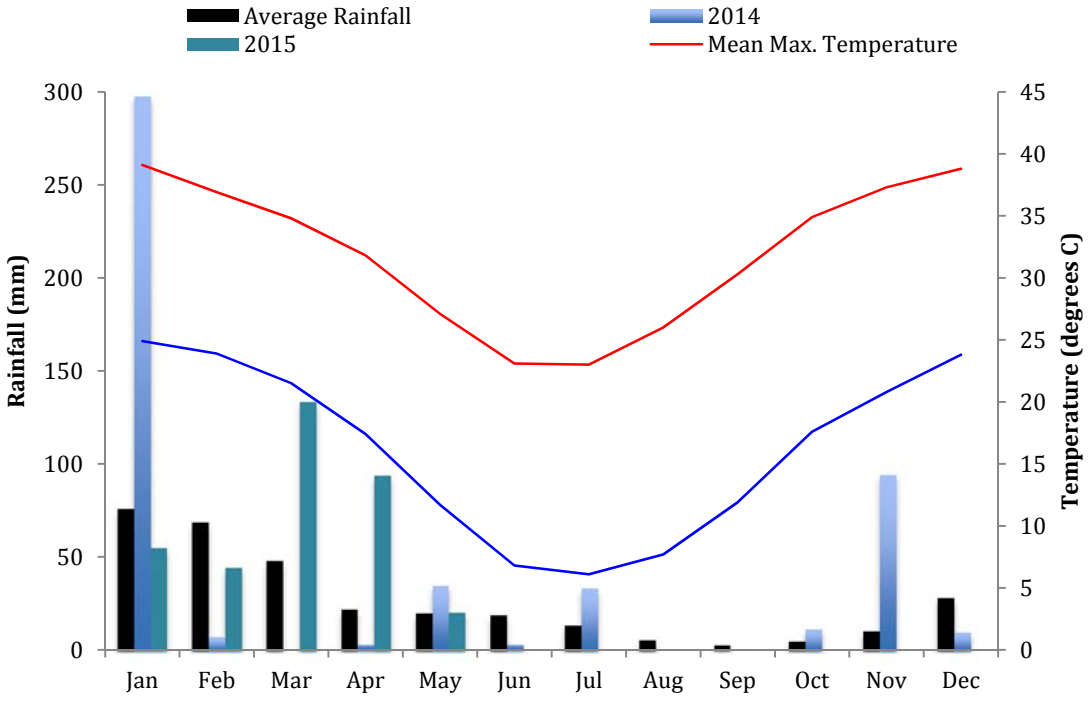

Figure 2 **Long term rainfall and climatic data recorded at Newman Airport, with monthly records between January 2014 and May 2015 taken from Yandi Mine (Bureau of Meteorology 2015).**

1.4 Biogeographic Regions

The latest version of the Interim Biogeographic Regionalisation for Australia (IBRA7) divides Australia into 89 bioregions based on climate, geology, landform, native vegetation and species information (Department of Environment 2013) and includes

419 sub-regions. The bioregions and sub-regions are the reporting unit for assessing the status of native ecosystems and their level of protection in the National Reserve System.

The study area is located in the Hamersley sub-region (PIL3) which is described as a 'mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite) (Kendrick 2001b). It contains Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges'.

1.5 Existing Land Use

Land tenure in the Pilbara region consists of Aboriginal and leasehold reserves, national parks and reserves and Crown land which falls under a range of pastoral and mining leases. The dominant land uses in the Pilbara are mining, pastoralism in the form of cattle grazing, conservation, unallocated crown land, crown reserves and urban areas (Kendrick 2001a, 2001b).

The study area occurs within the Marillana Pastoral Lease which is owned by BHP Billiton Iron Ore. The study area is actively grazed by domestic cattle.

1.6 Landforms

The study area lies within the Hamersley Range on the Hamersley Plateau, which is surrounded to the north, east and west by escarpments. Rounded hills and ranges dominate the landscape in the area. The Hamersley and Ophthalmia Ranges are characterised by long strike ridges rising from valley floors reaching a height of up to 300 m. The flat valley floors consist of Cainozoic sediments.

In a survey of the Karijini (Hamersley Range) National Park, Dawe and Dunlop (1983) developed a classification system for landforms and vegetation of the area. Nine units were described, as well as number of sub-units based on geology, soil, slope and drainage patterns. The study area follows Marillana Creek, which is classified as a major creek line:

- Major Creek Lines (C): Heavy gravel in channels, sandy banks and islands. These generally feature eroded earth banks 1-3 m high with a sandy or gravelly wash line and have a minor associated flood plain.

1.7 Soils

Tille (2007) classified the most recent and detailed mapping of Western Australia's Rangelands and Arid Interior into a hierarchy of soil-landscape mapping units. The study area is located within the Hamersley Plateaux Zone:

- 285 – Hamersley Plateaux Zone, located in the Fortescue Province is described as having stony soils with red shallow loams and some red/brown non-cracking clays and red loamy earths.

The Australian Soil Resource Information System (CSIRO 2006) described two soil types as occurring within the study area:

- Fa13: Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations; some areas of ferruginous duricrust as well as

occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains; and

- Fb3: High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

1.8 Geology

The geology of the wider Pilbara region is ancient and has been evolving over the past 3,500 million years (Trendall as cited in Johnson 2004). There are three main geological phases that comprise the development of the Pilbara region as it is today. These include the Precambrian basement rocks, the Phanerozoic sedimentary rocks and the Cainozoic deposits (Johnson 2004).

The Precambrian basement rocks were formed through sedimentation, intrusion and volcanism before being metamorphosed by movements in the Earths crust. These rocks cover most of the Pilbara but have been dissected by more recent intrusions. After a course of sea level changes, deposition of the large Phanerozoic sedimentary basins that cover the western and eastern areas of the Pilbara occurred. Following this, the erosion of the basement rocks and transportation of this sediment via drainages has lead to the deposition of Cainozoic superficial units that now cover most of the basement rocks and sedimentary basins (Johnson 2004).

The main geological features of the Yandi area have been described by Tyler *et al.* (1991). The Weeli Wolli Formation (*Phj*) in the east and north is comprised of banded jaspilite with interbedded shale and intruded by medium-grained dolerite. The younger Tertiary Robe Pisolite (*Tp*) forms a band up to 2 km wide through the central, eastern and south-western parts of the study area. This deposit is associated with the ancient Marillana Creek and is the main iron ore deposit for Yandi. It is composed of pisolitic limonite deposits with fossil wood fragments. The Tertiary Colluvium (*Tc*) formation lies in the south-western corner of the study area and small areas to the north. This formation is partially cemented valley-fill deposits with boulders of limonite.

1.9 Hydrology

All rivers in the Pilbara region are seasonal and require heavy rainfalls to flow (Johnson 2004). Due to the hot dry climate and high evaporation rates, groundwater is the most available source of water (Johnson 2004). The ground water table generally follows the surface topography, is recharged via infiltration from rainfall, and stored in large groundwater reserves in the valley fill alluvium of the Fortescue River and Hamersley Range (Johnson 2004).

Marillana Creek is located within the Weeli Wolli Catchment. The hydrology of the area is dominated by ephemeral creeks and drainage lines flowing into Weeli Wolli Creek to the east of the study area. Marillana Creek is a major drainage line of the local area with a catchment area of 2,050 km^2. It flows east along the study area and joins the Weeli Wolli Creek downstream of Weeli Wolli Springs. Weeli Wolli

Creek then flows north in to the Fortescue Marsh.

Surplus water from BHP Billiton Iron Ore's Yandi mine and Rio Tinto's Yandicoogina mine is discharged into Marillana Creek at various locations along its length.

1.10 Flora and Vegetation

The study area is located within the Hamersley Botanical District, within the Pilbara IBRA region of the Eremaean Province (Beard 1990). Beard (1975) mapped vegetation of the Pilbara at a scale of 1:1,000,000. The most common vegetation associations within the study area were *Eucalyptus leucophloia* (snappy gum) and *Triodia wiseana* (hard spinifex) tree steppe occurring on hills, and tall woodlands of *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Melaleuca argentea* along major drainage lines such as Marillana Creek.

The original vegetation mapping undertaken by Beard (1975) was refined by Shepherd *et al*. (2002), who confirmed the same two vegetation associations were present within the study area (Figure 3). While the Pre-European extent for each vegetation association is greater than 99.9 percent, less than ten percent of each association occurs within formal or informal reserves (Table 1).

Table 1 Pre-European extent of vegetation associations occurring within the study area (Shepherd *et al.* 2002).

Vegetation Sub-Association	Description	Pre-Euro. Extent Remaining	% remaining IUCN Class I-IV Reserves	% remaining Other Reserves	% remaining DPaW Managed PL
82.3	Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*	100.0	8.9	0.2	1.0
18.11	Low woodland; mulga *(Acacia aneura)*	99.9	2.0	0.3	2.5

1.11 Land Systems

The Department of Agriculture (now the Department of Agriculture and Food) has conducted inventory and condition surveys of the Pilbara (van Vreeswyk *et al.* 2004) using an integrated survey method involving the land system approach to rangeland description evaluation. The primary objective of the surveys was to provide comprehensive descriptions and mapping of the biophysical resources of the region, as well as an evaluation on the condition of soils and vegetation. The mapping is based on patterns in topography, soils and vegetation.

A total of 102 land systems were defined in the Pilbara at a scale of 1: 250,000 (van Vreeswyk et al. 2004). There were six land systems represented within the study area; Boolgeeda, Robe, River, Platform, Oakover and McKay Land Systems (Table 2, Figure 4). The creekline is mostly comprised of the Robe, River, McKay and Platform Land Systems. The Oakover Land System occurs on the calcrete plains in the western sector of the study area and the plains surrounding the creekline in the east are part of the Boolgeeda Land System (Figure 4).

Table 2 Land systems occurring within the study area (descriptions from van Vreeswyk et al. 2004).

Land System	Representation in the Pilbara	Description
Robe	865 km^2 or 0.5%	Low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands.
River	4,088 km^2 or 2.3%	Active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grassland.
McKay	4,202 km^2 or 2.3%	Hills, ridges, plateaux remnants and breakaways of meta sedimentary rocks supporting hard Spinifex grasslands.
Oakover	1,529 km^2 or 0.8%	Breakaways, mesas, plateaux and stony plains of calcrete supporting hard spinifex grasses.
Boolgeeda	7,748 km^2 or 4.3%	Stony plains with hard spinifex grasslands or mulga shrublands. The geology is quaternary colluvium.
Platform	1,570 km^2 or 0.9%	Dissected slopes and raised plains supporting hard spinifex grasslands.

1.12 Riparian Vegetation

The riparian zones of the Pilbara are generally ephemeral and comprise an incised drainage channel surrounded by levee banks and floodplains. Surface water is rare but does occur at localised points along major creeklines. Dominant tree species of the riparian zone are *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Melaleuca argentea*. *Eucalyptus camaldulensis* and *Eucalyptus victrix* are facultative phreatophytes that draw on groundwater in times of drought but also utilise surface water. *Melaleuca argentea* is an obligate phreatophyte associated with shallow groundwater and/or permanent pools of surface water along the major creeklines.

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FIGURE 3

Beard (1975) vegetation complexes represented within the study area

Legend

Marillana Creek Riparian Study Area

Pre-European Vegetation (Beard 1975)

System, Vegetation Association

- FORTESCUE VALLEY, 29
- HAMMERSLEY, 18
- HAMMERSLEY, 82

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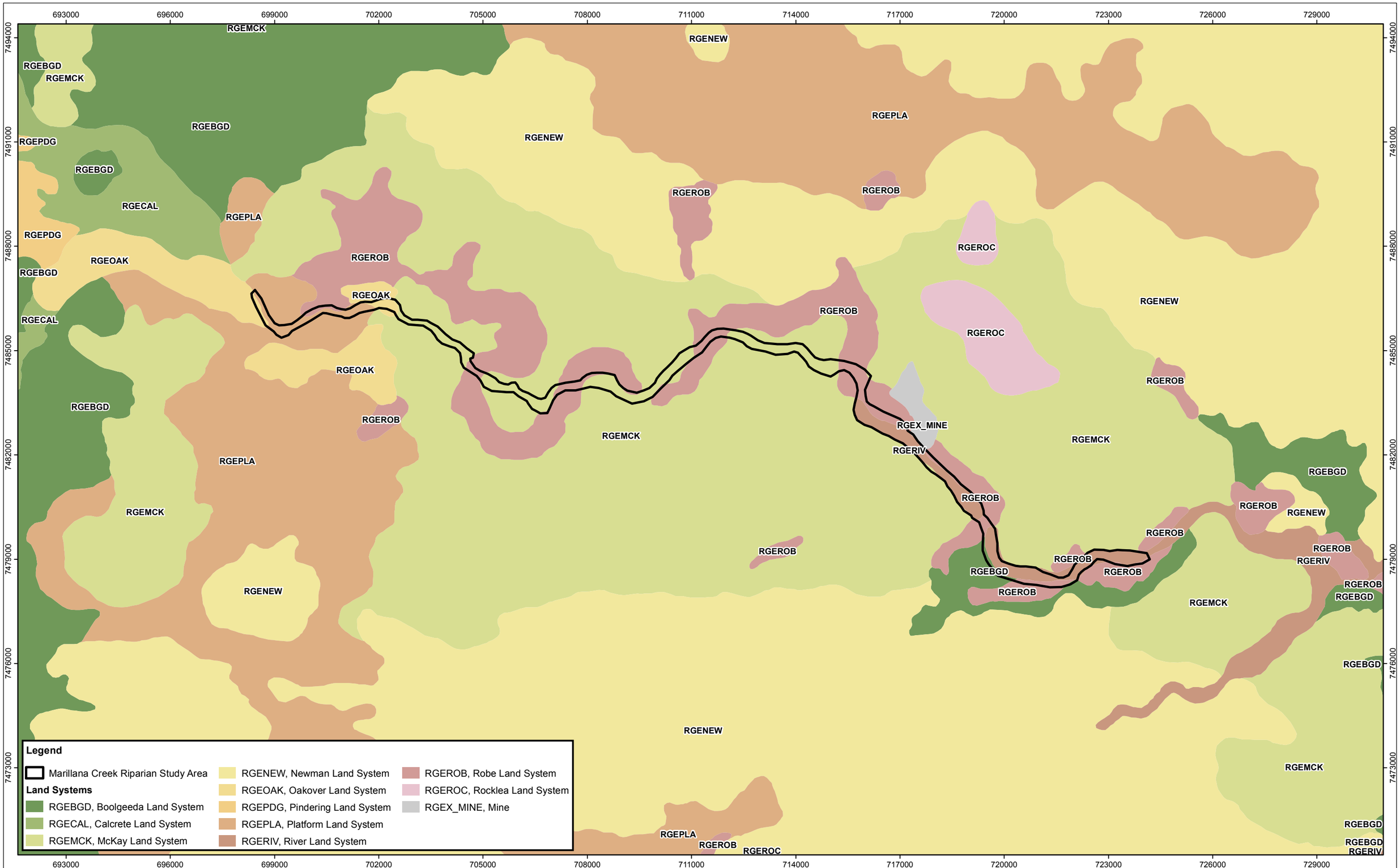

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FIGURE 4

Land systems occurring within the study area (as mapped by Van Vreeswyk *et al.* 2004)

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2.0 METHODOLOGY

2.1 Legislation and Guidance Statements

The flora and vegetation survey was carried out in a manner that was compliant with Environmental Protection Authority (EPA) requirements for the environmental surveying and reporting of flora and vegetation in Western Australia:

- 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 Environmental Protection. Position Statement No. 3 (EPA 2002); and
- EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51 (EPA 2004).

The survey was also conducted in accordance with BHP Billiton Iron Ore's Guidance for Flora and Vegetation Surveys in the Pilbara (BHP Billiton Iron Ore 2010).

2.2 Desktop Searches

Desktop searches of three databases were completed for information relating to rare flora (DPaW 2015a), TECs and PECs (DPaW 2015b) previously collected or described within, or in close proximity to, the study area. For this report a database search covering the entire study area was completed. The search was extended beyond the immediate survey limits to place flora values into a local and regional context. The search co-ordinate used was a 50 km radius around the central point of the study area which includes the length of Marillana Creek surveyed; 711000E 7485000N (Zone 50 GDA94). The State database search investigated three DPaW databases:

- The DPaW Threatened Flora Database (DPaW 2015a);
- The DPaW Threatened and Priority Flora List (DPaW 2015b); and
- The Western Australian Herbarium Specimen Database for priority species opportunistically collected in the area of interest.

A search of the EPBC Act Protected Matters database was undertaken (DOE 2015), as well as a search of the International Union for Conservation of Nature (IUCN) database (IUCN 2015). A comprehensive literature review of surveys previously completed within or in close proximity to the study area was also completed.

2.3 Baseline Survey Methodology

2.3.1 Timing and Personnel

The flora and vegetation survey was completed by Principal Botanist Dr Jerome Bull and Field Botanist Ms Jessica Waters, working over a twelve day period between the 8th and 19th June 2015.

2.3.2 Sampling of Study Sites

The field survey involved systematic sampling using quadrats (referred to as study sites). Relevé vegetation descriptions were made to increase the accuracy of vegetation mapping and targeted searches were completed in habitats where it was anticipated significant flora may occur.

Quadrats were 50 m by 50 m in dimension, with this area being standard for the Pilbara bioregion. The number of study sites sampled was determined by the size and heterogeneity of the study area, with 40 quadrats formally assessed along the 32 km length of Marillana Creek. An additional 237 relevé sites were assessed. The locations of all quadrats sampled are provided in Figure 5.

The sampling sites were assessed to provide a list of the total flora occurring within the study area and a description of the vegetation structure. Data collected covered a range of environmental parameters including:

- Landform and habitat;
- Aspect;
- Soil colour and soil type;
- Rock type;
- Slope (angle);
- Percentage of bare ground, logs, twigs and leaves;
- Vegetation condition;
- Disturbance (caused by fire, clearing, grazing etc.);
- Age since fire;
- Broad floristic formation;
- Vegetation association description; and
- Height and percentage ground cover provided by individual plant taxa.

Other parameters recorded for each study site were:

- Study site number and date of assessment;
- Names of the botanists undertaking the assessment;
- Location description a waypoint – GPS coordinate (GDA94) using a handheld GPS; and
- Photograph number.

699000 702000 705000 708000 711000 714000 717000 720000 723000 726000

7491000 7488000 7485000 7482000 7479000 7476000

Marillana Creek

MM-03 MC-21 MC-18 MC-03 MC-04 MC-29 MC-20 MC-28 MC-19 MC-30 MC-17 MC-05 MC-27 MC-23 MC-01 MC-24 MM-01 MC-02 MC-25 MC-22 MC-26 MM-04 MC-08 MC-10 MM-02 MC-11 MC-16 MC-07 MC-09 MC-06 MC-15 MC-14 MC-13 MC-12 MC-36 MC-35 MC-37 MC-38 MC-33 MC-40 MC-31 MC-32 MM-05 MC-34 MC-39

Hamersley Iron Railway

Marillana Creek

699000 702000 705000 708000 711000 714000 717000 720000 723000 726000

[redacted]

ON SHORE ENVIRONMENTAL CONSULTANTS		Date:	17/08/2015
Sheet Size:	A3	Status:	Final
Drawn by GSM	Requested by DB	GSM Reference Marillana Creek Riparian Sample Site	

N

0 1 2 3 4

Kilometers
1:75,000

Datum: GDA94
Projection: MGA Zone 50

FIGURE 5

Location of study sites (quadrats) and monitoring plots within the study area

Legend

- Marillana Creek Riparian Study Area
- Sample Site Locations
- Monitoring Plot Locations

[redacted]
PO Box 7215
Eaton WA 6232
admin@griffinspatial.com.au
Ph/Fax +61 (0) 8 9725 3213
Mob 0487 337 226

2.3.3 Targeted Surveys for Conservation Significant Species

Targeted searches were completed along the entire length of the study area. Ground-truthing provided an opportunity to record opportunistic locations for Threatened and Priority listed flora and undertake closer examination of specific landforms where conservation significant flora may be expected to occur.

2.3.4 Weed Survey and Mapping

Introduced weed species were recorded from the 40 formal quadrats assessed within the study area. Opportunistic collections were also made while moving along the creekline with targeted weed searches completed in high moisture habitats of the main drainage channel.

2.3.5 Vegetation Association Mapping

The vegetation mapping utilised high-resolution aerial photography of the entire study area at a scale of 1:10,000, with definition of vegetation mapping polygons based on contrasting shading patterns reflecting differences in vegetation structure. Ground-truthing of the study area was completed during the survey with vegetation descriptions made within selected vegetation polygons to confirm dominant structural layers and associated plant taxa. The 40 quadrats (50 m x 50 m or 2,500m^2 in equivalent area) and 237 relevé plots assessed in the field were overlaid onto the aerial photography, and flora and vegetation data was used to provide vegetation association descriptions and confirm vegetation association boundaries.

Description of vegetation structure follows the height, life form and density classes of Specht (1970) as modified by Alpin (1979) and Trudgen (2009) (see Appendix 1). This is largely a structural classification suitable for broader scale mapping, but taking all ecologically significant strata into account. Vegetation condition for each of the sampling sites was determined using a recognised rating scale (based on Keighery 1994, see Appendix 2).

2.3.6 Vouchering

At least one voucher specimen was taken for each species collected to verify identification. Taxonomy was completed by Dr Jerome Bull at the Western Australian Herbarium (WAH), with selected voucher specimens provided to the BHP Billiton Iron Ore sponsored botanist, Mr Steve Dillon. Use was made of the WAH for confirmation of species identification.

2.3.7 Field Survey Constraints

The EPA Guidance Statement for Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2004) list twelve potential constraints that field surveys may encounter. These constraints are addressed in Table 3.

Table 3 Relevance of constraints, as identified by EPA (2004), to the flora and vegetation survey.

Constraint	Relevance
Scope	The scope was established by BHP Billiton Iron Ore in compliance with relevant EPA Guidance Statements.
Proportion of flora collected and identified	It is likely that a large proportion of the flora occurring within the study area has been collected, given the intensity of the June 2015 survey effort by Onshore Environmental. The seasonal conditions at the time of survey were excellent and a wide variety of ephemeral taxa were recorded.
Sources of information	In 2010 Onshore Environmental completed a comprehensive desktop review of the previous survey work completed within, and in close proximity to, the Yandi study area. This review was supported by an additional flora survey by Onshore Environmental in 2010. The extensive previous survey effort is confirmed by the intensity of records for the area on Florabase.
The proportion of the task achieved and further work which might be needed	All allocated tasks detailed in the scope of works were achieved during the June 2015 survey and no further work is required at this site.
Timing / weather / season / cycle	The survey was completed in June 2015 under excellent seasonal conditions.
Disturbances, e.g. fire, flood	Disturbances within the study area include introduced species, grazing of vegetation and damage to the creekline by domestic stock (cattle), nearby mine infrastructure, flooding and fire (mosaic of burn ages recorded). The riparian habitats are preferentially used by domestic stock which may lead to increased levels of surface erosion and weed infestation. There was also visual evidence of tree health decline along sections of Marillana Creek fringing mining activities.
Intensity	A total of 40 quadrats and 237 releve plots were assessed along the 32km length of Marillana Creek assessed by Onshore Environmental during 2015. This represents an intensive survey effort.
Completeness	Given the narrow width of the study area and the intensive ground coverage along the entire 32 km length it is considered the area has been adequately surveyed.
Resources	Appropriate resources were applied to surveying the study area.
Access problems	The entire study area could be accessed by vehicle and on foot, noting that vegetation mapping was facilitated by high-resolution aerial photography.
Availability of contextual information	Approximately 27 flora and vegetation surveys have been undertaken within or in close proximity to the study area, providing an extensive local database.
Experience levels	The Principal Botanist working on the survey has over 15 years Pilbara experience, and the accompanying Field Botanist has in excess of four years Pilbara experience. Together the group has completed numerous surveys in close proximity to the study area over recent years.

2.3.8 Assessment of Conservation Significance

The conservation significance of flora and ecological communities are classified on a Commonwealth, State and Local level on the basis of various Acts and Agreements (EPA Guidance Statement No. 51, EPA 2004), including:

Commonwealth Level:

- EPBC Act: The Department of Environment (DoE) lists Threatened Flora and Ecological Communities which are determined by the Western Australian Threatened Species Scientific Committee according to criteria set out in the Act. The Act lists flora that are considered to be of conservation significance under one of six categories (Appendix 3).

State Level:

- WC Act: At a State level native flora species are protected under the WC Act – Wildlife Conservation (Rare Flora) Notice. A number of plant species are assigned an additional level of conservation significance based on a limited number of known populations and the perceived threats to these locations. Species of the highest conservation significance are gazetted Threatened Flora (T) under subsection 2 of section 23F of the Act. It is an offence to take or damage Threatened flora without Ministerial approval. Section 23F of the Act defines 'to take' as "to gather, pick, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means".
- DPaW Priority list: DPaW produces a list of Priority species and ecological communities (PECs) that have not been assigned statutory protection under the WC Act. Priority Flora are under consideration for declaration as 'Rare Flora', classified as in urgent need of further survey (Priority One to Three), require monitoring every 5-10 years (Priority Four) or require a specific conservation program to prevent the taxon becoming threatened within five years (Priority 5), see Appendix 4. The list of PECs identifies those that need further investigation before nomination for TEC status.

Local Level:

- Species may be considered of local conservation significance because of their patterns of distribution and abundance. Although not formally protected by legislation, such species are acknowledged to be in decline as a result of threatening processes, primarily habitat loss through land clearing.

2.4 Vegetation Monitoring Methodology

The potential impact on flora and vegetation resulting from surface discharge of surplus water from the Yandi mine situated adjacent to Marillana Creek can be assessed by establishing permanent monitoring transects and plots and comparing quantitative data for plant biodiversity parameters over time.

A total of five permanent monitoring points were established along the length of Marillana Creek; one site situated upstream of Yandi mine, one site situated adjacent to Yandi mine, and three sites situated at increasing distances downstream of Yandi mine. Future monitoring of vegetation within transects and plots will allow changes in vegetation health to be identified. Separate monitoring procedures were used to assess the understorey and overstorey strata (see 2.4.1 and 2.4.2). A photo-monitoring point was also established at the north-west corner

of each transect.

2.4.1 Quantitative assessment of understorey vegetation

Twenty metre by one metre permanent belt transects were established to sample plant density, percent ground cover, and maximum plant height for all plant taxa present. Permanent belt transects of twenty contiguous 1m by 1m quadrats were established along the western boundary of a larger 20 m by 20 m plot used to quantitatively assess trees (see Section 2.4.2 below) (Figure 6).

The twenty contiguous 1 m^2 quadrats were assessed individually. For each species within a quadrat the number present, percentage ground cover, and maximum plant height was recorded. Summarised data gave mean density values (no. plants m^{-2}), mean percentage ground cover, and mean maximum plant height for each of the five transects. An importance value index (IVI, Mueller-Dombois and Ellenberg 1974) which considers frequency, density, and cover was calculated for each species along a transect line. The total IVI value for all species within each transect totalled 300; the greater the dominance of a particular species the larger the individual species' IVI. A diversity index, Shannon-Wiener (H), and an evenness value (J) were also calculated. The evenness index has a maximum value of one which represents an even spread of individuals among species (Magurran 1988).

2.4.2 Quantitative assessment of trees

Permanent 20 m by 20 m plots were established to monitor the health and density of tree species along Marillana Creek (Figure 6). The western boundary of each plot aligned with the 20 m by 1 m belt transects described in Section 2.4.1 above. Within each plot the height, stem diameter (at breast height) and condition of each tree present was recorded.

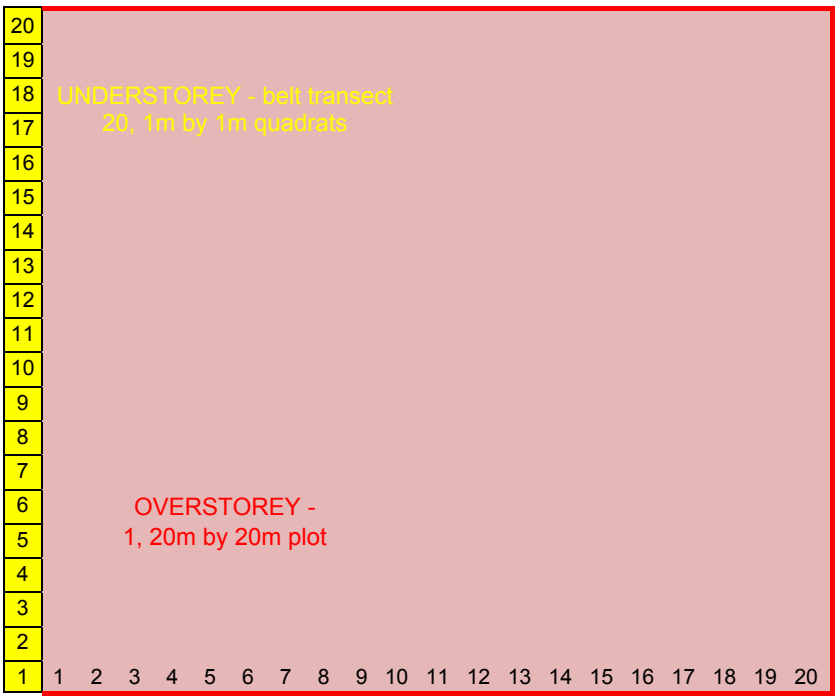


Figure 6 **Layout of permanent understorey belt transect (20, 1m by 1m quadrats) and overstorey plots (20m by 20m), established as part of the monitoring program.**

2.4.3 Vegetation Health

Vegetation health was assessed along transects established at each of the five pre-determined sites. A score ranging between 0 and 5 (Table 4) was applied on the basis of visual evidence of plant stress or deaths. Scores will be compared over time to determine whether there is any significant change in vegetation health.

Table 4: Vegetation health rating table.

Score	Observation
5	No evidence of stress
4	Odd plant showing signs of stress
3	One or Two stressed plants, usually under severe stress, near death
2	Scattered stressed and dead plants around plot
1	Susceptible plants dead or dying
0	Graveyard death, most plants dead

3.0 RESULTS: BASELINE SURVEY

3.1 Desktop Review

3.1.1 Previous Baseline Flora Surveys

There were a total of 31 previous flora and vegetation surveys completed within or in close proximity to the study area. Table 5 summarises survey timing, proximity to the study area, floristics, and occurrence of significant flora (including any change of conservation ranking since surveys were completed).

Table 5 Summary of results from previous flora and vegetation surveys within, or in close proximity to, the study area.

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Dames and Moore (1991) Yandi Baseline Vegetation Survey Marillana Creek – Part 1, Precommissioning of Yandicoogina Iron Ore Mine	Within the study area and downstream on Marillana Creek	1st- 7th March 1991 9 transects along drainage lines	3 vegetation associations	23 taxa One introduced weed species: **Vachellia farnesiana*	No Threatened or Priority Flora
AGC Woodward Clyde (1995) Marillana and Weeli Wolli Creeks and Paleochannel Vegetation and Flora Survey	Within the study area and surrounds	9th -15th May 1995 41 vegetation sites (including four of the 9 established above by Dames & Moore)	6 vegetation types	270 taxa Seven introduced weed species: **Cenchrus ciliaris, *Argemone ochroleuca, *Malvastrum americanum, *Bidens bipinnata, *Sonchus oleraceus, *Vachellia farnesiana, *Citrullus lanatus*	No Threatened Flora One Priority Flora: *Rostellularia adscendens* var. *latifolia* (Priority 3) Three species were listed as Priority flora at the time of survey but are no longer considered threatened; *Goodenia stellata, Olearia fluvialis, Eriachne tenuiculmis*
Ecologia (1995) Yandi Stage 2 Iron Ore Project Biological Assessment Survey	Within the study area and surrounds	May- June 1995 83 flora sites	22 vegetation associations	345 taxa from 55 families and 156 genera Five introduced weed species: **Argemone ochroleuca, *Bidens bipinnata, *Cenchrus ciliaris, *Malvastrum americanum, *Sonchus oleraceus*	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Goodenia stellata*

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Halpern Glick Maunsell (1996) Yandi Stage 2 Iron Ore Project Survey of Flora of Interest	Within the study area and surrounds	24th-27th October 1996 Targeted searches for flora of conservation significance	Not recorded	Not recorded	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; considered threatened; *Wedelia* sp. Hamersley (A.S. Weston 8444)
Halpern Glick Maunsell (1997) Marillana Creek Iron Ore Project Survey for Goodenia stellata and Flora of Interest	Within the study area and surrounds	28th May- 1st June 1997 Targeted searches for Goodenia stellata	Not recorded	Not recorded	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Goodenia stellata*
BSD (1997) A survey of Mexican Poppy (**Argemone ochroleuca*) at Marillana Creek	Within the study area and extending to surrounding tributaries	30th November- 6th December 1996 Targeted searches for *Argemone ochroleuca	Not recorded	**Argemone ochroleuca* was recorded at 27 locations	Not recorded
Ecologia (1998) Yandi Vegetation and Soil Survey	Within the study area and surrounds	27th May – 1st June 1998 32 quadrats	14 vegetation associations	200 taxa from 45 families and 104 genera Seven introduced weed species: **Argemone ochroleucra, *Cenchrus ciliaris, *Rostraria cristata*[1], **Malvastrum americanum, *Centaurea melitensis*[2], **Sonchus oleraceus, *Vachellia farnesiana*	No Threatened Flora One Priority flora taxon: *Goodenia nuda* (Priority 4)

[1] It is noted that **Rostraria cristata* has not previously been recorded north from a line between Shark Bay and Wiluna.
[2] It is noted that **Centaurea melitensis* has not previously been recorded north from a line between Carnarvon and Laverton.

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Halpern Glick Maunsell (1999a) Marillana Creek Western Access Corridor Biological Assessment	Western Access Corridor runs from Mining Area C through the Juna Downs pastoral lease to the Yandi mine site Includes some of the eastern parts of the study area	23rd -30th April 1999 16 vegetation sites	25 vegetation associations	195 taxa from 40 families and 98 genera Two introduced weed species: **Bidens bipinnata, *Malvastrum americanum*	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Goodenia stellata*
Halpern Glick Maunsell (1999b) Marillana Creek Iron Ore Project Review of Biological Reporting	Within the study area and surrounds	Desktop review	28 vegetation types from previous surveys	493 from 55 families Seven introduced weed species: **Argemone ochroleuca* subsp *ochroleuca, *Bidens bipinnata, *Cenchrus ciliaris, *Centaurea melitensis, *Malvastrum americanum, *Rostraria cristata, *Sonchus oleraceus*	No Threatened Flora One Priority flora: *Goodenia nuda* (Priority 4) Three species were listed as Priority flora at the time of survey but are no longer considered threatened; *Goodenia stellata, Olearia fluvialis, Eriachne tenuiculmis*
BHPBIO (2000) Yandi Priority Flora Species Survey	Within the study area and surrounds	July 2000 Targeted survey for flora of conservation significance	Not recorded	Not recorded	No Threatened or Priority Flora *Goodenia nuda* (Priority 4) could not be relocated
Ecologia (2001) Yandi Proposed Air Strip Environmental Clearance Survey	To the north of the study area	26th-27th September 2001	Not recorded	66 taxa from 25 families No introduced weed species were recorded	No Threatened or Priority Flora
Ecologia (2002) Yandi Airstrip and Access Road Rare and Priority Flora Survey	To the north of the study area	14th- 17th March 2002 Targeted searches of proposed airstrip and access road	3 vegetation types	154 taxa from 38 families No introduced weed species were recorded	No Threatened Flora One Priority Flora: *Isotropis parviflora* (Priority 2), originally mis-identified as *Isotropis winneckei*

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Biota (2002) Proposed Yandi Airstrip Flora Survey	To the north of the study area	19th August 2002 Targeted survey to flag and report of populations of species of interest	Not recorded	Not recorded	No Threatened Flora One Priority Flora: *Isotropis parviflora* (Priority 2), originally mis-identified as *Isotropis winneckei* Species of interest: *Senna curvistyla* and *Tephrosia arenicola* (not conservation significant)
Biota (2002) Mining Area C Rail Rare Flora Survey	40km rail corridor between MAC and Yandi Includes some of the eastern parts of the study area	12th-18thNovember 2001 Targeted survey for flora of conservation significance	Not recorded	Not recorded	No Threatened or Priority Flora Four species were listed as Priority flora at the time of survey but are no longer considered threatened; *Triodia biflora, Triumfetta leptacantha, Themeda* sp. Mt Barricade*, Dicrastylis* sp.
Biota (2003) Mining Area C Rail Corridor – Seasonal Rare Flora Survey Phase II	40km rail corridor between MAC and Yandi Includes some of the eastern parts of the study area	21st - 31st March 2002 Targeted survey for flora of conservation significance	Not recorded	Not recorded	No Threatened or Priority Flora Four species were listed as Priority flora at the time of survey but are no longer considered threatened; *Triodia biflora, Eriachne tenuiculmis, Triumfetta leptacantha, Themeda* sp. Mt Barricade, *Goodenia stellata*

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Ecologia (2003a) Yandi IOWA Conveyor: Rare and Priority Flora Survey	Within the study area and surrounds	27th March and 19th - 21st May 2003 Targeted survey for flora of conservation significance	Not recorded	174 taxa were recorded, however as the survey was targeting Threatened and Priority flora list list is not likely to be comprehensive	No Threatened or Priority Flora Two species were listed as Priority flora at the time of survey but are no longer considered threatened; *Olearia fluvialis* and *Themeda* sp. Mt Barricade
Ecologia (2003b) Yandi IOWA Conveyor - Amendment to Rare and Priority Flora Survey	Within the study area and surrounds	8th August 2003 Targeted survey for *Olearia fluvialis*	Not recorded	Not recorded	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Olearia fluvialis*
Maunsell (2003) Yandi Life of Mine Flora and Fauna	Within and surrounding the study area	23rd – 28th September 2003 Targeted survey for flora of conservation significance	Not recorded	Five introduced weed species: **Acetosa vesicaria, *Argemone ochroleuca, *Bidens bipinnata, *Cenchrus ciliaris, *Sisymbrium orientale*	No Threatened or Priority Flora Two species were listed as Priority flora at the time of survey but are no longer considered threatened; *Olearia fluvialis, Goodenia stellata*
Ecologia (2004) Yandi Stockyard and Overland Conveyor Fauna and Flora Assessment	Within and surrounding the study area	18th -19th October 2004	2 vegetation types	Not recorded	No Threatened Flora One Priority Flora: *Isotropis parvifolia* (Priority 2), originally mis-identified as *Isotropis winneckei*

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
Maunsell (2004) Yandi Flora and Vegetation Survey Lease M47 292 and E4 Drill Lines	To the north of the study area	15th-16th December 2003 Targeted searches for flora of conservation significance	Seven vegetation associations	Not recorded	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Olearia fluvialis*
Ecologia (2006) Yandi Rail Corridor DRF and Priority Flora Assessment	To the north of the study area	19th -20th May 2006 Targeted searches for flora of conservation significance	Six vegetation associations	131 from 37 families and 84 genera Seven introduced weed species: **Bidens bipinnata, *Cenchrus ciliaris, *Sonchus oleraceus, *Malvastrum americanum, *Acetosa vesicaria, *Solanum nigrum, *Citrullus lanatus*	No Threatened or Priority Flora
Ecologia (2007b) Yandi Mine Extension RGP5 EIA Flora Survey Interim Report Post Phase 1 Survey	Within the study area and surrounds	13th - 20th November 2007	Not recorded	212 taxa from 38 families and 93 genera Four introduced weed species: **Argemone ochroleuca* subsp. *ochroleuca, *Sonchus oleraceus, *Malvastrum americanum, *Cenchrus ciliaris*	No Threatened or Priority Flora One species of interest: *Sida* sp.
Ecologia (2008) Two Phase Assessment of the Flora and Vegetation of the Proposed Marillana Creek (Yandi) Mine Extension Areas RGP5-KBR	Within the study area and surrounds	13th - 19th November 2007 and 10th - 17th March 2008 119 quadrats	10 vegetation associations	333 taxa from 52 families and 138 genera Nine introduced weed species: **Argemone ochroleuca, *Malvastrum americanum*, **Cenchrus ciliaris*, **Sonchus oleraceus*, **Aerva javanica*, **Bidens bipinnata*, **Cucumis melo* subsp. *agrestis, *Cynodon dactylon*, **Vachellia farnesiana*	No Threatened or Priority Flora One species was listed as Priority flora at the time of survey but is no longer considered threatened; *Tephrosia* sp. Cathedral Gorge (F.H. Mollemans 2420)

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
ENV (2008) RGP5 M270SA Flora and Vegetation Assessment	~20km north-east of the study area	22nd April 2008 7 quadrats	5 vegetation associations	114 taxa from 30 families and 58 genera Three introduced weed species: **Aerva javanica*, **Cenchrus ciliaris*	No Threatened or Priority Flora
ENV (2009c) RGP5 Yandi Flora Survey and Assessment of Barimunya Airport and a Potential Borrow Area	~10km north-east of the study area	24th - 27th September 2008 8 quadrats	4 vegetation associations (Barimunya Airport) 3 vegetation associations (Potential borrow area)	Barimunya Airport: 79 taxa from 24 families and 44 genera. Potential borrow areas: 84 taxa from 28 families and 52 genera. One introduced weed species: **Cucumis melo* subsp. *agrestis*	No Threatened or Priority Flora
ENV (2009b) Western 2 & Western 1 Waste Dump Flora and Assessment	Within the study area and surrounds	22nd-23rd September 2007 16 quadrats	7 vegetation types	163 taxa from 36 families and 76 genera Three introduced weed species: **Argemone ochroleuca*, **Bidens bipinnata, *Chloris virgata*	No Threatened Flora One Priority flora species: *Rostellularia adscendens* var. *latifolia* (Priority 3)
ENV (2009d) Central 3 Flora and Vegetation Assessment	~3km to the north of the study area	19th - 24th September 2007 9 quadrats	Six vegetation/landform types	128 taxa from 38 families and 74 genera Four introduced weed species: **Acetosa vesicaria, *Solanum nigrum*, **Sonchus asper*[3], **Vachellia farnesiana*	No Threatened or Priority Flora
ENV (2009a) Western 6, 7, and 8 Flora and Vegetation Assessment	Within the study area and surrounds	22nd - 23rd September 2007 17 quadrats	Eight vegetation associations	133 taxa from 35 families and 76 genera Six introduced weed species: **Bidens bipinnata*, **Cenchrus ciliaris*, **Malvastrum americanum*, **Setaria verticillata*, **Sonchus oleraceus*, **Vachellia farnesiana*	No Threatened or Priority Flora One species of interest; *Hibiscus* aff. *gardneri*

[3] No previous collections from the Pilbara and determined to be a misidentification.

Report	Proximity to Study Area	Survey Timing & Intensity	Vegetation Associations and Landform	Floristics and Weeds	Significant Flora
GHD (2010) Report for Yandi W1 and W4 OSA Targeted Rare and Priority Flora Survey	Within the study area and surrounds	16th -19th February 2010 Targeted survey for flora of conservation significance	Five vegetation associations	No species inventory Two introduced weed species: **Malvastrum americanum*, **Vachellia farnesiana*	No Threatened or Priority Flora
BHPBIO 2010b) Declared Rare Flora (DRF) and Priority flora search at Yandi - Proposed haul road crossing at Marillana Creek	Within the study area and surrounds	28th September 2010	Not recorded	41 taxa form 20 introduced weed species: **Malvastrum americanum*, **Argemone ochroleuca*	No Threatened or Priority Flora
Onshore Environmental (2011) Yandi Flora and Vegetation Review	Within the study area and surrounds	9th - 16th December 2010 Targeted survey and desktop review	24 vegetation associations	452 taxa form 56 families and 178 genera Twenty introduced weed species: **Acetosa vesicaria, *Aerva javanica, *Argemone ochroleuca* subsp. *ochroleuca, *Bidens bipinnata, *Cenchrus ciliaris, Centaurea melitensis, *Chloris virgarta, *Citrullus lanatus, *Conyza bonariensis, *Cucumis melo* subsp. *agrestis, *Cynodon dactylon, *Latuca serriola* forma *serriola, *Malvastrum americanum, *Polypogon monspeliensis, *Rostaria cistata, Setaria verticillata, *Sisymbrium orientale, *Solanum nigrum, *Sonchus oleraceus, *Vachellia farnesiana*	One Threatened species: *Lepidium catapycnon* (T) Three Priority flora: *Acacia subtiliformis* (Priority 3), *Rostellularia adscendens* var. *latifolia* (Priority 3), *Goodenia nuda* (Priority 4)

3.1.2 Previous Riparian Monitoring Surveys

Equinox Environmental was recently commissioned by BHP Billiton to review existing riparian vegetation monitoring programs at Marillana Creek, Homestead Creek and Jimblebar Creek (Equinox Environmental 2015). Currently there are a total of 16 vegetation health monitoring sites located along the length of Marillana Creek. The monitoring aims to detect impacts to riparian vegetation from groundwater drawdown and surplus mine water discharge. The monitoring sites include a reference point situated upstream of the discharge, along with one site within the wetted fringe. The remaining sites are positioned to monitor the impact of groundwater drawdown.

Quarterly monitoring of these sites is undertaken by Astron Environmental. Monitoring includes measurements of predawn and midday leaf water potentials and quantitative measurement of canopy density. Additionally qualitative measurements of canopy cover and condition are also recorded. The monitoring has recorded the deaths of 12 sample trees between the commencement of monitoring in 2009 and June 2012 (Astron 2012). In 2013 significant reductions in leaf water potential were recorded at one discharge site and three drawdown sites compared to the reference site. No significant difference in foliar cover was recorded between the reference site and the other sites. The proportion of trees in decline increased at the majority of sites including the reference site (Astron Environmental 2013).

3.1.3 Threatened Flora listed under the EPBC Act

A search of the EPBC Act Protected Matters database was undertaken within a 50 km buffer of the study area (DoE 2015). The database search listed two Threatened Flora or their habitat as likely to occur within the study area; *Lepidium catapycnon* (Hamersley Lepidium) and *Thryptomene wittweri* (Mountain Thryptomene). No Threatened Ecological Communities (TECs) were recorded during the search.

3.1.4 Threatened Flora listed under the IUCN Red List

A search of the International Union for Conservation of Nature (IUCN) database was conducted (IUCN 2015). No Threatened Flora was listed as likely to occur within the study area from this search.

3.1.5 Threatened Flora listed under the WA Wildlife Conservation (Rare Flora) Notice 2014

The DPaW search identified two Threatened Flora taxa as occurring within a 50 km radius of the study area; *Lepidium catapycnon* and *Thryptomene wittweri.*

3.1.6 Priority Flora recognised by the DPaW

The DPaW rare flora database search (DPaW 2015a) identified 87 Priority flora taxa as potentially occurring within a 50 km radius of the study area (Table 6).

Table 6 Significant flora previously recorded from a 50 km search radius of the study area (DPaW 2015a). SCC - State Conservation Code (WC Act) and DPaW (2013), FCC - Federal Conservation Code (EPBC Act).

Species	SCC	FCC
Acacia bromilowiana	4	
Acacia daweana	3	
Acacia effusa	3	
Acacia subtiliformis	3	
Adiantum capillus-veneris	2	
Amaranthus centralis	3	
Aristida jerichoensis var. *subspinulifera*	1	
Astrebla lappacea	3	
Atriplex flabelliformis	3	
Atriplex lindleyi subsp. *conduplicata*	3	
Barbula ehrenbergii	1	
Bothriochloa decipiens var. *cloncurrensis*	1	
Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662)	1	
Calotis latiuscula	3	
Calotis squamigera	1	
Cochlospermum macnamarae	1	
Crotalaria smithiana	3	
Dampiera anonyma	3	
Dampiera metallorum	3	
Dicladanthera glabra	2	
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	1	
Eremophila appressa	1	
Eremophila forrestii subsp. Pingandy (M.E. Trudgen 2662)	2	
Eremophila magnifica subsp. *magnifica*	4	
Eremophila magnifica subsp. *velutina*	3	
Eremophila pilosa	1	
Eremophila rigida	3	
Eremophila sp. Hamersley Range (K. Walker KW 136) PN	1	
Eremophila sp. Rudall River (P.G. Wilson 10512) PN	2	
Eremophila sp. Snowy Mountain (S. van Leeuwen 3737)	1	
Eremophila sp. West Angelas (S. van Leeuwen 4068)	1	
Eucalyptus lucens	1	
Eucalyptus rowleyi	3	
Euphorbia parvicaruncula	1	
Fimbristylis sieberiana	3	
Geijera salicifolia	3	
Genus sp. Hamersley Range hilltops (S. van Leeuwen 4345)	1	
Glycine falcata	3	
Goodenia hartiana	2	
Goodenia lyrata	3	
Goodenia nuda	4	
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	3	
Grevillea sp. Turee (J. Bull & G. Hopkinson ONS JJ 01.01) PN	1	
Gymnanthera cunninghamii	3	
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	2	
Hibiscus sp. Mt Brockman (E. Thoma ET 1354) PN	1	
Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301)	3	

Species	SCC	FCC
Indigofera sp. Gilesii (M.E. Trudgen 15869) PN	3	
Iotasperma sessilifolium	3	
Ipomoea racemigera	1	
Isotropis parviflora	2	
Lepidium catapycnon	T	V
Maireana prosthecochaeta	3	
Myriocephalus scalpellus	1	
Nicotiana heterantha	1	
Nicotiana umbratica	3	
*Oldenl*and*ia* sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	
Olearia mucronata	3	
Oxalis sp. Pilbara (M.E. Trudgen 12725)	2	
Pentalepis trichodesmoides subsp. *hispida*	2	
Peplidium sp. fortescue marsh (S. van Leeuwen 4865)	1	
Pilbara trudgenii	2	
Polymeria distigma	3	
Ptilotus subspinescens	3	
Rhagodia sp. Hamersley (M. Trudgen 17794)	3	
Rhynchosia bungarensis	4	
Rostellularia adscendens var. *latifolia*	3	
Scaevola sp. Hamersley Range basalts (S. van Leeuwen 3675)	2	
Sida sp. Barlee Range (S. van Leeuwen 1642)	3	
Sida sp. Hamersley Range (K. Newbey 10692)	1	
Solanum albostellatum	3	
Solanum sp. Gurinbiddy Range (M.E. Trudgen & M. Trudgen MET 12775) PN	3	
Spartothamnella puberula	2	
Stemodia sp. Battle Hill (A.L. Payne 1006*)*	1	
Swainsona thompsoniana	3	
Tecticornia medusa	3	
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	1	
Tetratheca fordiana	1	
Teucrium pilbaranum	1	
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	3	
Thryptomene wittweri	T	V
Triodia sp. Karijini (S. van Leeuwen 4111) PN	1	
Triodia sp. Mt Ella (M.E. Trudgen 12739)	3	
Triodia sp. Robe River (M.E. Trudgen et al. MET 12367)	3	
Triodia triticoides	1	
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	1	
Whiteochloa capillipes	3	

3.1.7 TECs listed under State and Federal Legislation

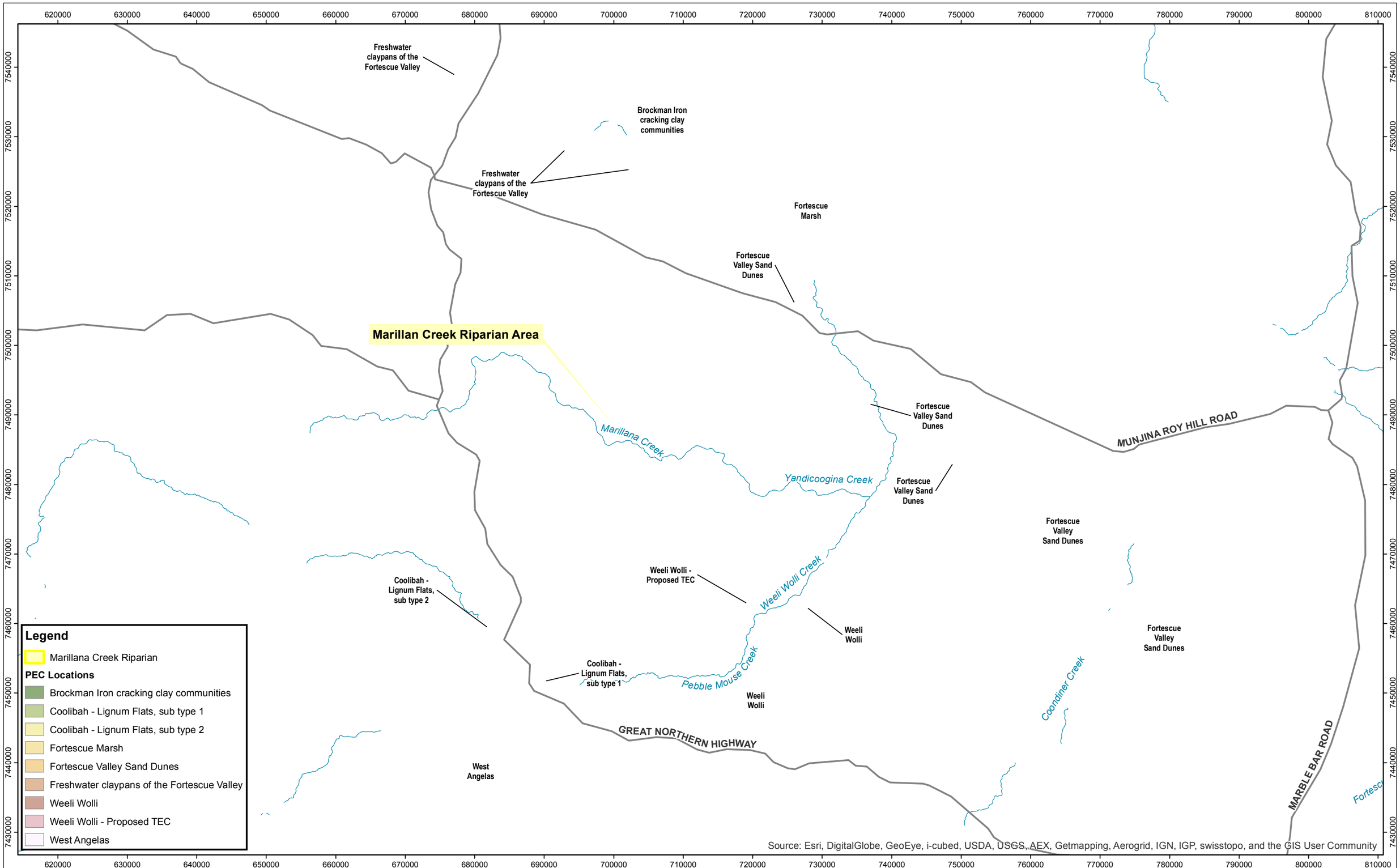
A search of the EPBC Act Protected Matters database (DoE 2015) confirmed there were no Federal listed TECs previously recorded from within, or adjacent to, the study area. Similarly, a search of the State database by DPaW (2015b) confirmed there were no currently listed TEC records for the immediate study area.

3.1.8 PECs recognised by DPaW

A search of the DPaW's Threatened and Priority Ecological Communities database confirmed that a Priority 1 PEC occurs approximately 15 km south of the study area at Weeli Wolli Spring (Figure 7). The riparian woodland and forest associations of the Weeli Wolli Spring community are unusual due to the continuous occurrence of tall *Melaleuca argentea* trees and species composition of the understorey. The sedge and herbfield communities that fringe many of the pools and associated water bodies along the main channels of Weeli Wolli Creek have not been recorded from any other wetland site in the Pilbara.

Other PECs occurring within 50 km of the study area are listed below (Figure 7):

- Fortescue Valley Sand Dunes (Priority 3iii);
- Brockman Iron cracking clay communities (Priority 1);
- Coolibah – Lignum Flats (subtype 1, Priority 3i);
- Coolibah – Lignum Flats (subtype 2, Priority 1);
- Fortescue Marsh (Priority 1);
- Freshwater claypans of the Fortescue Valley (Priority 1); and
- West Angelas Cracking Clays (Priority 1).



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Projection: MGA Zone 50

FIGURE 7

Location of the TECs and PECs within a 50 km radius of the study area

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3.2 Flora Species

A total number of 399 plant taxa (including varieties and subspecies) from 58 families and 186 genera were recorded from the study area in June 2015 (Table 7, Appendix 5). Species representation was greatest among the Fabaceae, Poaceae, Malvaceae, Asteraceae, Amaranthaceae, Cyperaceae and Goodeniaceae families, which is typical for the Pilbara Bioregion. The most speciose genus was *Acacia* (28 taxa), followed by *Ptilotus* (12 taxa) *Senna* (10 taxa), *Goodenia* (10 taxa) and *Tephrosia* (9 taxa).

Table 7 Statistics for total flora recorded from the study area.

Overview	No. Taxa
Families	58
Genera	186
Taxa (species, subspecies, varieties)	398
Native Taxa	376
Introduced Taxa	22
Threatened Flora	0
Priority Flora	6
Speciose Families	**No. Taxa**
Fabaceae	67
Poaceae	67
Malvaceae	35
Asteraceae	28
Amaranthaceae	22
Cyperaceae	18
Goodeniaceae	16
Convolvulaceae	14
Myrtaceae	12
Speciose Genera	**No. Taxa**
Acacia (Fabaceae)	28
Ptilotus (Amaranthaceae)	12
Senna (Fabaceae)	10
Goodenia (Goodeniaceae)	10
Tephrosia (Fabaceae)	9
Sida (Malvaceae)	8
Cyperus (Cyperaceae)	8
Abutilon (Malvaceae)	7
Triodia (Poaceae)	7
Eragrostis (Poaceae)	6
Eremophila (Scrophulariaceae)	6
Eriachne (Poaceae)	6
Eucalyptus (Myrtaceae)	6
Hibiscus (Malvaceae)	6
Pluchea (Asteraceae)	6

3.3 Significant Flora

3.3.1 Threatened Flora listed under the WC Act and EPBC Act

No plant taxon gazetted as Threatened Flora (T) pursuant to subsection (2) of Section 23F of the WC Act or listed under the EPBC Act was recorded from the study area.

3.3.2 Significant Flora

Six Priority flora taxa as defined by DPaW were recorded from the study area; *Amaranthus centralis* (Priority 3), *Aristida lazaridis* (Priority 2), *Goodenia nuda* (Priority 4), *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (Priority 3), *Ipomoea racemigera* (Priority 2) and *Rostellularia adscendens* var. *latifolia* (Priority 3) (Table 8, Figure 8, Appendix 6).

699000 702000 705000 708000 711000 714000 717000 720000 723000 726000

7491000 7488000 7485000 7482000 7479000 7476000

Hamersley Iron Railway

Marillana Creek

Marillana Creek

FIGURE 8

Location of Priority flora species within the study area

Legend

- Marillana Creek Riparian Study Area

Significant Flora

- *Aristida lazaridis*
- *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727)
- *Goodenia nuda*
- *Ipomoea racemigera*
- *Rostellularia adscendens* var. *latifolia*

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Projection: MGA Zone 50

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Sheet Size: A3	Status:	Final
Drawn by GSM	Requested by DB	GSM Reference Marillana Creek Riparian Intro Flora

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Table 8 Four Priority flora species recorded from the Marillana Creek study area.

Taxon	Photograph	Description	Occurrence in project area
Amaranthus centralis (Priority 3)		Erect annual herb to 60 cm high. Stems angular, sometimes reddish, sparsely hairy. Leaves obtuse to emarginate, mucronate, glabrous or sometimes very sparsely hairy on midnerve. Inflorescences of axillary globular clusters and sometimes erect terminal spikes to 60 mm long, with male and female flowers. *Amaranthus centralis* commonly occurs in southern Northern Territory, and from the Everard Ranges near Lake Eyre south to the Flinders Ranges in northern South Australia. There are two records from the Pilbara region of Western Australia, and two collections from western Queensland.	*Amaranthus centralis* was recorded as scattered plants providing less than one percent cover from one location in the eastern sector of the study area. Plants were growing to 0.4 m in height on brown clay loam on seasonally wet flood plains fringing Marillana Creek. Vegetation was described as 'Tussock Grassland of *Themeda triandra, Eulalia aurea* and *Aristida inaequiglumis* with Open Woodland of *Eucalyptus victrix* and *Corymbia aspera* over Low Open Woodland of *Corymbia aspera* and *Hakea lorea* subsp. *lorea* over High Open Shrubland of *Gossypium robinsonii, Eremophila longifolia* and *Atalaya hemiglauca* over Very Open Hummock Grassland of *Triodia pungens'.*

Taxon	Photograph	Description	Occurrence in project area
Aristida lazaridis (Priority 2)		A tufted perennial grass ranging from 0.4–1.5 m in height. This species prefers sand or loam soils and occurs in the Pilbara and Kimberly Regions of Western Australia and in the Northern Territory, and Queensland. Regionally this species has been recorded in four locations including the north-eastern sector of Karijini National Park as well as east of the study area. Recently this species was recorded from Mudlark (Onshore Environmental 2013a), Tandanya (Onshore Environmental 2013b) and Coondewanna Flats PEC (Onshore Environmental 2013c).	*Aristida lazaridis* was recorded from five spot locations on the floodplain adjacent to Marillana Creek within the eastern half of the study area. Scattered plants were recorded at each location. The vegetation was described as: a) Open Hummock Grassland of *Triodia pungens* with Open Tussock Grassland of *Themeda triandra, Eragrostis eriopoda* and *Aristida inaequiglumis* and Scattered Low Trees of *Corymbia hamersleyana;* and b) Closed Tussock Grassland of *Themeda triandra, Eulalia aurea* and *Aristida inaequiglumis* with Low Open Woodland of *Corymbia hamersleyana* and *Hakea lorea* subsp. *lorea* and Scattered Tall Shrubs of *Acacia pachyacra, Gossypium australe* and *Gossypium robinsonii.*

Taxon	Photograph	Description	Occurrence in project area
Goodenia nuda (Priority 4)		Occurs on drainage levees, flood plains and sand plains as an erect annual or biennial herb to 0.3 m in height. *Goodenia nuda* is widespread through the Pilbara, with records also from the northern Carnarvon and eastern Gascoyne bioregions. This species is typically recorded from relatively mesic habitats, such as floodplains and drainage areas. *Goodenia nuda* has been recorded from over 80 locations throughout the Pilbara, including Karijini National Park, 200 km to the south east of Newman, Port Hedland and south of Onslow. An isolated record occurs to the east of the Karlamilyi (Rudall River) National Park. Within the south-east Pilbara it has been collected from a number of locations including the Coondewanna Flats PEC (Onshore Environmental 2013c), Area C West to Yandi (2014b), Yandi (Onshore Environmental 2011), Mudlark leases (Onshore Environmental 2013a) and Tandanya (Onshore Environmental 2013b).	*Goodenia nuda* was recorded from eight locations on floodplains and banks in the central part of Marillana Creek. The number of plants recorded at each location range from 1 to 25 plants. It was recorded predominately from the following vegetation associations: a) Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with Low Woodland of *Eucalyptus leucophloia* and *Acacia pruinocarpa* and Open Shrubland of *Corchorus lasiocarpus* subsp. *lasiocarpus, Senna glutinosa* subsp. *glutinosa* and *Senna glutinosa* subsp. *x luerssenii* on hillcrests and upper slopes of ironstone range with brown sandy loam; and b) Hummock Grassland of *Triodia pungens, Triodia longiceps* and *Triodia wiseana* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Acacia pruinocarpa* and *Corymbia aspera* and High Open Shrubland of *Acacia dictyophleba, Acacia pachyacra* and *Gossypium robinsonii* on floodplains with brown sandy loam or clay loam.

Taxon	Photograph	Description	Occurrence in project area
Goodenia sp. East Pilbara (Priority 3)		An open erect annual or biennial herb to 0.2 m in height, flowering between March and September and occurring on red-brown clay soil with calcrete pebbles on low undulating plains. Regionally, *Goodenia* sp. East Pilbara is known from 16 localities between Paraburdoo and Mount Cooke. This species has been recorded from the Area C West to Yandi Study area (Onshore Environmental 2014b) and other BHP Billiton leases.	*Goodenia* sp. East Pilbara was recorded from 11 locations on calcrete plains and hills surrounding the western end of Marillana Creek. Plants were generally scattered at these location however one point recorded up to 100 plants. It was recorded from the following vegetation association: • Hummock Grassland of *Triodia angusta* and *Triodia wiseana* with Open Mallee of *Eucalyptus socialis* subsp. *eucentrica* and *Eucalyptus xerothermica* and High Open Shrubland of *Acacia bivenosa* (wispy form) and *Petalostylis labicheoides* on undulating calcrete plains and hills with brown silty clay loam.
Ipomoea racemigera (Priority 2)		*Ipomoea racemigera* is a creeping annual herb or climber with white flowers. It has previously been recorded from Newman, Millstream Chichester National Park and Kununurra. It was recently recorded from two sites at BHP Billiton Iron Ore's Dynasty West Jimblebar tenements, occurring as approximately 40 plants the major drainage channel of Shovellana Creek.	Within the study area it was recorded as scattered creeping plants from five spot locations situated on raised banks within and fringing the major drainage channel of Fortescue River. Vegetation was described as 'Low Open Woodland of *Eucalyptus camaldulensis, Melaleuca argentea* and *Acacia coriacea* subsp. *pendens* with Scattered Trees of *Eucalyptus victrix* over Scattered Tall Shrubs of *Melaleuca glomerata'*.

Taxon	Photograph	Description	Occurrence in project area
Rostellularia adscendens var. *latifolia* (Priority 3)		*Rostellularia adscendens* var. *latifolia* is a low shrub to 0.3 m in height, flowering in April and May (Plate 9). It grows in ironstone soils with habitat ranging from creeks to rocky hills. It is currently known from 12 localities between Warrawagine and Tom Price, all within the Pilbara IBRA region. Five of these records occur within Karijini National Park. This species has recently been recorded from the Area C West to Yandi Study area (Onshore Environmental 2014b), Yandi (Onshore Environmental 2011), Mudlark leases (Onshore Environmental 2013a) and Tandanya (Onshore Environmental 2013b).	*Rostellularia adscendens* var. *latifolia* was recorded from 58 locations throughout the study area. It was recorded mostly from the banks and floodplains adjacent to Marillana Creek. It was recorded from a total of ten vegetation associations; 1a, 1b, 2b, 3, 6a, 6c, 6d, 6g, 6i and 7.

3.4 Introduced Flora

There were 22 introduced (weed) species recorded from the study area (Table 9, Figure 9, Appendix 7):

- **Acetosa vesicaria;*
- **Aerva javanica;*
- **Argemone ochroleuca* subsp. *ochroleuca;*
- **Bidens bipinnata;*
- **Cenchrus ciliaris;*
- **Cenchrus setiger;*
- **Chloris virgata;*
- **Citrullus colocynthis;*
- **Conyza bonariensis;*
- **Cynodon dactylon;*
- **Datura leichhardtii;*
- **Echinochloa colona;*
- **Flaveria trinervia;*
- **Malvastrum americanum;*
- **Setaria verticillata;*
- **Sigesbeckia orientalis;*
- **Sisymbrium orientale;*
- **Solanum nigrum;*
- **Sonchus oleraceus;*
- **Tribulus terrestris;*
- **Tridax procumbens;* and
- **Vachellia farnesiana.*

None of these taxa are listed as a Declared Pest under the BAM Act.

Table 9 Introduced weed species recorded from the study area.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Acetosa vesicaria* (Ruby Dock)		An erect, stout, fleshy, hollow-stemmed annual herb growing between 0.2 metres and 1 meters in height and flowering (pink to red) from July to September. Ruby Dock is found on sandy alluvial soils, or gravelly ironstone soils along roadsides or in disturbed areas. It is a common and widespread weed of the arid zone and is found in a variety of disturbed situations from the Pilbara to the Nullarbor. It is native to North Africa, the Middle East and India (Hussey *et al*. 1997). It is a highly aggressive and prolific colonizer, particularly of disturbed areas, and should be included in all weed management programmes within the Pilbara.	Recorded from 16 locations within the central and eastern parts of the study area. Densities ranged from scattered plants up to 10%. It was recorded from floodplains, banks and cliff lines within the study area
**Aerva javanica (*Kapok Bush)		An erect branched perennial herb that grows to between 0.4 m and 1.6 m in height, flowering (white) between January and October. This species prefers sandy soils and is commonly found along drainage lines. Kapok Bush is native to northern Africa and south-west Asia but is found across northern Western Australia, Queensland, South Australia and the Northern Territory (Hussey *et al.* 1997).	Recorded from six locations within the central and eastern parts of the study area. Plants were generally scattered at these locations with only one location recording coverage of 10-30%. It was recorded within the stream channel, on banks and surrounding plains.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Argemone ochroleuca* subsp. *ochroleuca* (Mexican Poppy)		A spiny annual herb growing up to 1 metre in height and flowering (white, cream or yellow) between February to March and July to November. This species grows on red, white and grey sand, or red brown clay loam along creeklines, riverbanks and roadsides. It is an aggressive coloniser originating from Mexico and has become a troublesome weed in parts of Western Australia (Hussey *et al.* 1997).	Recorded from 33 locations within the central and eastern parts of the study area. Plants were generally scattered at each location with a few locations recording coverage of between 2 and 10%. This species was common on the gravels of the main drainage channel close to disturbed areas, with numerous small germinates present.
**Bidens bipinnata* (Bipinnate Beggars Tick)		Erect annual herb that grows up to 1m in height. This species is widespread in the northern parts of WA from Shark Bay up to the Northern Territory Border. It has three pronged barbs on its seeds so it is easily spread by livestock and other animals. In the Pilbara it is common in moist habitats such as drainage lines, flood plains and gorges, and responds vigorously following rainfall.	Recorded along the length of the study area with the exception of the far western end. It was recorded from a total of 48 locations. Densities were generally <2% (scattered) with several locations showing coverage of between 2 to 10%. It was recorded from a variety of habitats from the stream bed to the surrounding plains.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Cenchrus ciliaris* (Buffel Grass)		Tufted perennial grass originating from the Middle East as a fodder species by pastoralists. It grows in dense tussocks up to 1 metre tall and typically occurs in monospecific stands on loamy plains and creekline levee banks. It is an aggressive colonizing species that has become well established throughout the Pilbara, Gascoyne and Murchison regions of Western Australia, and is continuing to spread in the south-west (Hussey *et al.* 1997).	Recorded from 55 locations throughout the central and eastern parts of the study area. Densities were variable ranging from scattered plants up to nearly 100%. It was recorded within the main channel, banks and surrounding floodplains and plains.
**Cenchrus setiger* (Birdwood Grass)		An erect tussocky stoloniferous perennial grass up to 0.5m in height. Flowers are cream or purple and flowering occurs between April and May. It occurs on brown sands, red loams and pindan soils on sand dunes, plains, rangelands, stony hillsides and floodplains. It has been recorded across the north of western Australia from Geraldton to the Northern Territory border.	Recorded from four locations within the central part of the study area and one location in the western part of the study area. Densities ranged between <2% and 10%. It was recorded from the banks and floodplains of the major drainage line and a footslope.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Chloris virgata* (Feathertop Rhodes Grass)		Annual grass growing up to 1 metre in height and producing flowers (green or purple) between April and September. It occurs on clay and sand soils and is found throughout Western Australia.	Recorded from two locations on the banks of the major drainage line; one in the western part of the study area and one in the eastern section. Only scattered plants were recorded at both locations.
**Citrullus colocynthis*		A yellow flowering, trailing perennial herb or climber flowering from January to October (Hussey *et al.* 1997). It occurs in rocky, stony loam or clay soils typically in wet disturbed sites such as floodplains. This taxon is widely distributed throughout Western Australia occurring in the Eremaean, Northern and South-Western Provinces.	Recorded from three locations in the far east of the study area. Scattered plants were recorded from a floodplain surrounding the major drainage line.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Conyza bonariensis* (Flaxleaf Fleabane)		An erect annual herb that grows up to 1.5 metre in height and occurs in a variety of soils typically in cultivated areas, waste areas and roadsides. It requires disturbance to establish and is usually unsuccessful in areas of high plant density. It flowers (white) from January to December and is found across Western Australia extending from Broome and further north down to Perth, Esperance and Albany.	Recorded from one location in the central part of the study area. It was recorded as scattered plants on a cliff line next to the main channel of Marillana Creek.
**Cynodon dactylon* (Couch Grass)		A prostrate rhizomatous perennial grass like herb that grows up to 0.3 m in height and flowers (green and purple) from June to November/February. Couch grows on sand, loam or clay soils and occurs across Western Australia (Hussey *et al.* 1997). It is usually found in open areas that are prone to disturbances such as grazing, flooding and fire. Couch Grass originates from Africa and southern Europe and was introduced into Western Australia for use as turf and pasture.	Recorded from seven locations in the eastern half of the study area. Coverage was generally between 2-10%. It was recorded from within the main drainage channel and on surrounding cliffs and banks.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Datura leichhardtii*		A stout annual herb growing up to 0.2-1 m high (Plate 13). Flowers are white and occur between June and October. It grows in alluvial soils along watercourses in the Gascoyne and Pilbara regions of Western Australia and is originally from Mexico (Hussey et al. 1997).	Recorded from 14 locations mostly in the central part of the study area. Densities were generally <2% with one location recording coverage of between 2-10%. It was recorded from the main drainage channel as well as surrounding banks, plains and footslopes.
**Echinochloa colona* (Awnless Barnyard Grass)		A tufted annual grass reaching 0.6 metres. Green/purple flowers are produced between February and July. It grows near watercourses and swamps.	Recorded from 14 locations within the central and western parts of the study area with the exception of the far western end. Densities ranged between <2% and 10%. It was recorded from the main channel, cliff lines and surrounding floodplains.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Flaveria trinervia* (Speedy Weed)		An erect glabrous annual herb to 0.8 m in height, producing yellow flowers; older stems are terete and often a distinctive red or purple colour. It occurs on clay or loam soils most often near watercourses and is distributed from Kununurra and Isdell River southwards throughout the Pilbara and along the coast to Carnarvon. It also occurs in the Northern Territory, Queensland, South Australia and New South Wales (Hussey *et al.* 1997).	Recorded from 26 locations throughout the study area excluding the far western end. Scattered plants were recorded from each of these locations with one location showing coverage of between 2-10%. It was recorded from a variety of habitats including the main channel, cliffs, plains and banks.
**Malvastrum americanum* (Spiked Malvastrum)		Erect perennial herb or shrub, ranging from 0.5 metres to 1.3 metres in height. It grows in a variety of soil types on stony ridges and hill sides, flood plains and along drainage lines.	Recorded from 53 locations throughout the study area with the exception of the far western end. Coverage was between <2 and 30 %. It was recorded mainly from the major drainage channel and banks with some records on surrounding floodplains, cliffs and footslopes.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Setaria verticillata* (Whorled Pigeon Grass)		A loosely tufted annual grass-like herb, growing between 0.1 metres and 1.3 metres in height and flowering from December to June. It grows in a variety of soils including sand, clay and loam and has spread over much of Western Australia.	Recorded from 33 locations throughout the study area with the exception of the far western end. Coverage was generally <2% with a few locations between 2-10%. It was recorded from within the main drainage channel and banks as well as hillslopes, plains and floodplains.
**Sigesbeckia orientalis* (Indian Weed)		Found in the south-west of Western Australia as well as in the Pilbara. It is an erect, slender annual herb that grows to a height of 1 m in loamy soils over limestone or granite. Indian Weed produces yellow flowers between January and December and is usually found in rocky gullies, limestone ranges and along creek beds.	Recorded from 15 locations predominately in the eastern half of the study area with a few locations in central and western parts. Coverage was generally <2% with a few locations between 2-10%. It was recorded from the major drainage channel, banks, floodplains, cliffs and plains.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Sisymbrium orientale* (Indian Hedge Mustard)		An erect annual or biennial herb that grows to a height of 1 metres. It produces yellow flowers from March to November and grows in disturbed areas. This species is found in the south-west of Western Australia as well as in the Pilbara.	Recorded from three locations in the eastern half of the study area. Coverage was between <2-10%. It was recorded on the banks of the major drainage line.
**Solanum nigrum* (Black Berry Nightshade)		An erect, perennial herb or shrub growing to a height of between 0.3metres to 0.8 metres. It produces white flowers from January to December. **Solanum nigrum* has dull black or purplish berries and small anthers and seeds. The young fruits may be toxic and the plant is a common weed of gardens, horticultural crops, wastelands, disturbed woodlands, pastures, creeklines and wetlands. It is distributed throughout Western Australia from Broome to Albany and originates from of Europe (Hussey *et al*. 1997).	Recorded from 12 locations mostly in the eastern half on the study area with one location in the west near Flat Rocks Road. Coverage ranged from <2 to 10%. It was recorded from the stream channel, banks, cliff lines, plains and floodplains.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Sonchus oleraceus* (Common Sowthistle)		An erect, annual herb that grows to approximately 1.5 m in height and produces yellow flowers between January to December. It occurs on a variety of soils and is a weed of disturbed ground. The leaves of **Sonchus oleraceus* are generally flaccid and are weakly prickly or have no prickles. The weed is widespread on roadsides, gardens, market gardens and wasteland from Wittenoom to the Nullarbor and it is native to Eurasia and North Africa (Hussey *et al*. 1997).	Recorded from 25 locations throughout the study area. Only scattered plants were recorded at each location. It was recorded from the main channel, banks, floodplains and a cliff.
**Tribulus terrestris* (Caltrop)		A prostrate annual herb with leaflets growing in pairs of 4-7. It has distinct spines that reach 2-8mm in length. Flowers are yellow and flowering occurs between December and January (Hussey et al. 1997). This species favors sandy soils and was originally native to the Mediterranean but has spread across the majority of Australia. It is poisonous to stock.	Recorded from five locations distributed across the study area. Occurred as scattered plants from the main drainage channel, levee bank and adjacent stony footslopes.

Taxon (Common Name)	Photograph	Description	Occurrence in study area
**Tridax procumbens*		Prostate to erect perennial, herb reaching 0.4m. It produces white and yellow flowers between January and December. It occurs on wet and disturbed ground.	Recorded at three locations within the central part of the study area. Coverage was between 2-10% at both locations. One location was within the main drainage line and the other was along a cliff line. Recorded from one location in the east of the study area. Scattered plants were recorded in a 5x5 metre area on a cliff line.
**Vachellia farnesiana* (Mimosa Bush)		An erect spreading thicket forming thorny tree or shrub. It grows up to 4 metres in height and produces yellow flowers from June to August. Mimosa Bush grows on stony, sandy, clay or loam soils and is common in low lying areas such as creeks and river banks as well as in disturbed areas. It is widespread from the Kimberly to near Perth (Hussey *et al.* 1997).	Recorded from 28 locations along the length of the study area with the exception of the far western end. The number of plants at each location was between 1-25 plants.

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Marillana Creek

Hamersley Iron Railway

Marillana Creek

Legend

Marillana Creek Riparian Study Area

Introduced Flora

- **Acetosa vesicaria (A.v)*
- **Aerva javanica (A.j)*
- **Argemone ochroleuca (A.o)*
- **Bidens bipinnata (B.b)*
- **Cenchrus ciliaris (C.c)*
- **Cenchrus setiger (C.s)*
- **Chloris virgata (C.v)*
- **Citrullus colocynthis (C.co)*
- **Conyza bonariensis (C.b)*
- **Cynodon dactylon (C.d)*
- **Datura leichhardtii (D.l)*
- **Echinochloa colona (E.c)*
- **Flaveria trinervia (F.t)*
- **Malvastrum americanum (M.a)*
- **Setaria verticillata (S.v)*
- **Sigesbeckia orientalis (S.o)*
- **Sisymbrium orientale (S.or)*
- **Solanum nigrum (S.n)*
- **Sonchus oleraceus (S.ol)*
- **Tribulus terrestris (T.t)*
- **Tridax procumbens (T.p)*
- **Vachellia farnesiana (V.f)*

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ON SHORE ENVIRONMENTAL CONSULTANTS

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Date: 17/08/2015

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Projection: MGA Zone 50

FIGURE 9

Location of introduced (weed) species within the study area

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3.5 Threatened Ecological Communities

No TECs occur within or adjacent to the study area.

3.6 Priority Ecological Communities

The Priority 1 PEC Weeli Wolli Spring occurs approximately 15 km south-east of the study area (Figure 5), and is defined by the continuous occurrence of the tall tree *Melaleuca argentea* forming woodland and forest associations along the major drainage line (Weeli Wolli Creek). The occurrence of natural springs at the location of the PEC provides pools of surface water, which influence the composition of the understorey. The sedge and herbfield communities that fringe many of the pools and associated water bodies along the main channels of Weeli Wolli Creek have not been recorded from any other wetland site in the Pilbara.

Meleleuca argentea was scattered along the main drainage channel of Marillana Creek. However a previous meeting with Mr Stephen van Leeuwin of the DPaW confirmed this vegetation association was not part of the Weeli Wolli PEC.

3.7 Vegetation

A total of 22 vegetation associations were described and mapped within the study area (Figure 10). The vegetation associations have been classified into eleven Broad Floristic Formations on the basis of the dominant vegetation stratum (Table 10). All site data collected is presented in Appendix 8.

Table 10 Vegetation descriptions for 22 vegetation associations mapped within the study area.

Code	Broad Floristic Formation	Vegetation Association	Characteristics	Condition
1a	*Eucalyptus* Open Forest	Open Forest of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over Low Open Forest of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Melaleuca argentea* over Sedgeland of *Typha domingensis, Cyperus vaginata* and *Schoenoplectus subulatus* on major drainage line with pools with brown light clay or sandy loam	Dense canopy of *Eucalyptus camaldulensis* and *Melaleuca argentea* with pools of *Typha domingensis*	Very Good-Excellent
1b	*Eucalyptus* Open Forest	Open Forest of *Eucalyptus victrix* and *Eucalyptus camaldulensis* over Open Scrub of *Melaleuca bracteata* and *Melaleuca glomerata* with Low Open Woodland of *Acacia ampliceps* and *Atalaya hemiglauca* on major drainage line with brown light clay	Open Scrub of *Melaleuca bracteata* and *Melaleuca glomerata* along major drainage line with *Eucalyptus* overstorey	Very Good
2a	*Eucalyptus* Woodland	Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Eucalyptus victrix* and *Eucalyptus camaldulensis* over Low Open Shrubland of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) on major drainage line with brown clayey sand	Channel of major drainage line with *Eucalyptus camaldulensis* and *Eucalyptus victrix* with little or no *Melaleuca argentea*	Very Good
2b	*Eucalyptus* Woodland	Woodland - Open Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Eucalyptus victrix* over Open Hummock Grassland of *Triodia pungens* and *Triodia longiceps* on levees and channel islands of major drainage lines with brown sandy loam	Grassy levees and channel islands with a mixture of tussock and hummock grasses	Very Good
3	*Acacia* Low Woodland	Low Woodland of *Acacia citrinoviridis, Acacia coriacea* subsp. *pendens* and *Atalaya hemiglauca* with Open Hummock Grassland of *Triodia pungens* and Open Tussock Grassland of *Eriachne tenuiculmis* and *Enneapogon lindleyanus* on raised levee banks of major drainage line with brown loam	Lumpy levees dominated by *Acacia citrinoviridis*	Good
4	*Eucalyptus* Low Open Woodland	Open Woodland of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over High Open Shrubland of *Melaleuca glomerata* and *Myoporum montanum* over Very Open Herbs of *Pluchea rubelliflora* and *Stemodia grossa* on open gravel beds of major drainage line with brown sand/clay loam	Gravelly open areas of major drainage line with fringing vegetation and pools	Very Good

Code	Broad Floristic Formation	Vegetation Association	Characteristics	Condition
5	*Corchorus* Low Open Heath	Low Open Heath of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) with Scattered Trees of *Eucalyptus camaldulensis* and *Eucalyptus victrix* and Scattered Tussock Grasses of *Eriachne tenuiculmis, *Cenchrus ciliaris* and *Eriachne pulchella* subsp. *dominii* on creekbed of major drainage line with brown clay loam	Dense low shrub layer of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks	Very Good
6a	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with Low Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Acacia pruinocarpa* and Open Shrubland of *Corchorus lasiocarpus* subsp. *lasiocarpus, Senna glutinosa* subsp. *glutinosa* and *Senna glutinosa* subsp. x *luerssenii* on hillcrests and upper slopes of ironstone ranges with brown sandy loam	*Triodia wiseana* on hillslopes with *Eucalyptus leucophloia* and *Acacia pruinocarpa.* Shrub layer scattered or absent	Very Good
6b	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia wiseana* with Open Shrubland of *Eremophila fraseri, Senna glutinosa* subsp. *glutinosa* and *Senna artemisioides* subsp. *oligophylla* on dolerite hills with brown sandy loam	Dolerite hillcrest dominated by *Triodia wiseana* with shrub layer dominated by *Eremophila fraseri*	Excellent
6c	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia wiseana* and *Triodia longiceps* with Low Open Woodland of *Corymbia hamersleyana, Acacia aptaneura* and *Hakea lorea* subsp. *lorea* and Open Shrubland of *Acacia arida, Acacia ancistrocarpa* and *Acacia bivenosa* on plains with brown silty loam	*Acacia arida* and other shrubs on plains next to drainage line	Very Good
6d	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia pungens, Triodia longiceps* and *Triodia wiseana* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Acacia pruinocarpa* and *Corymbia aspera* and High Open Shrubland of *Acacia dictyophleba, Acacia pachyacra* and *Gossypium robinsonii* on floodplains with brown sandy loam or clay loam	Sandy plains surrounding major drainage lines, with *Corymbia aspera, Corymbia hamersleyana* and *Hakea lorea* trees and *Triodia pungens* dominant in the understorey	Very Good

Code	Broad Floristic Formation	Vegetation Association	Characteristics	Condition
6e	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with High Open Shrubland of *Acacia inaequilatera* and *Acacia bivenosa* (wispy form) and Scattered Low Trees of *Corymbia hamersleyana* and *Acacia pruinocarpa* on hillslopes with brown sandy loam	Hills surrounding the major drainage lines dominated by *Acacia inaequilatera* when mature. Typically with *Corymbia hamersleyana* or *Eucalyptus leucophloia* overstorey	Very Good
6f	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia angusta* and *Triodia wiseana* with Open Mallee of *Eucalyptus socialis* subsp. *eucentrica* and *Eucalyptus xerothermica* and High Open Shrubland of *Acacia bivenosa* (wispy form) and *Petalostylis labicheoides* on undulating calcrete plains and hills with brown silty clay loam	Characterised by the presence of *Eucalyptus socialis* subsp. *eucentrica* and *Triodia angusta*	Excellent
6g	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Woodland of *Acacia pruinocarpa, Corymbia hamersleyana* and *Acacia coriacea* subsp. *pendens* and Low Shrubland of *Corchorus crozophorifolius* and *Acacia pyrifolia* on levee banks of major drainage line with brown sandy loam	Levees with *Acacia pruinocarpa* dominated overstorey, *Eucalyptus camaldulensis* is scattered or absent. *Triodia longiceps* is absent	Very Good
6h	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Acacia pruinocarpa* and High Open Shrubland of *Grevillea wickhamii* and *Acacia monticola* on hillslopes and hillcrests with brown sandy loam	Hummock Grassland of *Triodia pungens* with *Grevillea wickhamii* and *Acacia monticola*	Very Good
6i	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia wiseana, Trioida longiceps* and *Triodia angusta* with Low Open Woodland of *Eucalyptus xerothermica, Corymbia hamersleyana* and *Hakea lorea* subsp. *lorea* and High Open Shrubland of *Acacia bivenosa* (wispy form), *Acacia inaequilatera* and *Acacia ancistrocarpa* on undulating calcrete plains and slopes with brown loam	*Eucalyptus xerothermica* is distinctive	Excellent
6j	*Triodia* Hummock Grassland	Hummock Grassland of *Triodia schinzii* over Open Tussock Grassland of *Paraneurachne muelleri, Eragrostis eriopoda* and *Eulalia aurea* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Corymbia aspera* and *Corymbia hamersleyana* on stony sandplains with red sand	*Triodia schinzii* and tussocks with *Hakea lorea* subsp. *lorea, Corymbia aspera* and *Corymbia hamersleyana*	Very Good

Code	Broad Floristic Formation	Vegetation Association	Characteristics	Condition
7	**Cenchrus* Tussock Grassland	Tussock Grassland of **Cenchrus ciliaris, Themeda triandra* and *Bothriochloa ewartiana* with Open Woodland of *Eucalyptus victrix* and *Eucalyptus camaldulensis* and Very Open Hummock Grassland of *Triodia pungens* on floodplains and levee banks of major drainage line with brown sandy loam	Dominated by weeds, particularly **Cenchrus ciliaris* tussocks	Good
8	*Eulalia* Tussock Grassland	Tussock Grassland of *Eulalia aurea, Themeda triandra* and *Eriachne tenuiculmis* with High Shrubland of *Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* and Open Woodland of *Eucalyptus victrix* on floodplains with brown sandy loam	*Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* floodplain	Very Good
9	*Themeda* Tussock Grassland	Tussock Grassland of *Themeda triandra, Eulalia aurea* and *Aristida inaequiglumis* with Open Woodland of *Eucalyptus victrix* and *Corymbia aspera* and High Open Shrubland of *Gossypium robinsonii, Eremophila longifolia* and *Atalaya hemiglauca* on plains with brown sandy loam	Open Woodland of *Eucalyptus victrix* and *Corymbia aspera* with tussocks	Very Good
10	*Sorghum* Tussock Grassland	Tussock Grassland of *Sorghum plumosum, Eriachne tenuiculmis* and *Themeda triandra* with Low Open Woodland of *Eucalyptus victrix, Eucalyptus camaldulensis* and *Acacia coriacea* subsp. *pendens* and High Open Shrubland of *Grevillea pyramidalis* subsp. *leucadendron, Gossypium robinsonii* and *Acacia pyrifolia* on levee banks of major drainage line with brown silty loam	Tussock Grassland of *Sorghum plumosum* and other species and the presence of *Grevillea pyramidalis* are characteristic	Very Good
11	*Potamogeton* Open Herbs	Open Herbs of *Potamogeton tricarinatus* with Open Woodland of *Eucalyptus camaldulensis* and Very Open Sedges of *Typha domingensis, Schoenoplectus subulatus* and *Cyperus vaginatus* on dolerite platforms of major drainage line with brown light clay	Open rock platforms with pools and dominated by water herb vegetation	Very Good

Legend

Marillana Creek Riparian Study Area

Vegetation Types

Eucalyptus Open Forest

1a — Open Forest of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over Low Open Forest of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Melaleuca argentea* over Sedgeland of *Typha domingensis, Cyperus vaginata* and *Schoenoplectus subulatus* on major drainage line with pools with brown light clay or sandy loam

1b — Open Forest of *Eucalyptus victrix* and *Eucalyptus camaldulensis* over Open Scrub of *Melaleuca bracteata* and *Melaleuca glomerata* with Low Open Woodland of *Acacia ampliceps* and *Atalaya hemiglauca* on major drainage line with brown light clay

Eucalyptus Woodland

2a — Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Eucalyptus victrix* and *Eucalyptus camaldulensis* over Low Open Shrubland of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) on major drainage line with brown clayey sand

2b — Woodland - Open Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Eucalyptus victrix* over Open Hummock Grassland of *Triodia pungens* and *Triodia longiceps* on levees and channel islands of major drainage lines with brown sandy loam

Acacia Low Woodland

3 — Low Woodland of *Acacia citrinoviridis, Acacia coriacea* subsp. *pendens* and *Atalaya hemiglauca* with Open Hummock Grassland of *Triodia pungens* and Open Tussock Grassland of *Eriachne tenuiculmis* and *Enneapogon lindleyanus* on raised levee banks of major drainage line with brown loam

Eucalyptus Low Open Woodland

4 — Open Woodland of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over High Open Shrubland of *Melaleuca glomerata* and *Myoporum montanum* over Very Open Herbs of *Pluchea rubelliflora* and *Stemodia grossa* on open gravel beds of major drainage line with brown sand/clay loam

Corchorus Low Open Heath

5 — Low Open Heath of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) with Scattered Trees of *Eucalyptus camaldulensis* and *Eucalyptus victrix* and Scattered Tussock Grasses of *Eriachne tenuiculmis, *Cenchrus ciliaris* and *Eriachne pulchella* subsp. *dominii* on creekbed of major drainage line with brown clay loam

Triodia Hummock Grassland

6a — Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with Low Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Acacia pruinocarpa* and Open Shrubland of *Corchorus lasiocarpus* subsp. *lasiocarpus, Senna glutinosa* subsp. *glutinosa* and *Senna glutinosa* subsp. *x luerssenii* on hillcrests and upper slopes of ironstone ranges with brown sandy loam

6b — Hummock Grassland of *Triodia wiseana* with Open Shrubland of *Eremophila fraseri, Senna glutinosa* subsp. *glutinosa* and *Senna artemisioides* subsp. *oligophylla* on dolerite hills with brown sandy loam

6c — Hummock Grassland of *Triodia wiseana* and *Triodia longiceps* with Low Open Woodland of *Corymbia hamersleyana, Acacia aptaneura* and *Hakea lorea* subsp. *lorea* and Open Shrubland of *Acacia arida, Acacia ancistrocarpa* and *Acacia bivenosa* on plains with brown silty loam

6d — Hummock Grassland of *Triodia pungens, Triodia longiceps* and *Triodia wiseana* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Acacia pruinocarpa* and *Corymbia aspera* and High Open Shrubland of *Acacia dictyophleba, Acacia pachyacra* and *Gossypium robinsonii* on floodplains with brown sandy loam or clay loam

6e — Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with High Open Shrubland of *Acacia inaequilatera* and *Acacia bivenosa* (wispy form) and Scattered Low Trees of *Corymbia hamersleyana* and *Acacia pruinocarpa* on hillslopes with brown sandy loam

6f — Hummock Grassland of *Triodia angusta* and *Triodia wiseana* with Open Mallee of *Eucalyptus socialis* subsp. *eucentrica* and *Eucalyptus xerothermica* and High Open Shrubland of *Acacia bivenosa* (wispy form) and *Petalostylis labicheoides* on undulating calcrete plains and hills with brown silty clay loam

6g — Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Woodland of *Acacia pruinocarpa, Corymbia hamersleyana* and *Acacia coriacea* subsp. *pendens* and Low Shrubland of *Corchorus crozophorifolius* and *Acacia pyrifolia* on levee banks of major drainage line with brown sandy loam

6h — Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Acacia pruinocarpa* and High Open Shrubland of *Grevillea wickhamii* and *Acacia monticola* on hillslopes and hillcrests with brown sandy loam

6i — Hummock Grassland of *Triodia wiseana, Trioida longiceps* and *Triodia angusta* with Low Open Woodland of *Eucalyptus xerothermica, Corymbia hamersleyana* and *Hakea lorea* subsp. *lorea* and High Open Shrubland of *Acacia bivenosa* (wispy form), *Acacia inaequilatera* and *Acacia ancistrocarpa* on undulating calcrete plains and slopes with brown loam

6j — Hummock Grassland of *Triodia schinzii* over Open Tussock Grassland of *Paraneurachne muelleri, Eragrostis eriopoda* and *Eulalia aurea* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Corymbia aspera* and *Corymbia hamersleyana* on stony sandplains with red sand

*Cenchrus Tussock Grassland

7 — Tussock Grassland of *Cenchrus ciliaris, Themeda triandra* and *Bothriochloa ewartiana* with Open Woodland of *Eucalyptus victrix* and *Eucalyptus camaldulensis* and Very Open Hummock Grassland of *Triodia pungens* on floodplains and levee banks of major drainage line with brown sandy loam

Eulalia Tussock Grassland

8 — Tussock Grassland of *Eulalia aurea, Themeda triandra* and *Eriachne tenuiculmis* with High Shrubland of *Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* and Open Woodland of *Eucalyptus victrix* on floodplains with brown sandy loam

Themeda Tussock Grassland

9 — Tussock Grassland of *Themeda triandra, Eulalia aurea* and *Aristida inaequiglumis* with Open Woodland of *Eucalyptus victrix* and *Corymbia aspera* and High Open Shrubland of *Gossypium robinsonii, Eremophila longifolia* and *Atalaya hemiglauca* on plains with brown sandy loam

Sorghum Tussock Grassland

10 — Tussock Grassland of *Sorghum plumosum, Eriachne tenuiculmis* and *Themeda triandra* with Low Open Woodland of *Eucalyptus victrix, Eucalyptus camaldulensis* and *Acacia coriacea* subsp. *pendens* and High Open Shrubland of *Grevillea pyramidalis* subsp. *leucadendron, Gossypium robinsonii* and *Acacia pyrifolia* on levee banks of major drainage line with brown silty loam

Potamogeton Open Herbs

11 — Open Herbs of *Potamogeton tricarinatus* with Open Woodland of *Eucalyptus camaldulensis* and Very Open Sedges of *Typha domingensis, Schoenoplectus subulatus* and *Cyperus vaginatus* on dolerite platforms of major drainage line with brown light clay

Other

Cleared

Not Surveyed

ONSHORE ENVIRONMENTAL

ON SHORE ENVIRONMENTAL CONSULTANTS	Date: 17/08/2015
Sheet Size: A3	Status: Final
Drawn by GSM / Requested by DB	GSM Reference: Marillana Creek Riparian Vegetation Leg

MARILLANA CREEK RIPARIAN

VEGETATION ASSOCIATION LEGEND

FIGURE 10

GRIFFIN SPATIAL & MAPPING
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Eaton WA 6232
admin@griffinspatial.com.au
Ph/Fax +61 (0) 8 9725 3213
Mob 0487 337 226

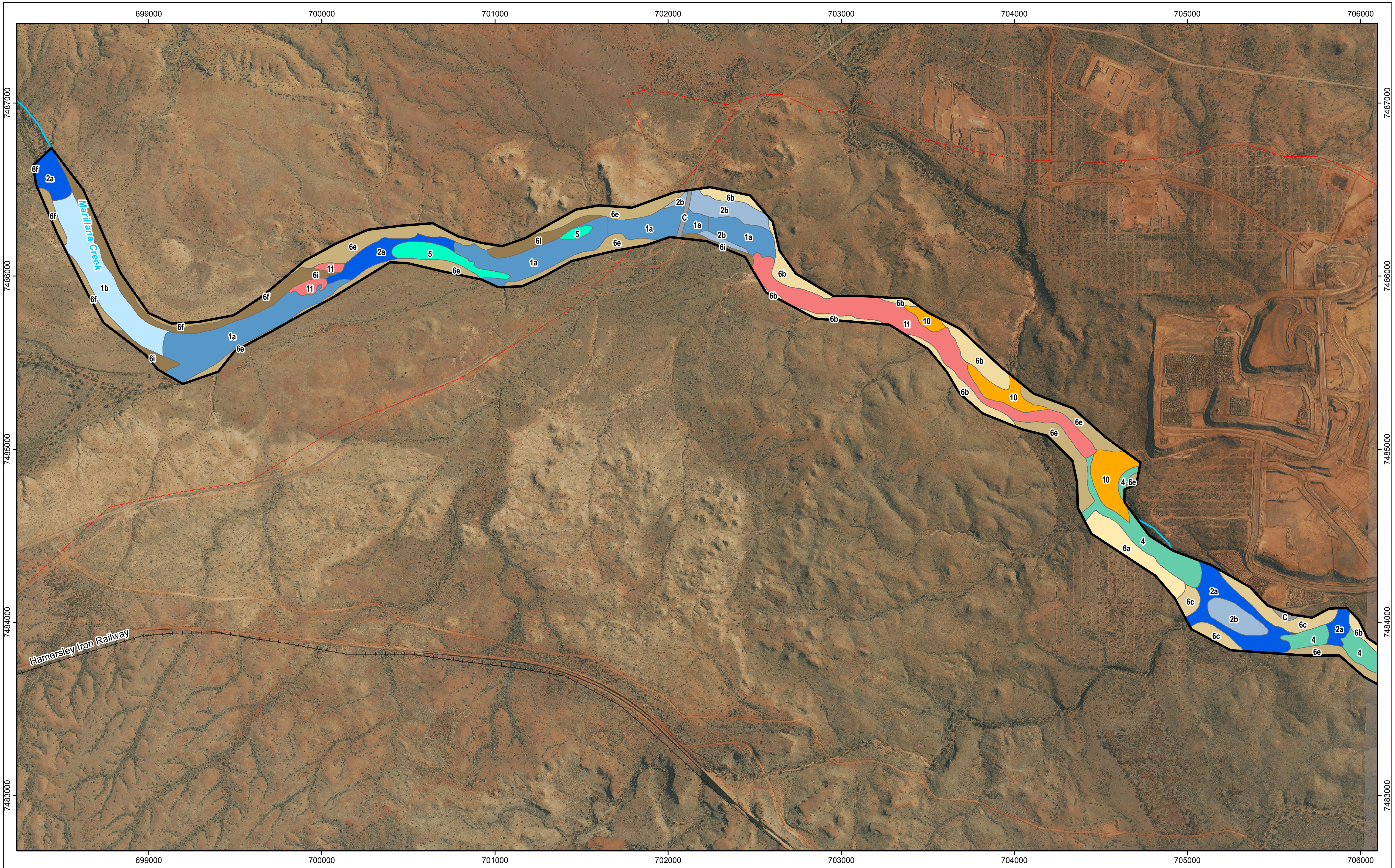

FIGURE 10

Vegetation association map of Marillana Creek

Map 1 of 4

ONSHORE ENVIRONMENTAL

ON SHORE ENVIRONMENTAL CONSULTANTS

Date:	02/07/2015	Sheet Size:	A3
Status:	Final		

Drawn by GSM | Requested by DB | GSM Reference Marillana Creek Riparian Vegetation

N

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Meters

1:20,000

Datum: GDA94

Projection: MGA Zone 50

Legend

Marillana Creek Riparian Study Area

GRIFFIN SPATIAL & MAPPING

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Mob 0487 337 226

706000 707000 708000 709000 710000 711000 712000 713000

7486000 7485000 7484000 7483000

Marillana Creek

Hamersley Iron Railway

ONSHORE ENVIRONMENTAL			
ON SHORE ENVIRONMENTAL CONSULTANTS		Date:	02/07/2015
Sheet Size:	A3	Status:	Final
Drawn by GSM	Requested by DB	GSM Reference Marillana Creek Riparian Vegetation	

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Meters
1:20,000

Datum: GDA94
Projection: MGA Zone 50

FIGURE 10

Vegetation association map

of Marillana Creek

Map 2 of 4

Legend

Marillana Creek Riparian Study Area

GRIFFIN SPATIAL & MAPPING

PO Box 7215
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Mob 0487 337 226

714000 715000 716000 717000 718000 719000 720000 721000

7485000 7484000 7483000 7482000 7481000

6e 2b 6b 3 5 6e 2b 7 C 6d 2b 2a 7 C C 3 5 6g 6a 6e 2a 5 4 6e 6g 5 2b C 6d 6a 2a 6h C 6d

Marillana Creek

Hamersley Iron Railway

714000 715000 716000 717000 718000 719000 720000 721000

ONSHORE ENVIRONMENTAL		
ON SHORE ENVIRONMENTAL CONSULTANTS	Date:	02/07/2015
Sheet Size: A3	Status:	Final
Drawn by GSM	Requested by DB	GSM Reference Marillana Creek Riparian Vegetation

N

0 250 500 750 1,000

Meters

1:20,000

Datum: GDA94

Projection: MGA Zone 50

FIGURE 10

Vegetation association map

of Marillana Creek

Map 3 of 4

Legend

Marillana Creek Riparian Study Area

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719000 720000 721000 722000 723000 724000 725000

7480000 7479000 7478000 7477000

Marillana Creek

Not Surveyed

Hamersley Iron Railway

6d C 9 C 6h 2a 2b 6g 6d 6e 8 2b 7 C 6j 7 6j 6e 2b 1a 2a 6e 6h

719000 720000 721000 722000 723000 724000 725000

ONSHORE ENVIRONMENTAL			
ON SHORE ENVIRONMENTAL CONSULTANTS		Date:	02/07/2015
Sheet Size:	A3	Status:	Final
Drawn by GSM	Requested by DB	GSM Reference Marillana Creek Riparian Vegetation	

N

0 250 500 750 1,000

Meters
1:20,000

Datum: GDA94
Projection: MGA Zone 50

FIGURE 10

Vegetation association map
of Marillana Creek
Map 4 of 4

Legend

Marillana Creek Riparian Study Area

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Broad Floristic Formation	1a. *Eucalyptus* Open Forest
Vegetation Association	Open Forest of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over Low Open Forest of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Melaleuca argentea* over Sedgeland of *Typha domingensis, Cyperus vaginata* and *Schoenoplectus subulatus* on major drainage line with pools with brown light clay or sandy loam

Area Mapped	49.54ha
Quadrats Sampled	MC03, MC17, MC34
Location	Map 1 & 2, Map 8
Leaf Litter Cover (%)	<1-30
Bare Ground (%)	10-20
Soils and Geology	Mixed alluvial gravels and cobbles and BIF or dolerite outcropping with brown light clay and sandy loam
Land System	Platform, Oakover, McKay, River, Robe
Land Form	Major drainage line with pools
Priority Ecological Community	No
Rare Flora	^*Rostellularia adscendens* var. *latifolia*
Introduced (Weed) Species	**Argemone ochroleuca, *Bidens bipinnata, *Cenchrus ciliaris, *Solanum nigrum, *Malvastrum americanum, * Sonchus oleraceus, *Flaveria trinervia, *Echinochloa colona, *Cenchrus setiger, *Setaria verticillata, *Vachellia farnesiana*
Vegetation Condition	Very Good- Excellent NB – A small area of this vegetation unit around Flat Rocks Road is in Degraded condition with a large number of weed species and dead *Melaleuca argentea* trees
Disturbances	Weeds, cattle, road nearby, flooding, dewatering, dead trees
Average Fire Age	Old – Very Old (5 - >10 years)
Characteristics	Dense canopy of *Eucalyptus camaldulensis* and *Melaleuca argentea* with pools of *Typha domingensis*

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Melaleuca argentea, Eucalyptus victrix*
Trees <10m	*Eucalyptus victrix, Acacia coriacea* subsp. *pendens, Acacia ampliceps, Atalaya hemiglauca*
Tall Shrubs >2m	*Melaleuca glomerata, Melaleuca bracteata, Acacia pyrifolia, Gossypium robinsonii, Myoporum montanum*
Shrubs 1-2m	*Acacia pyrifolia*
Shrubs <1m	*Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186), *Corchorus crozophorifolius*
Hummock Grasses	*Triodia longiceps, Triodia pungens*
Tussock Grasses	*Bothriochloa ewartiana, Cymbopogon procerus, Themeda triandra, Eulalia aurea, Enteropogon ramosus, Sorghum plumosum, *Cenchrus ciliaris, Eriachne tenuiculmis*
Sedges	*Typha domingensis, Cyperus vaginatus, Schoenoplectus subulatus*
Herbs	*Pluchea rubelliflora, Phyllanthus maderaspatensis, Cleome viscosa, Glycine canescens, Samolus repens*
Water herbs	*Potamogeton tricarinatus*

Broad Floristic Formation	1b. *Eucalyptus* Open Forest
Vegetation Association	Open Forest of *Eucalyptus victrix* and *Eucalyptus camaldulensis* over Open Scrub of *Melaleuca bracteata* and *Melaleuca glomerata* with Low Open Woodland of *Acacia ampliceps* and *Atalaya hemiglauca* on major drainage line with brown light clay

Area Mapped	14.79ha
Quadrats Sampled	MC20
Location	Map 1
Leaf Litter Cover (%)	30
Bare Ground (%)	10
Soils and Geology	Ironstone and mixed alluvial gravels and calcrete outcropping and cliffs on edges with brown light clay
Land System	Oakover, Platform
Land Form	Major drainage lines and banks
Priority Ecological Community	No
Rare Flora	^*Rostellularia adscendens* var. *latifolia* (on banks/cliffs)
Introduced (Weed) Species	None
Vegetation Condition	Very Good
Disturbances	Flooding, cattle
Average Fire Age	Very Old (>10 years)
Characteristics	Open Scrub of *Melaleuca bracteata* and *Melaleuca glomerata* along major drainage line with *Eucalyptus* overstorey
Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix, Eucalyptus camaldulensis*
Trees <10m	*Acacia ampliceps, Atalaya hemiglauca*
Tall Shrubs >2m	*Melaleuca bracteata, Melaleuca glomerata, Androcalva luteiflora*
Shrubs 1-2m	*Acacia pyrifolia*
Hummock Grasses	*Triodia pungens*
Tussock Grasses	*Themeda triandra, Sorghum plumosum*
Sedges	*Cyperus vaginatus, Typha domingensis*

Broad Floristic Formation	*2a. Eucalyptus* Woodland
Vegetation Association	Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Eucalyptus victrix* and *Eucalyptus camaldulensis* over Low Open Shrubland of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) on major drainage line with brown clayey sand

Area Mapped	282.86ha
Quadrats Sampled	MC07, MC37, A3, JM163
Location	Map 5
Leaf Litter Cover (%)	<1-3
Bare Ground (%)	60
Soils and Geology	Mixed alluvial cobbles and pebbles with brown clayey sand
Land System	Oakover, Platform, Robe, McKay, River
Land Form	Main drainage channel of major drainage line
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Cenchrus ciliaris, *Malvastrum americanum, *Setaria verticillata, *Flaveria trinervia, *Sonchus oleraceus, *Solanum nigrum, *Sigesbeckia orientalis, *Bidens bipinnata, *Argemone ochroleuca, *Cynodon dactylon*
Vegetation Condition	Very Good
Disturbances	Weeds, cattle, flooding, mining nearby
Average Fire Age	Very Old
Characteristics	Channel of major drainage line with *Eucalyptus camaldulensis* and *Eucalyptus victrix* with scattered *Melaleuca argentea*

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Eucalyptus victrix, Melaleuca argentea*
Trees <10m	*Eucalyptus camaldulensis, Eucalyptus victrix, Acacia coriacea* subsp. *pendens, Atalaya hemiglauca, Acacia citrinoviridis*
Tall Shrubs >2m	*Melaleuca glomerata*
Shrubs 1-2m	*Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks, *Indigofera monophylla, Acacia pyrifolia*
Hummock Grasses	*Triodia pungens*
Tussock Grasses	*Eriachne tenuiculmis, Cymbopogon procerus, *Cenchrus ciliaris, Eulalia aurea, Paspalidium basicladum, *Cynodon dactylon*
Sedges	*Cyperus vaginatus*
Herbs	**Malvastrum americanum, Pluchea rubelliflora*

Broad Floristic Formation	2b. *Eucalyptus* Woodland
Vegetation Association	Woodland to Open Woodland of *Eucalyptus camaldulensis* and *Eucalyptus victrix* over Low Woodland of *Acacia coriacea* subsp. *pendens, Atalaya hemiglauca* and *Eucalyptus victrix* over Open Hummock Grassland of *Triodia pungens* and *Triodia longiceps* on levees and channel islands of major drainage lines with brown sandy loam

Area Mapped	88.35ha
Quadrats Sampled	MC02, MC06, MC11, MC16, JM164, JM173, JM102, JM80, JM68
Location	Map 3
Leaf Litter Cover (%)	10
Bare Ground (%)	15
Soils and Geology	Dolerite and mixed river gravels with brown sandy loam
Land System	Oakover, McKay, Robe, River
Land Form	Levees and channel islands of major drainage line
Priority Ecological Community	No
Rare Flora	^*Rostellularia adscendens* var. *latifolia* (Priority 3)
Introduced (Weed) Species	**Vachellia farnesiana, *Malvastrum americanum, *Setaria verticillata, *Sonchus oleraceus, * Sigesbeckia orientalis, *Bidens bipinnata, *Solanum nigrum, *Chloris virgata, *Flaveria trinervia, *Cenchrus ciliaris*
Vegetation Condition	Very Good
Disturbances	Weeds, cattle, mining nearby, siltation from mine runoff
Average Fire Age	Young-Old (1-10 years)
Characteristics	Grassy levees and channel islands with a mixture of tussock and hummock grasses.

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Eucalyptus victrix*
Trees <10m	*Acacia coriacea* subsp. *pendens, Atalaya hemiglauca, Acacia citrinoviridis*
Tall Shrubs >2m	*Acacia pyrifolia, Androcalva luteiflora, Acacia tumida* var. *pilbarensis, Petalostylis labicheoides, Stylobasium spathulatum, Eremophila longifolia, Acacia dictyophleba, Gossypium robinsonii*
Shrubs 1-2m	*Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks, *Solanum phlomoides, Sida* sp. verrucose glands
Shrubs <1m	*Dipteracanthus australasicus*
Hummock Grasses	*Triodia longiceps, Triodia pungens*
Tussock Grasses	*Sorghum plumosum, Themeda triandra, Eriachne tenuiculmis, Cymbopogon procerus, Setaria surgens, Bothriochloa ewartiana, *Cenchrus ciliaris, Digitaria ctenantha, Enneapogon robustissimus, Enneapogon lindleyanus, *Setaria verticillata, Eulalia aurea*
Climbers	*Cassytha capillaris, Glycine canescens*
Herbs	**Malvastrum americanum, *Bidens bipinnata, Dysphania melanocarpa, Euphorbia trigonosperma, Phyllanthus maderaspatensis, Polymeria ambigua, Cleome viscosa, Dysphania rhadinostachya, Pterocaulon sphacelatum*

Broad Floristic Formation	*3. Acacia* Woodland
Vegetation Association	Low Woodland of *Acacia citrinoviridis, Acacia coriacea* subsp. *pendens* and *Atalaya hemiglauca* with Open Hummock Grassland of *Triodia pungens* and Open Tussock Grassland of *Eriachne tenuiculmis* and *Enneapogon lindleyanus* on raised levee banks of major drainage line with brown loam

Area Mapped	19.90ha
Quadrats Sampled	MC15, JM91, JM110
Location	Map 5
Leaf Litter Cover (%)	80
Bare Ground (%)	8
Soils and Geology	Mixed riverine gravels with brown loam
Land System	Robe, McKay
Land Form	Raised levee banks of major drainage line
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia* (Priority 3)
Introduced (Weed) Species	**Bidens bipinnata, *Malvastrum americanum, *Cenchrus ciliaris, *Dactura leichhardtii, *Argemone ochroleuca, *Flaveria trinervia, *Setaria verticillata*
Vegetation Condition	Good
Disturbances	Weeds, access tracks, drill pads
Average Fire Age	Very Old
Characteristics	Lumpy levees dominated by *Acacia citrinoviridis*

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix, Eucalyptus camaldulensis*
Trees <10m	*Acacia citrinoviridis, Eucalyptus victrix, Acacia coriacea* subsp. *pendens, Atalaya hemiglauca, Hakea lorea* subsp. *lorea*
Tall Shrubs >2m	*Androcalva luteiflora, Gossypium robinsonii, Stylobasium spathulatum*
Shrubs <1m	*Dipteracanthus australasicus* subsp. *australasicus, Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks, *Dicladanthera forrestii, Solanum phlomoides*
Hummock Grasses	*Triodia pungens*
Tussock Grasses	*Eriachne tenuiculmis, Enneapogon lindleyanus, Paspalidium basicladum, Themeda triandra, Enneapogon robustissimus, Eriachne pulchella* subsp. *dominii*
Herbs	*Duperreya commixta*

Broad Floristic Formation	4. *Eucalyptus* Low Open Woodland
Vegetation Association	Open Woodland of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* over High Open Shrubland of *Melaleuca glomerata* and *Myoporum montanum* over Very Open Herbs of *Pluchea rubelliflora, Ammannia baccifera* and *Stemodia grossa* on open gravel beds of major drainage line with brown sand/clay loam

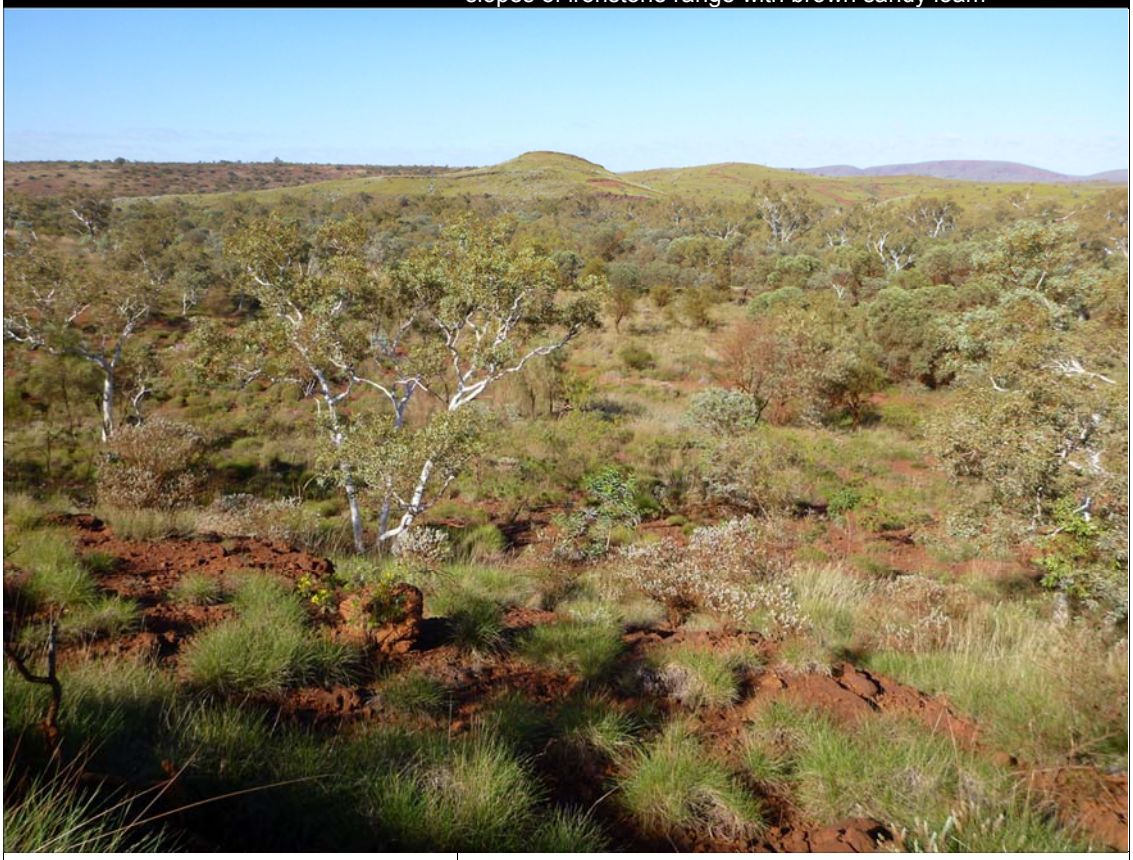
Area Mapped	36.10ha
Quadrats Sampled	MC01, MC24, MC25
Location	Map 3
Leaf Litter Cover (%)	<1-5
Bare Ground (%)	70-90
Soils and Geology	Red brown sandy loam with dolerite outcropping and ironstone gravels with brown clay loam, sandy
Land System	Robe, McKay, River
Land Form	Major drainage line – open gravelly creek bed
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Sigesbeckia orientalis, *Bidens bipinnata, *Flaveria trinervia. *Cenchrus ciliaris, *Setaria verticillata, *Argemone ochroleuca subsp. ochroleuca, *Echinochloa colona, *Sonchus oleraceus, *Datura leichhardtii*
Vegetation Condition	Very Good
Disturbances	Weeds, cattle, mining nearby
Average Fire Age	Old
Characteristics	Gravelly open areas of major drainage line with fringing vegetation and pools

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix, Eucalyptus camaldulensis, Melaleuca argentea*
Trees <10m	*Eucalyptus camaldulensis, Melaleuca argentea, Acacia coriacea* subsp. *pendens, Acacia ampliceps, Atalaya hemiglauca*
Tall Shrubs >2m	*Melaleuca glomerata*
Shrubs <1m	*Tephrosia rosea* var. Fortescue creeks, *Corchorus crozophorifolius*
Tussock Grasses	*Eulalia aurea, Themeda triandra, Sorghum plumosum, Enteropogon ramosus, *Echinochloa colona*
Sedges	*Cyperus vaginata, Cyperus difformis*
Herbs	*Pluchea rubelliflora, Ammannia baccifera, Stemodia grossa, Centipeda minima subsp. macrocephala*
Water herbs	*Potamogeton tricarinatus*

Broad Floristic Formation	*5. Corchorus* Low Open Heath
Vegetation Association	Low Open Heath of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue Creeks with Scattered Trees of *Eucalyptus camaldulensis* and *Eucalyptus victrix* and Scattered Tussock Grasses of *Eriachne tenuiculmis, *Cenchrus ciliaris* and *Eriachne pulchella* subsp. *dominii* on creekbed of major drainage line with brown clay loam

Area Mapped	27.31ha
Quadrats Sampled	MC14, JM67, JM115
Location	Map 6
Leaf Litter Cover (%)	<1
Bare Ground (%)	40
Soils and Geology	Ironstone and chert cobbles, pebbles and gravels with brown clay loam
Land System	Oakover, McKay, Robe, River
Land Form	Creekbed/flowzones of major drainage line
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Acetosa vesicaria, *Cenchrus ciliaris*
Vegetation Condition	Very Good
Disturbances	Ground disturbance, cattle
Average Fire Age	Old
Characteristics	Dense low shrub layer of *Corchorus crozophorifolius* and *Tephrosia rosea* var. Fortescue creeks
Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Eucalyptus victrix*
Trees <10m	*Acacia citrinoviridis*
Tall Shrubs >2m	*Acacia pyrifolia, Gossypium robinsonii*
Shrubs <1m	*Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks, *Heliotropium cunninghamii*, *Gomphrena canescens, Olearia fluvialis*
Tussock Grasses	*Eriachne tenuiculmis, Eriachne pulchella* subsp. *dominii, *Cenchrus ciliaris*

Broad Floristic Formation	*6a. Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with Low Woodland of *Eucalyptus leucophloia* and *Acacia pruinocarpa* and Open Shrubland of *Corchorus lasiocarpus* subsp. *lasiocarpus, Senna glutinosa* subsp. *glutinosa* and *Senna glutinosa* subsp. x *luerssenii* on hillcrests and upper slopes of ironstone range with brown sandy loam



Area Mapped	60.21ha
Quadrats Sampled	MC13, MC36, MC26, JM118, JM128
Location	Map 6
Leaf Litter Cover (%)	<1-5
Bare Ground (%)	30-37
Soils and Geology	Ironstone outcrops, cobbles and pebbles with brown sandy loam
Land System	Robe, McKay
Land Form	Hillcrest/upper slope of ironstone range
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia* (Priority 3), *Goodenia nuda* (Priority 4)
Introduced (Weed) Species	None
Vegetation Condition	Very Good
Disturbances	Mine site/ rehabilitation areas nearby, access tracks, drilling activities, fire, soil disturbance
Average Fire Age	Young-Old (1-10 years)
Characteristics	*Triodia wiseana* on hillslopes with *Eucalyptus leucophloia* and *Acacia pruinocarpa.* Shrub layer scattered or absent.

Vegetation Structure & Floristics	
Trees <10m	*Eucalyptus leucophloia, Acacia pruinocarpa, Hakea chordophylla, Acacia coriacea* subsp. *pendens, Corymbia hamersleyana*
Tall Shrubs >2m	*Acacia tenuissima, Acacia bivenosa, Acacia dictyophleba*
Shrubs 1-2m	*Corchorus lasiocarpus* subsp. *lasiocarpus, Senna glutinosa* subsp. *glutinosa, Senna glutinosa* subsp. x *luerssenii, Acacia adoxa, Sida arenicola, Sida* sp. Articulation below, *Sida* sp. Pilbara, *Senna artemisioides* subsp. *oligophylla, Ptilotus astrolasius*
Shrubs <1m	*Ptilotus rotundifolius, Corchorus lasiocarpus* subsp. *lasiocarpus, Ptilotus astrolasius*
Hummock Grasses	*Triodia wiseana, Triodia pungens, Triodia* sp. Shovelanna Hill
Tussock Grasses	*Eriachne mucronata, Cymbopogon ambiguus, Eriachne pulchella* subsp. *dominii*

Broad Floristic Formation	6b. *Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia wiseana* with Open Shrubland of *Eremophila fraseri*, *Senna glutinosa* subsp. *glutinosa* and *Senna artemisioides* subsp. *oligophylla* on dolerite hills with brown sandy loam

Area Mapped	21.35ha
Quadrats Sampled	MC05, JM08
Location	Map 2
Leaf Litter Cover (%)	<1
Bare Ground (%)	25
Soils and Geology	Dolerite boulders, cobbles and pebbles with brown sandy loam
Land System	Oakover, McKay,
Land Form	Dolerite hillcrest
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Setaria verticillata*
Vegetation Condition	Excellent
Disturbances	Weeds, mine nearby
Average Fire Age	Old
Characteristics	Dolerite hillcrest dominated by *Triodia wiseana* with shrub layer dominated by *Eremophila fraseri*
Vegetation Structure & Floristics	
Trees <10m	*Acacia pruinocarpa, Corymbia hamersleyana*
Tall Shrubs >2m	*Grevillea pyramidalis, Acacia inaequilatera, Acacia maitlandii*
Shrubs 1-2m	*Eremophila fraseri, Senna glutinosa* subsp. *glutinosa, Senna artemisioides* subsp. *helmsii, Senna artemisioides* subsp. *oligophylla*
Hummock Grasses	*Triodia wiseana*

Broad Floristic Formation	*6c.Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia wiseana* and *Triodia longiceps* with Low Open Woodland of *Corymbia hamersleyana, Acacia aptaneura* and *Hakea lorea* subsp. *lorea* and Open Shrubland of *Acacia arida Acacia ancistrocarpa* and *Acacia bivenosa* on plains with brown silty loam
	
Area Mapped	28.74ha
Quadrats Sampled	MC23, JM16, JM17, JM18, JM13, JM176
Location	Map 3
Leaf Litter Cover (%)	1
Bare Ground (%)	25
Soils and Geology	Dolerite boulders and cobbles with brown silty loam
Land System	McKay
Land Form	Plains surrounding major drainage line
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia* (Priority 3)
Introduced (Weed) Species	**Bidens bipinnata*
Vegetation Condition	Very Good
Disturbances	Access tracks, mine site adjacent, weeds
Average Fire Age	Old
Characteristics	*Acacia arida* and other shrubs on plains next to drainage line
Vegetation Structure & Floristics	
Trees <10m	*Corymbia hamersleyana, Acacia aptaneura, Acacia pruinocarpa, Hakea lorea* subsp. *lorea*
Tall Shrubs >2m	*Acacia bivenosa, Gossypium robinsonii, Grevillea pyramidalis* subsp. *leucadendron, Acacia tetragonophylla, Acacia inaequilatera, Petalostylis labicheoides*
Shrubs 1-2m	*Acacia arida, Acacia ancistrocarpa, Acacia bivenosa, Acacia synchronicia, Senna glutinosa* subsp. *x luerssenii*
Shrubs <1m	*Corchorus lasiocarpus* subsp. *lasiocarpus, Indigofera monophylla, Ptilotus astrolasius, Bonamia erecta*
Hummock Grasses	*Triodia wiseana, Triodia pungens, Triodia longiceps*
Tussock Grasses	*Paraneurachne muelleri, Themeda triandra, Eriachne mucronata, Eriachne tenuiculmis*

Broad Floristic Formation	*6d. Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia pungens, Triodia longiceps* and *Triodia wiseana* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Acacia pruinocarpa* and *Corymbia aspera* and High Open Shrubland of *Acacia dictyophleba, Acacia pachyacra* and *Gossypium robinsonii* on floodplains with brown sandy loam or clay loam

Area Mapped	38.22 ha
Quadrats Sampled	MC31, MC35, MC09, JM219
Location	Map 7
Leaf Litter Cover (%)	2-3
Bare Ground (%)	15-20
Soils and Geology	Ironstone and chert cobbles and pebbles with brown sandy loam/clay loam
Land System	McKay, Robe, River, Boolgeeda
Land Form	Floodplain/flats - sandy
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia* (Priority 3), *Goodenia nuda* (Priority 4), *Aristida lazaridis* (Priority 2)
Introduced (Weed) Species	**Datura leichhardtii, *Flaveria trinervia, *Cenchrus ciliaris, *Argemone ochroleuca, *Malvastrum americanum, *Bidens bipinnata, *Vachellia farnesiana, *Acetosa vesicaria, Sonchus oleraceus*
Vegetation Condition	Very Good
Disturbances	Mining nearby, weeds
Average Fire Age	Old
Characteristics	Sandy plains surrounding major drainage lines, with *Corymbia aspera, Corymbia hamersleyana* and *Hakea lorea* trees and *Triodia pungens* dominant in the understorey.

Vegetation Structure & Floristics	
Trees <10m	*Corymbia hamersleyana, Hakea lorea* subsp. *lorea, Atalaya hemiglauca, Acacia pruinocarpa, Eucalyptus victrix, Corymbia aspera*
Tall Shrubs >2m	*Acacia dictyophleba, Acacia pachyacra, Gossypium robinsonii Androcalva luteiflora, Eremophila longifolia, *Vachellia farnesiana, Petalostylis labicheoides, Acacia bivenosa*
Shrubs 1-2m	*Gossypium australe*
Shrubs <1m	*Corchorus tridens*
Hummock Grasses	*Triodia pungens, Triodia longiceps*
Tussock Grasses	*Digitaria ctenantha, *Cenchrus ciliaris, Themeda triandra, Enneapogon lindleyanus, Eriachne tenuiculmis, Enneapogon robustissimus, Eulalia aurea*
Herbs	*Evolvulus alsinoides* var. *decumbens, *Bidens bipinnata*

Broad Floristic Formation	*6e. Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia wiseana* and *Triodia pungens* with High Open Shrubland of *Acacia inaequilatera* and *Acacia bivenosa* (wispy form) and Scattered Low Trees of *Corymbia hamersleyana* and *Acacia pruinocarpa* on hillslopes with brown sandy loam

Area Mapped	61.64ha
Quadrats Sampled	MC22, MC18, MC27, MC29, JM157, JM105, JM83
Location	Map 1-3
Leaf Litter Cover (%)	<1
Bare Ground (%)	30-55
Soils and Geology	Ironstone, calcrete and dolerite outcrops, boulders, cobbles and pebbles with brown sandy loam
Land System	Platform, Robe, Oakover, McKay, River, Boolgeeda
Land Form	Hillslopes
Priority Ecological Community	No
Rare Flora	*Goodenia* sp. East Pilbara (Priority 4)
Introduced (Weed) Species	None
Vegetation Condition	Very Good
Disturbances	Fire, mining nearby, cattle, ground disturbance, access tracks
Average Fire Age	Moderate
Characteristics	Hills surrounding the major drainage lines dominated by *Acacia inaequilatera* when mature. Typically with *Corymbia hamersleyana* or *Eucalyptus leucophloia* overstorey

Vegetation Structure & Floristics	
Trees <10m	*Corymbia hamersleyana +/- Acacia pruinocarpa, Acacia aptaneura, Hakea chordophylla, Eucalyptus leucophloia* subsp. *leucophloia*
Tall Shrubs >2m	*Acacia inaequilatera, Acacia bivenosa (*wispy form*), Acacia synchronicia, Petalostylis labicheoides*
Shrubs 1-2m	*Senna glutinosa* subsp. *glutinosa*
Shrubs <1m	*Senna artemisioides* subsp. *oligophylla, Corchorus lasiocarpus* subsp. *lasiocarpus, Eremophila fraseri, Tephrosia rosea* var. Fortescue creeks, *Ptilotus nobilis*, *Indigofera monophylla, Dipteracanthus australasicus, Indigofera rugosa*
Hummock Grasses	*Triodia wiseana, Triodia pungens, Triodia brizoides*
Tussock Grasses	*Paraneurachne muelleri, Cymbopogon ambiguus, Enneapogon caerulescens, Eriachne mucronata, Eriachne lanata, Themeda triandra*
Herbs	*Dysphania rhadinostachya*

Broad Floristic Formation	6f. *Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia angusta* and *Triodia wiseana* with Open Mallee of *Eucalyptus socialis* subsp. *eucentrica* and *Eucalyptus xerothermica* and High Open Shrubland of *Acacia bivenosa* (wispy form) and *Petalostylis labicheoides* on undulating calcrete plains and hills with brown silty clay loam

Area Mapped	4.75 ha
Quadrats Sampled	MC19, MC21
Location	Map 1
Leaf Litter Cover (%)	<1
Bare Ground (%)	55
Soils and Geology	Calcrete and ironstone outcropping, gravels and pebbles with brown silty clay loam
Land System	Oakover, Platform
Land Form	Undulating calcrete plains and hills
Priority Ecological Community	No
Rare Flora	*Goodenia* sp. East Pilbara
Introduced (Weed) Species	None
Vegetation Condition	Excellent
Disturbances	None
Average Fire Age	Moderate
Characteristics	Characterised by *Eucalyptus socialis* subsp. *eucentrica* and *Triodia angusta*
Vegetation Structure & Floristics	
Trees <10m	*Corymbia hamersleyana*
Mallee	*Eucalyptus socialis* subsp. *eucentrica, Eucalyptus xerothermica*
Tall Shrubs >2m	*Acacia bivenosa* (wispy form), *Petalostylis labicheoides*
Hummock Grasses	*Triodia wiseana, Triodia angusta*

Broad Floristic Formation	*6g. Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Woodland of *Acacia pruinocarpa, Corymbia hamersleyana* and *Acacia coriacea* subsp. *pendens* and Low Shrubland of *Corchorus crozophorifolius* and *Acacia pyrifolia* on levee banks of major drainage line with brown sandy loam

Area Mapped	29.26 ha
Quadrats Sampled	MC12, JM125, JM136
Location	Map 6
Leaf Litter Cover (%)	5
Bare Ground (%)	35
Soils and Geology	Ironstone cobbles and pebbles
Land System	River,
Land Form	Levee bank of major drainage line
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia,*
Introduced (Weed) Species	**Bidens bipinnata, * Acetosa vesicaria, *Malvastrum americanum, *Setaria verticillata, *Vachellia farnesiana*
Vegetation Condition	Very Good
Disturbances	Weeds, mining nearby, cattle
Average Fire Age	Old
Characteristics	Levees with *Acacia pruinocarpa* dominated overstorey. *Eucalyptus camaldulensis* is scattered or absent. *Triodia longiceps* is absent

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix, Eucalyptus camaldulensis*
Trees <10m	*Acacia pruinocarpa, Corymbia hamersleyana, Acacia coriacea* subsp. *pendens, Atalaya hemiglauca, Hakea lorea* subsp. *lorea*
Tall Shrubs >2m	*Acacia pyrifolia*
Shrubs 1-2m	*Corchorus crozophorifolius, Acacia pyrifolia*
Shrubs <1m	*Indigofera monophylla, Dicladanthera forrestii*
Hummock Grasses	*Triodia pungens, Triodia wiseana, Triodia longiceps*
Tussock Grasses	*Eriachne tenuiculmis, Enneapogon lindleyanus, Themeda triandra, Cymbopogon ambiguus, Cymbopogon procerus*
Herbs	*Cheilanthes sieberi, *Bidens bipinnata*

Broad Floristic Formation	6h. *Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia pungens* and *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* and *Acacia pruinocarpa* and High Open Shrubland of *Grevillea wickhamii* and *Acacia monticola* on hillslopes and hillcrests with brown sandy loam

Area Mapped	16.40ha
Quadrats Sampled	MC08, MC39, MC10, JWM22
Location	Map 4
Leaf Litter Cover (%)	<1
Bare Ground (%)	40-50
Soils and Geology	Ironstone cobbles pebbles and outcropping with brown sandy loam
Land System	McKay, River, Robe
Land Form	Hillslopes and hillcrests
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	None
Vegetation Condition	Very Good- Excellent
Disturbances	Mining nearby, exploration, weeds, fire
Average Fire Age	Moderate- Old (2-10 years)
Characteristics	Hummock Grassland of *Triodia pungens* with *Grevillea wickhamii* and *Acacia monticola*

Vegetation Structure & Floristics	
Trees <10m	*Eucalyptus leucophloia, Acacia pruinocarpa*
Tall Shrubs >2m	*Grevillea wickhamii, Acacia monticola*
Shrubs 1-2m	*Eremophila latrobei* subsp. *filiformis, Eremophila jucunda subsp. pulcherrima, Gossypium robinsonii, Acacia spondylophylla*
Shrubs <1m	*Eremophila fraseri, Corchorus lasiocarpus* subsp. *lasiocarpus*
Hummock Grasses	*Triodia pungens, Triodia wiseana*
Tussock Grasses	*Eriachne mucronata*
Herbs	*Duperreya commixta, Cheilanthes brownii*

Broad Floristic Formation	6i. *Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia wiseana, Triodia longiceps* and *Triodia angusta* with Low Open Woodland of *Eucalyptus xerothermica, Corymbia hamersleyana* and *Hakea lorea* subsp. *lorea* and High Open Shrubland of *Acacia bivenosa* (wispy form), *Acacia inaequilatera* and *Acacia ancistrocarpa* on undulating calcrete plains and slopes with brown loam

Area Mapped	17.94ha
Quadrats Sampled	MC30, A2, JM162, JM21, JM48
Location	Map 1
Leaf Litter Cover (%)	1
Bare Ground (%)	27
Soils and Geology	Calcrete/ironstone/dolerite cobbles and pebbles with brown loam
Land System	Platform, Robe, Oakover
Land Form	Stony undulating plains and slopes
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia* (Priority 3), *Goodenia* sp. East Pilbara
Introduced (Weed) Species	None
Vegetation Condition	Excellent
Disturbances	None
Average Fire Age	Very Old (>10 years)
Characteristics	*Eucalyptus xerothermica* is distinctive

Vegetation Structure & Floristics	
Trees <10m	*Eucalyptus xerothermica, Corymbia hamersleyana, Hakea lorea* subsp. *lorea*
Mallee	*Eucalyptus socialis* subsp. *eucentrica*
Tall Shrubs >2m	*Acacia inaequilatera, Acacia bivenosa* (wispy form), *Acacia ancistrocarpa, Acacia synchronicia, Grevillea wickhamii, Gossypium robinsonii*
Shrubs 1-2m	*Petalostylis labicheoides, Acacia pyrifolia, Acacia arida, Acacia monticola*
Shrubs <1m	*Senna artemisioides* subsp. *oligophylla*
Hummock Grasses	*Triodia wiseana, Triodia angusta, Triodia longiceps, Triodia pungens*
Tussock Grasses	*Sorghum plumosum, Themeda triandra*

Broad Floristic Formation	6j. *Triodia* Hummock Grassland
Vegetation Association	Hummock Grassland of *Triodia schinzii* over Open Tussock Grassland of *Paraneurachne muelleri*, *Eragrostis eriopoda* and *Eulalia aurea* with Low Open Woodland of *Hakea lorea* subsp. *lorea, Corymbia aspera* and *Corymbia hamersleyana* on stony sandplains with red sand

Area Mapped	1.83 ha
Quadrats Sampled	MC40, JM237
Location	Map 8
Leaf Litter Cover (%)	2
Bare Ground (%)	13
Soils and Geology	Mixed dolerite, ironstone and chert scattered cobbles and pebbles with red sand
Land System	River
Land Form	Stony sandplain
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Cenchrus ciliaris*
Vegetation Condition	Very Good
Disturbances	Weeds, cattle, access tracks, mining camp nearby, power line
Average Fire Age	Moderate (2-5 years)
Characteristics	*Triodia schinzii* and tussocks with *Hakea lorea* subsp. *lorea, Corymbia aspera* and *Corymbia hamersleyana*
Vegetation Structure & Floristics	
Trees <10m	*Hakea lorea* subsp. *lorea, Corymbia aspera, Corymbia hamersleyana, Acacia pruinocarpa*
Tall Shrubs >2m	*Acacia dictyophleba, Senna artemisioides* subsp. *filiformis*
Shrubs <1m	*Sida fibulifera*
Hummock Grasses	*Triodia schinzii*
Tussock Grasses	*Paraneurachne muelleri, Eragrostis eriopoda, Eulalia aurea, Aristida holathera* var. *holathera*

Broad Floristic Formation	7. **Cenchrus* Tussock Grassland
Vegetation Association	Tussock Grassland of **Cenchrus ciliaris, Themeda triandra* and *Bothriochloa ewartiana* with Open Woodland of *Eucalyptus victrix* and *Eucalyptus camaldulensis* and Very Open Hummock Grassland of *Triodia pungens* on floodplains and levee banks of major drainage line with brown sandy loam

Area Mapped	41.97
Quadrats Sampled	MC33, JM147, JM148
Location	Map 8
Leaf Litter Cover (%)	<1
Bare Ground (%)	15
Soils and Geology	Brown sandy loam
Land System	Robe, McKay, River
Land Form	Floodplain/levee bank (undulating)
Priority Ecological Community	No
Rare Flora	*Rostellularia adscendens* var. *latifolia*
Introduced (Weed) Species	**Cenchrus ciliaris, *Aerva javanica, *Sigesbeckia orientalis, *Setaria verticillata, *Acetosa vesicaria, *Malvastrum americanum, *Citrullus colocynthis, *Vachellia farnesiana*
Vegetation Condition	Good
Disturbances	Weeds dominant, mining nearby, rail, access tracks, cattle
Average Fire Age	Old
Characteristics	Dominated by weeds, particularly **Cenchrus ciliaris* tussocks.

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix*
Trees <10m	*Acacia ampliceps, Atalaya hemiglauca, Acacia coriacea* subsp. *pendens, Hakea lorea* subsp. *lorea*
Tall Shrubs >2m	**Vachellia farnesiana, Gossypium robinsonii, Stylobasium spathulatum, Acacia tumida* var. *pilbarensis*
Shrubs 1-2m	*Acacia pyrifolia*
Shrubs <1m	*Corchorus crozophorifolius*
Hummock Grasses	*Triodia pungens*
Tussock Grasses	**Cenchrus ciliaris, Themeda triandra, Bothriochloa ewartiana*

Broad Floristic Formation	8. *Eulalia* Tussock Grassland
Vegetation Association	Tussock Grassland of *Eulalia aurea, Themeda triandra* and *Eriachne tenuiculmis* with High Shrubland of *Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* and Open Woodland of *Eucalyptus victrix* on floodplains with brown sandy loam

Area Mapped	5.84 ha
Quadrats Sampled	MC32, JM211, JM199
Location	Map 8
Leaf Litter Cover (%)	2
Bare Ground (%)	10
Soils and Geology	Ironstone/dolerite pebbles and cobbles with brown sandy loam
Land System	Boolgeeda
Land Form	Floodplain/drainage zone
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Cenchrus ciliaris, *Malvastrum americanum, *Setaria verticillata, *Bidens bipinnata*
Vegetation Condition	Very Good
Disturbances	Cattle, weeds
Average Fire Age	Young (1-2 years)
Characteristics	*Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* floodplain
Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix*
Tall Shrubs >2m	*Acacia tumida* var. *pilbarensis, Gossypium robinsonii*
Shrubs 1-2m	*Sida* sp. Spiciform panicles
Hummock Grasses	*Triodia pungens*
Tussock Grasses	*Eulalia aurea, Themeda triandra, Eriachne tenuiculmis*
Herbs	*Rhynchosia minima*

Broad Floristic Formation	9. *Themeda* Tussock Grassland
Vegetation Association	Tussock Grassland of *Themeda triandra, Eulalia aurea* and *Aristida inaequiglumis* with Open Woodland of *Eucalyptus* and *victrix* and *Corymbia aspera* and High Open Shrubland of *Gossypium robinsonii, Eremophila longifolia* and *Atalaya hemiglauca* on plains with brown sandy loam

Area Mapped	7.30 ha
Quadrats Sampled	MC38, JM231
Location	Map 7
Leaf Litter Cover (%)	5
Bare Ground (%)	6
Soils and Geology	Brown clay loam
Land System	River
Land Form	Plain
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Malvastrum americanum, *Sigesbeckia orientalis*
Vegetation Condition	Very Good
Disturbances	Weeds, access tracks, cleared areas nearby
Average Fire Age	Moderate (2-5 years)
Characteristics	Open Woodland of *Eucalyptus victrix* and *Corymbia aspera* with Tussocks
Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus victrix, Eucalyptus camaldulensis, Corymbia aspera*
Tall Shrubs >2m	*Gossypium robinsonii, Eremophila longifolia, Atalaya hemiglauca*
Shrubs 1-2m	*Gossypium australe*
Hummock Grasses	*Triodia pungens*
Tussock Grasses	*Themeda triandra, Eulalia aurea, Aristida inaequiglumis, Eriachne tenuiculmis*
Herbs	**Malvastrum americanum, Goodenia stellata*

Broad Floristic Formation	10. *Sorghum* Tussock Grassland
Vegetation Association	Tussock Grassland of *Sorghum plumosum, Eriachne tenuiculmis* and *Themeda triandra* with Low Open Woodland of *Eucalyptus victrix, Eucalyptus camaldulensis* and *Acacia coriacea* subsp. *pendens* and High Open Shrubland of *Grevillea pyramidalis* subsp. *leucadendron, Gossypium robinsonii* and *Acacia pyrifolia* on levee banks of major drainage line with brown silty loam

Area Mapped	11.87 ha
Quadrats Sampled	MC28, JM54, JM186
Location	Map 2
Leaf Litter Cover (%)	10
Bare Ground (%)	18
Soils and Geology	Dolerite boulders and gravels with brown silty loam
Land System	Robe, McKay
Land Form	Levee banks of major drainage line
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	None
Vegetation Condition	Very Good
Disturbances	Weeds, livestock
Average Fire Age	Old
Characteristics	Tussock Grassland of *Sorghum plumosum* and other species and the presence of *Grevillea pyramidalis* are characteristic.

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Eucalyptus victrix*
Trees <10m	*Eucalyptus camaldulensis, Eucalyptus victrix, Acacia coriacea* subsp. *pendens, Atalaya hemiglauca, Acacia ampliceps*
Tall Shrubs >2m	*Grevillea pyramidalis* subsp. *leucadendron, Gossypium robinsonii, Acacia pyrifolia, Acacia ancistrocarpa, Acacia tetragonophylla, Petalostylis labicheoides, Grevillea wickhamii*
Shrubs <1m	*Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks, *Eremophila fraseri, Corchorus lasiocarpus* subsp. *lasiocarpus*
Hummock Grasses	*Triodia pungens, Triodia wiseana, Triodia longiceps*
Tussock Grasses	*Sorghum plumosum, Eriachne tenuiculmis, Themeda triandra, Enneapogon robustissimus, Enneapogon lindleyanus*

Broad Floristic Formation	11. *Potamogeton* Open Herbs
Vegetation Association	Open Herbs of *Potamogeton tricarinatus* with Open Woodland of *Eucalyptus camaldulensis* and Very Open Sedges of *Typha domingensis*, *Schoenoplectus subulatus* and *Cyperus vaginatus* on dolerite platforms of major drainage line with brown light clay

Area Mapped	23.16ha
Quadrats Sampled	MC04, JWM6, JM50
Location	Map 2
Leaf Litter Cover (%)	<1
Bare Ground (%)	75
Soils and Geology	Dolerite rock platform with brown light clay
Land System	Robe, Platform, McKay, River
Land Form	Bed of major drainage line with large pools
Priority Ecological Community	No
Rare Flora	None
Introduced (Weed) Species	**Cenchrus ciliaris, *Malvastrum americanum, *Sonchus oleraceus*
Vegetation Condition	Very Good
Disturbances	Weeds, mining nearby, flooding, cattle
Average Fire Age	Old
Characteristics	Open rock platforms with pools and dominated by water herb vegetation

Vegetation Structure & Floristics	
Trees 10-30m	*Eucalyptus camaldulensis, Melaleuca argentea*
Trees <10m	*Eucalyptus camaldulensis, Acacia coriacea* subsp. *pendens*
Tall Shrubs >2m	*Melaleuca glomerata*
Hummock Grasses	*Triodia longiceps*
Tussock Grasses	*Bothriochloa ewartiana, Eragrostis tenellula, Leptochloa fusca* subsp. *fusca, Eriachne tenuiculmis, Sorghum plumosum, Eulalia aurea*
Sedges	*Typha domingensis, Cyperus vaginatus, Schoenoplectus subulatus*
Herbs	*Ammania sp., Pluchea rubelliflora, Phyllanthus maderaspatensis*
Water herbs	*Potamogeton tricarinatus*

3.8 Vegetation Condition

Vegetation condition within the study area ranged from *excellent* to *degraded* with the majority of the study area rated as *very good* (722 ha or 70 percent) (Table 11, Figure 11).

The western sector of the study area supported localised areas where vegetation condition was rated as *excellent,* with few introduced weed species, no access tracks, and no evidence of tree decline.

Adjacent to the open cut mine, vegetation condition was rated as *good,* with a relatively high loading of introduced weeds. Weeds were prevalent along large sections of Marillana Creek, particularly where there was access to or across the creekline.

Tree decline and death was noted for *Melaleuca argentea* (and to a lesser extent *Eucalyptus camaldulensis*) trees within the main drainage channel extending east from Flat Rocks Road. The condition of vegetation on either side of Flat Rocks Road was rated as *degraded* with large numbers of dead trees and an understorey dominated by weeds.

Table 11: Vegetation condition within the study area.

Condition Score	Hectares	% Total
Cleared	44.97	4.38
Degraded	7.21	0.70
Good	61.86	6.02
Very Good	722.09	70.26
Very Good-Excellent	58.72	5.71
Excellent	39.44	3.84
Not surveyed	93.44	9.09
Grand Total	1,027.74	100.00

699000 702000 705000 708000 711000 714000 717000 720000 723000 726000

7491000 7488000 7485000 7482000 7479000 7476000

Hamersley Iron Railway

Marillana Creek

Cleared

Cleared

Cleared

Marillana Creek

Cleared

699000 702000 705000 708000 711000 714000 717000 720000 723000 726000

ON SHORE ENVIRONMENTAL CONSULTANTS

ON SHORE ENVIRONMENTAL CONSULTANTS		Date:	28/07/2015
Sheet Size:	A3	Status:	Final
Drawn by: GSM	Requested by: DB	GSM Reference: Marillana Creek Riparian Vegetation Cond	

N

0 1 2 3 4

Kilometers
1:75,000

Datum: GDA94
Projection: MGA Zone 50

FIGURE 11

Vegetation condition within the study area

Legend

- Marillana Creek Riparian Study Area
- **Vegetation Condition**
- Not Surveyed
- Cleared
- Degraded
- Good
- Very Good
- Very Good- Excellent
- Excellent

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4.0 RESULTS: Vegetation Monitoring

4.1 Plant Biodiversity Parameters

The assessment of plant biodiversity parameters along five permanent belt transects within the main drainage channel of Marillana Creek provides baseline data against which future assessments can be directly compared to quantify change.

The June 2015 assessment recorded a total number of 70 plant taxa along the five belt transects (100 m^2), including 59 natives and eleven introduced weed species. Species richness for individual transects ranged from 15 to 39 taxa, i.e. per 20 m^2 (Table 12). Perennial plant density averaged 2.88 plants m^{-2} (2,880 per ha equivalent) along the five transects, ranging from 1.05 to 5.35 plants m^{-2}. Mean percentage cover was 82.4 percent, with transects ranging from 57.3 percent to 110.5 percent (Table 12), reflecting differences in vegetation structure. The dominant plant taxa recorded were *Phyllanthus maderaspatensis, Acacia coriacea* subsp. *pendens, Eucalyptus camaldulensis and Glycine canescens.* The mean Shannon-Wiener (H) and Evenness (J) values were 1.92 and 0.66 respectively.

Table 12 Species diversity and evenness indices for five monitoring transects at Marillana Creek.

Transect	Species Richness	Perennial Plant Density (no./m^2)	% Cover	SW-Diversity (H)	Evenness (J)
MM1	22	1.05	67.38	1.34	0.75
MM2	39	5.35	57.33	2.30	0.63
MM3	15	1.10	110.53	2.03	0.75
MM4	34	3.65	91.45	1.93	0.55
MM5	22	3.25	85.25	1.99	0.65
Mean	26	2.88	82.39	1.92	0.66

4.2 Tree Plots

All tree species occurring within the five 20 m by 20 m plots along the main drainage channel of Marillana Creek were assessed. There were seven tree species recorded; *Acacia citrinoviridis, Acacia coriacea* subsp. *pendens, Acacia ampliceps, Eucalyptus camaldulensis, Eucalyptus victrix* and *Melaleuca argentea.* The number of trees, average height, stem circumference and tree health for each of the sites is presented in Table 13.

Tree density for the five plots ranged from 175 to 875 trees per hectare, averaging 415 trees per hectare. *Melaleuca argentea, Acacia coriacea* subsp. *pendens* and *Atalaya hemiglauca* were present at all five sites, while *Acacia citrinoviridis* and *Acacia ampliceps* were present at one site. The largest tree in terms of both height and circumference was *Eucalyptus camaldulensis* (Site MM3). *Melaleuca argentea* was largest tree recorded at Site MM4.

Tree health was rated as *excellent* (score 5) for the majority of trees assessed within the five plots. *Acacia coriacea* subsp. *pendens* was rated as *excellent* at three of five sites (the exception being Sites MM3 and MM4). Tree health for

Melaleuca argentea declined at Sites MM1 and MM5. However, lower health scores for *Melaleuca argentea* trees at Site MM5 were primarily caused by flood damage to younger trees. Tree health for scattered *Acacia citrinoviridis* trees was lower (rated 3 and 4) at Sites MM3 and MM4. Only one *Eucalyptus victrix* tree was recorded. It occurred at site MM1 and was given a score of 4. *Eucalyptus camaldulensis* was in *excellent* condition at Sites MM1 and MM3, with some trees showing decline at Sites MM4 and MM5. One tree at Site MM4 could not be identified to species level[4] and was given a score of 4.

Table 13 Summarised data for tree species recorded from five 20m by 20m plots established along Marillana Creek at June 2015.

Species	Site	Tree Count	Mean Tree Height (m)	Mean Tree Health (1-5)	Mean Stem Circum. (cm)
Acacia coriacea subsp. *pendens*	MM1	2	8.5	5.0	45.2
Atalaya hemiglauca	MM1	2	3.8	5.0	15.0
Eucalyptus camaldulensis	MM1	1	11.0	5.0	101.0
Eucalyptus victrix	MM1	1	14.0	4.0	285.0
Melaleuca argentea	MM1	2	13.5	4.5	278.5
Acacia citrinoviridis	MM2	1	5.0	5.0	20.0
Acacia coriacea subsp. *pendens*	MM2	2	6.0	5.0	47.0
Atalaya hemiglauca	MM2	1	6.0	5.0	4.5
Melaleuca argentea	MM2	3	11.0	5.0	196.3
Acacia ampliceps	MM3	1	8.0	4.0	25.0
Acacia coriacea subsp. *pendens*	MM3	7	5.1	4.6	42.3
Atalaya hemiglauca	MM3	3	5.0	5.0	68.3
Eucalyptus camaldulensis	MM3	1	25.0	5.0	342.0
Melaleuca argentea	MM3	7	7.7	5.0	76.6
Acacia coriacea subsp. *pendens*	MM4	5	5.3	4.6	34.8
Atalaya hemiglauca	MM4	3	5.5	5.0	22.3
Eucalyptus camaldulensis	MM4	3	18.7	4.7	171.3
Eucalyptus camaldulensis/victrix[4]	MM4	2	13.0	4.0	67.5
Melaleuca argentea	MM4	1	22.0	5.0	298.0
Acacia coriacea subsp. *pendens*	MM5	5	6.8	5.0	34.2
Atalaya hemiglauca	MM5	4	6.0	4.5	26.5
Eucalyptus camaldulensis	MM5	4	17.0	4.5	200.8
Melaleuca argentea	MM5	22	8.9	3.8	30.4

[4] This species could not be identified to species level.

5.0 SUMMARY

Onshore Environmental completed a Level 2 flora and vegetation survey of riparian vegetation along a 32 km stretch of Marillana Creek situated to the south of BHP Billiton Iron Ore's Marillana (Yandi) Mine. The survey was completed between the 8th and 19th June 2015. In addition to the baseline survey, permanent monitoring sites were established along the main drainage channel. Plant biodiversity parameters were quantitatively assessed along belt transects, and trees were monitored within permanent plots. The baseline monitoring data will allow for accurate determination of any change in flora and vegetation values over time.

Level 2 Flora and Vegetation Assessment

A total number of 399 plant taxa (including varieties and subspecies) from 58 families and 186 genera were recorded from the study area at June 2015. There were no plant taxa gazetted as Threatened Flora pursuant to subsection (2) of section 23F of the WC Act, or listed under the EPBC Act recorded from the study area. Six Priority flora taxa as defined by DPaW were recorded from the study area; *Amaranthus centralis* (Priority 3), *Aristida lazaridis* (Priority 2), *Goodenia nuda* (Priority 4), *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (Priority 3), *Ipomoea racemigera* (Priority 2) and *Rostellularia adscendens* var. *latifolia* (Priority 3). There were 22 introduced (weed) species recorded from the study area. None of these taxa are listed as a Declared Pest under the BAM Act.

A total of 22 vegetation associations were described and mapped from the study area. None of the vegetation associations had any affiliation with Federal or State listed TECs, or State listed PECs. Vegetation condition ranged from *excellent* to *degraded,* with seventy percent of the study area rated as *very good.*

Riparian Vegetation Monitoring

A total of 70 plant taxa, including 59 natives and 11 introduced weed species, was recorded along the five 20 m by 1 m belt transects established along the main drainage channel of Marillana Creek. Species richness for individual transects ranged from 15 to 39 taxa. Perennial plant density averaged 2.88 plants m^{-2} (2,880 per ha equivalent) and mean ground cover was 82.4 percent.

A total of seven tree species were recorded within the five 20 m by 20 m assessment plots; *Acacia citrinoviridis, Eucalyptus camaldulensis, Eucalyptus victrix, Melaleuca argentea, Acacia coriacea* subsp. *coriacea, Atalaya hemiglauca* and *Acacia ampliceps.* Tree density ranged from 175 to 875 trees per hectare, averaging 415 trees per hectare. Mean tree health scores for all five plots generally reflected a healthy canopy, with the lower rating for *Melaleuca argentea* at Site MM5 caused by flood damage to younger trees.

6.0 STUDY TEAM

The Level 2 flora and vegetation survey and monitoring program was planned, co-ordinated and executed by the following personnel:

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APPENDIX 1

Vegetation Classifications for the Pilbara based on Specht (1970), as modified by Aplin (1979) and Trudgen (2009)

Height Class	Canopy Cover				
	100 - 70%	70 - 30%	30 - 10%	10 - 2%	< 2%
Trees > 30 m	High Closed Forest	High Open Forest	High Woodland	High Open Woodland	Scattered Tall Trees
Trees 10-30m	Closed Forest	Open Forest	Woodland	Open Woodland	Scattered Trees
Trees < 10 m	Low Closed Woodland	Low Open Forest	Low Woodland	Low Open Woodland	Scattered Low Trees
Mallee	Closed Mallee	Mallee	Open Mallee	Very Open Mallee	Scattered Mallees
Shrubs > 2 m	Closed Scrub	Open Scrub	High Shrubland	High Open Shrubland	Scattered Tall Shrubs
Shrubs 1-2 m	Closed Heath	Open Heath	Shrubland	Open Shrubland	Scattered Shrubs
Shrubs < 1 m	Low Closed Heath	Low Open Heath	Low Shrubland	Low Open Shrubland	Low Scattered Shrubs
Hummock Grass	Closed Hummock Grassland	Hummock Grassland	Open Hummock Grassland	Very Open Hummock Grassland	Scattered Hummock Grass
Tussock Grass	Closed Tussock Grassland	Tussock Grassland	Open Tussock Grassland	Very Open Tussock Grassland	Scattered Tussock Grass
Bunch Grass	Closed Bunch Grassland	Bunch Grassland	Open Bunch Grassland	Very Open Bunch Grassland	Scattered Bunch Grass
Sedges	Closed Sedges	Sedges	Open Sedges	Very Open Sedges	Scattered Sedges
Herbs	Closed Herbs	Herbs	Open Herbs	Very Open Herbs	Scattered Herbs

Source: S. Van Leeuwen (DPaW)

APPENDIX 2

Vegetation condition scale (as developed by Keighery 1994)

Condition	Code	Description
Pristine	1	Pristine or nearly so, no obvious signs of disturbance.
Excellent	2	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	3	Vegetation structure altered; obvious signs of disturbance.
Good	4	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it.
Degraded	5	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching Very Good condition without intensive management.
Completely Degraded	6	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

APPENDIX 3

Conservation categories for flora described under the EPBC Act

Category	Description
Extinct	A species is extinct if there is no reasonable doubt that the last member of the species has died.
Extinct in the Wild	A species is categorised as extinct in the wild if it is only known to survive in cultivations, in captivity, or as a naturalised population well outside its past range; or if it has not been recorded in its known/expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically Endangered	The species is facing an extremely high risk of extinction in the wild and in the immediate future.
Endangered	The species is likely to become extinct unless the circumstances and factors threatening its abundance, survival, or evolutionary development cease to operate; or its numbers have been reduced to such a critical level, or its habitats have been so drastically reduced, that it is in immediate danger of extinction.
Vulnerable	Within the next 25 years, the species is likely to become endangered unless the circumstances and factors threatening its abundance, survival or evolutionary development cease to operate.
Conservation Dependent	The species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

APPENDIX 4

Conservation Codes for Western Australian Flora

T: Threatened (Declared Rare) Flora - Extant Taxa

Taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.

1: Priority One - Poorly Known Taxa

Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

2: Priority Two - Poorly Known Taxa

Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

3: Priority Three - Poorly Known Taxa

Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

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

(a) **Rare.** Taxa 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 taxa are usually represented on conservation lands.
(b) **Near Threatened**. Taxa 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) Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

5: Priority Five - Conservation Dependent taxa

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

APPENDIX 5

Total flora list from the study area

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Acanthaceae	*Dicladanthera*	*forrestii*		
Acanthaceae	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*
Acanthaceae	*Rostellularia*	*adscendens*	var.	*latifolia*
Aizoaceae	*Trianthema*	*pilosum*		
Amaranthaceae	*Achyranthes*	*aspera*		
Amaranthaceae	**Aerva*	*javanica*		
Amaranthaceae	*Alternanthera*	*nana*		
Amaranthaceae	*Alternanthera*	*nodiflora*		
Amaranthaceae	*Amaranthus*	*centralis*		
Amaranthaceae	*Amaranthus*	*cuspidifolius*		
Amaranthaceae	*Amaranthus*	*undulatus*		
Amaranthaceae	*Gomphrena*	*canescens*		
Amaranthaceae	*Gomphrena*	*cunninghamii*		
Amaranthaceae	*Ptilotus*	*aervoides*		
Amaranthaceae	*Ptilotus*	*astrolasius*		
Amaranthaceae	*Ptilotus*	*auriculifolius*		
Amaranthaceae	*Ptilotus*	*calostachyus*		
Amaranthaceae	*Ptilotus*	*carinatus*		
Amaranthaceae	*Ptilotus*	*clementii*		
Amaranthaceae	*Ptilotus*	*fusiformis*		
Amaranthaceae	*Ptilotus*	*gomphrenoides*	var.	*gomphrenoides*
Amaranthaceae	*Ptilotus*	*nobilis*		
Amaranthaceae	*Ptilotus*	*obovatus*	var.	*obovatus*
Amaranthaceae	*Ptilotus*	*polystachyus*		
Amaranthaceae	*Ptilotus*	*rotundifolius*		
Amaranthaceae	*Ptilotus*	*fusiformis*		
Apocynaceae	*Rhyncharrhena*	*linearis*		
Apocynaceae	*Sarcostemma*	*viminale*	subsp.	*australe*
Araliaceae	*Trachymene*	*oleracea*	subsp.	*oleracea*

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Asteraceae	**Bidens*	*bipinnata*		
Asteraceae	*Calotis*	*hispidula*		
Asteraceae	*Calotis*	*plumulifera*		
Asteraceae	*Centipeda*	*minima*	subsp.	*macrocephala*
Asteraceae	*Chrysocephalum*	*apiculatum*		
Asteraceae	**Conyza*	*bonariensis*		
Asteraceae	**Flaveria*	*trinervia*		
Asteraceae	*Helichrysum*	*luteoalbum*		
Asteraceae	*Ixiochlamys*	*cuneifolia*		
Asteraceae	*Peripleura*	*arida*		
Asteraceae	*Peripleura*	*obovata*		
Asteraceae	*Pluchea*	*dentex*		
Asteraceae	*Pluchea*	*dunlopii*		
Asteraceae	*Pluchea*	*ferdinandi-muelleri*		
Asteraceae	*Pluchea*	*rubelliflora*		
Asteraceae	*Pluchea*	*tetranthera*		
Asteraceae	*Pluchea*		sp.	indet
Asteraceae	*Pterocaulon*	*serrulatum*		
Asteraceae	*Pterocaulon*	*sphacelatum*		
Asteraceae	*Pterocaulon*	*sphaeranthoides*		
Asteraceae	*Pterocaulon*	*serrulatum*		
Asteraceae	*Senecio*	*magnificus*		
Asteraceae	**Sigesbeckia*	*orientalis*		
Asteraceae	**Sonchus*	*oleraceus*		
Asteraceae	*Streptoglossa*	*bubakii*		
Asteraceae	*Streptoglossa*	*decurrens*		
Asteraceae	**Tridax*	*procumbens*		
Asteraceae	*Vittadinia*	*dissecta*	var.	*hirta*
Boraginaceae	*Ehretia*	*saligna*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Boraginaceae	*Halgania*	*erecta*		
Boraginaceae	*Heliotropium*	*chrysocarpum*		
Boraginaceae	*Heliotropium*	*cunninghamii*		
Boraginaceae	*Heliotropium*	*inexplicitum*		
Boraginaceae	*Heliotropium*	*pachyphyllum*		
Boraginaceae	*Heliotropium*	*tenuifolium*		
Boraginaceae	*Trichodesma*	*zeylanicum*	var.	*zeylanicum*
Brassicaceae	*Lepidium*	*muelleri-ferdinandii*		
Brassicaceae	*Lepidium*	*oxytrichum*		
Brassicaceae	*Lepidium*	*pedicellosum*		
Brassicaceae	*Lepidium*	*phlebopetalum*		
Brassicaceae	**Sisymbrium*	*orientale*		
Campanulaceae	*Wahlenbergia*	*tumidifructa*		
Capparaceae	*Capparis*	*lasiantha*		
Capparaceae	*Capparis*	*spinosa*	var.	*nummularia*
Caryophyllaceae	*Polycarpaea*	*corymbosa*		
Caryophyllaceae	*Polycarpaea*	*holtzei*		
Caryophyllaceae	*Polycarpaea*	*longiflora*		
Celastraceae	*Stackhousia*	*intermedia*		
Characeae	*Characeae*		sp.	
Chenopodiaceae	*Dysphania*	*kalpari*		
Chenopodiaceae	*Dysphania*	*melanocarpa*	forma	*melanocarpa*
Chenopodiaceae	*Dysphania*	*rhadinostachya*	subsp.	*rhadinostachya*
Chenopodiaceae	*Enchylaena*	*tomentosa*	var.	*tomentosa*
Chenopodiaceae	*Maireana*	*villosa*		
Chenopodiaceae	*Rhagodia*	*eremaea*		
Chenopodiaceae	*Salsola*	*australis*		
Chenopodiaceae	*Sclerolaena*	*cornishiana*		
Cleomaceae	*Cleome*	*viscosa*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Convolvulaceae	*Bonamia*	*erecta*		
Convolvulaceae	*Bonamia*	*media*		
Convolvulaceae	*Bonamia*	*pilbarensis*		
Convolvulaceae	*Convolvulus*	*angustissimus*		
Convolvulaceae	*Convolvulus*	*clementii*		
Convolvulaceae	*Duperreya*	*commixta*		
Convolvulaceae	*Evolvulus*	*alsinoides*	var.	*decumbens*
Convolvulaceae	*Evolvulus*	*alsinoides*	var.	*villosicalyx*
Convolvulaceae	*Ipomoea*	*muelleri*		
Convolvulaceae	*Ipomoea*	*polymorpha*		
Convolvulaceae	*Isotropis*	*atropurpurea*		
Convolvulaceae	*Isotropis*	*forrestii*		
Convolvulaceae	*Polymeria*	*ambigua*		
Convolvulaceae	*Ipomoea*	*racemigera*		
Cucurbitaceae	**Citrullus*	*colocynthis*		
Cucurbitaceae	*Cucumis*	*maderaspatanus*		
Cucurbitaceae	*Cucumis*	*variabilis*		
Cyperaceae	*Bulbostylis*	*barbata*		
Cyperaceae	*Cyperus*	*bifax*		
Cyperaceae	*Cyperus*	*bulbosus*		
Cyperaceae	*Cyperus*	*cunninghamii*	subsp.	*cunninghamii*
Cyperaceae	*Cyperus*	*difformis*		
Cyperaceae	*Cyperus*	*iria*		
Cyperaceae	*Cyperus*	*ixiocarpus*		
Cyperaceae	*Cyperus*	*squarrosus*		
Cyperaceae	*Cyperus*	*vaginatus*		
Cyperaceae	*Eleocharis*	*atropurpurea*		
Cyperaceae	*Eleocharis*	*geniculata*		
Cyperaceae	*Fimbristylis*	*dichotoma*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Cyperaceae	*Fimbristylis*	*littorilis*		
Cyperaceae	*Fimbristylis*	*microcarya*		
Cyperaceae	*Fuirena*	*ciliaris*		
Cyperaceae	*Lipocarpha*	*microcephala*		
Cyperaceae	*Schoenoplectus*	*laevis*		
Cyperaceae	*Schoenoplectus*	*subulatus*		
Elatinaceae	*Bergia*	*ammanioides*		
Elatinaceae	*Bergia*	*pedicellaris*		
Elatinaceae	*Bergia*	*trimera*		
Euphorbiaceae	*Adriana*	*tomentosa*	var.	*tomentosa*
Euphorbiaceae	*Euphorbia*	*australis*	subsp.	*subtomentosa*
Euphorbiaceae	*Euphorbia*	*biconvexa*		
Euphorbiaceae	*Euphorbia*	*coghlanii*		
Euphorbiaceae	*Euphorbia*	*tannensis*	subsp.	*eremophila*
Euphorbiaceae	*Euphorbia*	*trigonosperma*		
Fabaceae	*Acacia*	*adoxa*	var.	*adoxa*
Fabaceae	*Acacia*	*ampliceps*		
Fabaceae	*Acacia*	*ancistrocarpa*		
Fabaceae	*Acacia*	*aneura*		
Fabaceae	*Acacia*	*aptaneura*		
Fabaceae	*Acacia*	*arida*		
Fabaceae	*Acacia*	*atkinsiana*		
Fabaceae	*Acacia*	*bivenosa*		
Fabaceae	*Acacia*	*citrinoviridis*		
Fabaceae	*Acacia*	*coriacea*	subsp.	*pendens*
Fabaceae	*Acacia*	*dictyophleba*		
Fabaceae	*Acacia*	*elachantha*		
Fabaceae	*Acacia*	*hilliana*		
Fabaceae	*Acacia*	*inaequilatera*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Fabaceae	*Acacia*	*kempeana*		
Fabaceae	*Acacia*	*maitlandii*		
Fabaceae	*Acacia*	*monticola*		
Fabaceae	*Acacia*	*pachyacra*		
Fabaceae	*Acacia*	*pruinocarpa*		
Fabaceae	*Acacia*	*pyrifolia*		
Fabaceae	*Acacia*	*sericophylla*		
Fabaceae	*Acacia*	*sibirica*		
Fabaceae	*Acacia*	*spondylophylla*		
Fabaceae	*Acacia*	*subtiliformis*		
Fabaceae	*Acacia*	*synchronicia*		
Fabaceae	*Acacia*	*tenuissima*		
Fabaceae	*Acacia*	*tetragonophylla*		
Fabaceae	*Acacia*	*tumida*	var.	*pilbarensis*
Fabaceae	*Alysicarpus*	*muelleri*		
Fabaceae	*Crotalaria*	*medicaginea*	var.	*neglecta*
Fabaceae	*Cullen*	*leucochaites*		
Fabaceae	*Glycine*	*canescens*		
Fabaceae	*Gompholobium*	*oreophilum*		
Fabaceae	*Gompholobium*		sp.	Pilbara (N.F. Norris 908)
Fabaceae	*Indigofera*	*colutea*		
Fabaceae	*Indigofera*	*linifolia*		
Fabaceae	*Indigofera*	*linnaei*		
Fabaceae	*Indigofera*	*monophylla*		
Fabaceae	*Indigofera*	*rugosa*		
Fabaceae	*Mirbelia*	*viminalis*		
Fabaceae	*Petalostylis*	*labicheoides*		
Fabaceae	*Rhynchosia*	*minima*		
Fabaceae	*Senna*	*artemisioides*	subsp.	*filifolia*

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Fabaceae	*Senna*	*artemisioides*	subsp.	*helmsii*
Fabaceae	*Senna*	*artemisioides*	subsp.	*oligophylla*
Fabaceae	*Senna*	*ferraria*		
Fabaceae	*Senna*	*glutinosa*	subsp.	*glutinosa*
Fabaceae	*Senna*	*glutinosa*	subsp.	*pruinosa*
Fabaceae	*Senna*	*glutinosa*	subsp.	*x luerssenii*
Fabaceae	*Senna*	*notabilis*		
Fabaceae	*Senna*	*venusta*		
Fabaceae	*Senna*		sp.	Meekatharra (E. Bailey 1-26)
Fabaceae	*Sesbania*	*cannabina*		
Fabaceae	*Swainsona*	*decurrens*		
Fabaceae	*Swainsona*	*kingii*		
Fabaceae	*Tephrosia*	*arenicola*		
Fabaceae	*Tephrosia*	*densa*		
Fabaceae	*Tephrosia*	*oxalidea*		
Fabaceae	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)
Fabaceae	*Tephrosia*	*viridens*		
Fabaceae	*Tephrosia*		sp.	Bungaroo Creek (M.E. Trudgen 11601)
Fabaceae	*Tephrosia*		sp.	Fortescue (A.A. Mitchell 606)
Fabaceae	*Tephrosia*		sp.	Newman (A.A. Mitchell PRP 29)
Fabaceae	*Tephrosia*		sp.	NW Eremaean (S. van Leeuwen et al. PBS 0356)
Fabaceae	**Vachellia*	*farnesiana*		
Fabaceae	*Vigna*	*lanceolata*	var.	*lanceolata*
Fabaceae	*Vigna*		sp.	Hamersley Clay (A.A. Mitchell PRP 113)
Gentianaceae	*Schenkia*	*australis*		
Goodeniaceae	*Dampiera*	*candicans*		
Goodeniaceae	*Goodenia*	*forrestii*		
Goodeniaceae	*Goodenia*	*lamprosperma*		
Goodeniaceae	*Goodenia*	*microptera*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Goodeniaceae	*Goodenia*	*muelleriana*		
Goodeniaceae	*Goodenia*	*nuda*		
Goodeniaceae	*Goodenia*	*prostrata*		
Goodeniaceae	*Goodenia*	*stellata*		
Goodeniaceae	*Goodenia*	*stobbsiana*		
Goodeniaceae	*Goodenia*	*triodiophila*		
Goodeniaceae	*Goodenia*		sp.	East Pilbara (A. A. Mitchell PRP 727)
Goodeniaceae	*Goodenia*	*prostrata*		
Goodeniaceae	*Scaevola*	*amblyanthera*	var.	*centralis*
Goodeniaceae	*Scaevola*	*browniana*	subsp.	*browniana*
Goodeniaceae	*Scaevola*	*parvifolia*	subsp.	*pilbarae*
Goodeniaceae	*Scaevola*	*spinescens*		
Gyrostemonaceae	*Codonocarpus*	*cotinifolius*		
Haloragaceae	*Haloragis*	*gossei*	var.	*gossei*
Lamiaceae	*Clerodendrum*	*floribundum*	var.	*angustifolium*
Lamiaceae	*Clerodendrum*	*tomentosum*	var.	*lanceolatum*
Lamiaceae	*Dicrastylis*	*cordifolia*		
Lauraceae	*Cassytha*	*capillaris*		
Loranthaceae	*Amyema*	*fitzgeraldii*		
Loranthaceae	*Amyema*	*hilliana*		
Loranthaceae	*Amyema*	*miquelii*		
Loranthaceae	*Lysiana*	*casuarinae*		
Lythraceae	*Ammannia*	*baccifera*		
Lythraceae	*Ammannia*	*multiflora*		
Malvaceae	*Abutilon*	*amplum*		
Malvaceae	*Abutilon*	*fraseri*		
Malvaceae	*Abutilon*	*lepidium*		
Malvaceae	*Abutilon*	*macrum*		
Malvaceae	*Abutilon*	*otocarpum*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Malvaceae	*Abutilon*		sp.	Dioicum (A.A. Mitchell PRP 1618)
Malvaceae	*Abutilon*		sp.	Pilbara (W.R. Barker 2025)
Malvaceae	*Androcalva*	*luteiflora*		
Malvaceae	*Corchorus*	*crozophorifolius*		
Malvaceae	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*
Malvaceae	*Corchorus*	*sidoides*	subsp.	*sidoides*
Malvaceae	*Corchorus*	*tridens*		
Malvaceae	*Gossypium*	*australe*		
Malvaceae	*Gossypium*	*robinsonii*		
Malvaceae	*Hibiscus*	*brachychlaenus*		
Malvaceae	*Hibiscus*	*burtonii*		
Malvaceae	*Hibiscus*	*coatesii*		
Malvaceae	*Hibiscus*	*leptocladus*		
Malvaceae	*Hibiscus*	*sturtii*	var.	*campylochlamys*
Malvaceae	*Hibiscus*	*sturtii*	var.	*platychlamys*
Malvaceae	*Keraudrenia*	*nephrosperma*		
Malvaceae	*Keraudrenia*	*velutina*	subsp.	*elliptica*
Malvaceae	**Malvastrum*	*americanum*		
Malvaceae	*Melhania*	*oblongifolia*		
Malvaceae	*Sida*	*arenicola*		
Malvaceae	*Sida*	*clementii*		
Malvaceae	*Sida*	*echinocarpa*		
Malvaceae	*Sida*	*fibulifera*		
Malvaceae	*Sida*		sp.	Articulation below (A.A. Mitchell PRP
Malvaceae	*Sida*		sp.	Pilbara (A.A. Mitchell PRP 1543)
Malvaceae	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)
Malvaceae	*Sida*		sp.	Verrucose glands (F.H. Mollemans 2423)
Malvaceae	*Triumfetta*	*chaetocarpa*		
Malvaceae	*Triumfetta*	*clementii*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Malvaceae	*Waltheria*	*indica*		
Marsileaceae	*Marsilea*	*hirsuta*		
Molluginaceae	*Mollugo*	*molluginea*		
Moraceae	*Ficus*	*brachypoda*		
Myrtaceae	*Calytrix*	*carinata*		
Myrtaceae	*Corymbia*	*aspera*		
Myrtaceae	*Corymbia*	*hamersleyana*		
Myrtaceae	*Eucalyptus*	*camaldulensis*	var.	*obtusa*
Myrtaceae	*Eucalyptus*	*gamophylla*		
Myrtaceae	*Eucalyptus*	*leucophloa*	subsp.	*leucophloia*
Myrtaceae	*Eucalyptus*	*socialis*	subsp.	*eucentrica*
Myrtaceae	*Eucalyptus*	*victrix*		
Myrtaceae	*Eucalyptus*	*xerothermica*		
Myrtaceae	*Melaleuca*	*argentea*		
Myrtaceae	*Melaleuca*	*bracteata*		
Myrtaceae	*Melaleuca*	*glomerata*		
Nyctaginaceae	*Boerhavia*	*coccinea*		
Nyctaginaceae	*Boerhavia*	*repleta*		
Oleaceae	*Jasminum*	*didymum*	subsp.	*lineare*
Orabanchaceae	*Striga*	*curviflora*		
Papaveraceae	**Argemone*	*ochroleuca*	subsp.	*ochroleuca*
Phrymaceae	*Mimulus*	*gracilis*		
Phrymaceae	*Peplidium*	*maritimum*		
Phyllanthaceae	*Notoleptopus*	*decaisnei*	var.	*orbicularis* (A.B. Craig 428)
Phyllanthaceae	*Phyllanthus*	*erwinii*		
Phyllanthaceae	*Phyllanthus*	*maderaspatensis*		
Phyllanthaceae	*Phyllanthus*	*virgatus*		
Plantaginaceae	*Stemodia*	*grossa*		
Poaceae	*Acrachne*	*racemosa*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Poaceae	*Aristida*	*contorta*		
Poaceae	*Aristida*	*holathera*	var.	*holathera*
Poaceae	*Aristida*	*inaequiglumis*		
Poaceae	*Aristida*	*lazaridis*		
Poaceae	*Bothriochloa*	*ewartiana*		
Poaceae	*Brachyachne*	*convergens*		
Poaceae	*Brachyachne*	*prostrata*		
Poaceae	**Cenchrus*	*ciliaris*		
Poaceae	**Cenchrus*	*setiger*		
Poaceae	**Chloris*	*virgata*		
Poaceae	*Chrysopogon*	*fallax*		
Poaceae	*Cymbopogon*	*ambiguus*		
Poaceae	*Cymbopogon*	*obtectus*		
Poaceae	*Cymbopogon*	*procerus*		
Poaceae	**Cynodon*	*dactylon*		
Poaceae	*Dactyloctenium*	*radulans*		
Poaceae	*Dichanthium*	*sericeum*	subsp.	*humilius*
Poaceae	*Dichanthium*	*sericeum*	subsp.	*sericeum*
Poaceae	*Digitaria*	*brownii*		
Poaceae	*Digitaria*	*ctenantha*		
Poaceae	**Echinochloa*	*colona*		
Poaceae	*Elytrophorus*	*spicatus*		
Poaceae	*Enneapogon*	*caerulescens*		
Poaceae	*Enneapogon*	*lindleyanus*		
Poaceae	*Enneapogon*	*polyphyllus*		
Poaceae	*Enneapogon*	*robustissimus*		
Poaceae	*Enteropogon*	*ramosus*		
Poaceae	*Eragrostis*	*cumingii*		
Poaceae	*Eragrostis*	*dielsii*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Poaceae	*Eragrostis*	*eriopoda*		
Poaceae	*Eragrostis*	*leptocarpa*		
Poaceae	*Eragrostis*	*tenellula*		
Poaceae	*Eragrostis*	*xerophila*		
Poaceae	*Eriachne*	*aristidea*		
Poaceae	*Eriachne*	*lanata*		
Poaceae	*Eriachne*	*mucronata*		
Poaceae	*Eriachne*	*obtusa*		
Poaceae	*Eriachne*	*pulchella*	subsp.	*dominii*
Poaceae	*Eriachne*	*tenuiculmis*		
Poaceae	*Eulalia*	*aurea*		
Poaceae	*Iseilema*	*eremaeum*		
Poaceae	*Leptochloa*	*fusca*	subsp.	*fusca*
Poaceae	*Paraneurachne*	*muelleri*		
Poaceae	*Paspalidium*	*basicladum*		
Poaceae	*Paspalidium*	*clementii*		
Poaceae	*Paspalidium*	*rarum*		
Poaceae	*Paspalidium*	*rarum*		
Poaceae	*Perotis*	*rara*		
Poaceae	*Schizachyrium*	*fragile*		
Poaceae	*Setaria*	*surgens*		
Poaceae	**Setaria*	*verticillata*		
Poaceae	*Sorghum*	*plumosum*		
Poaceae	*Sporobolus*	*australasicus*		
Poaceae	*Themeda*	*triandra*		
Poaceae	*Tragus*	*australianus*		
Poaceae	*Triodia*	*angusta*		
Poaceae	*Triodia*	*brizoides*		
Poaceae	*Triodia*	*longiceps*		

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Poaceae	*Triodia*	*pungens*		
Poaceae	*Triodia*	*schinzii*		
Poaceae	*Triodia*	*wiseana*		
Poaceae	*Triodia*		sp.	Shovelanna Hill (S. van Leeuwen 3835)
Poaceae	*Tripogon*	*loliiformis*		
Poaceae	*Triraphis*	*mollis*		
Poaceae	*Urochloa*	*piligera*		
Poaceae	*Yakirra*	*australiensis*		
Polygalaceae	*Polygala*	*glaucafloia*		
Polygonaceae	**Acetosa*	*vesicaria*		
Portulacaceae	*Portulaca*	*oleracea*		
Potamogetonaceae	*Potamogeton*	*tricarinatus*		
Primulaceae	*Samolus*	*repens*		
Proteaceae	*Grevillea*	*berryana*		
Proteaceae	*Grevillea*	*pyramidalis*	subsp.	*leucodendron*
Proteaceae	*Grevillea*	*wickhamii*	subsp.	*hispidula*
Proteaceae	*Hakea*	*chordophylla*		
Proteaceae	*Hakea*	*lorea*	subsp.	*lorea*
Pteridaceae	*Cheilanthes*	*brownii*		
Pteridaceae	*Cheilanthes*	*sieberi*	subsp.	*sieberi*
Rhamnaceae	*Ventilago*	*viminea*		
Rubiaceae	*Oldenlandia*	*crouchiana*		
Rubiaceae	*Synaptantha*	*tillaeacea*	var.	*tillaeacea*
Santalaceae	*Exocarpos*	*sparteus*		
Santalaceae	*Santalum*	*lanceolatum*		
Sapindaceae	*Atalaya*	*hemiglauca*		
Sapindaceae	*Dodonaea*	*coriacea*		
Sapindaceae	*Dodonaea*	*lanceolata*	var.	*lanceolata*
Scrophulariaceae	*Eremophila*	*forrestii*	subsp.	*forrestii*

FAMILY	GENUS	SPECIES	INFRA RANK	INFRA NAME
Scrophulariaceae	*Eremophila*	*fraseri*	subsp.	*fraseri*
Scrophulariaceae	*Eremophila*	*jucunda*	subsp.	*pulcherrima*
Scrophulariaceae	*Eremophila*	*latrobei*	subsp.	*filiformis*
Scrophulariaceae	*Eremophila*	*latrobei*	subsp.	*latrobei*
Scrophulariaceae	*Eremophila*	*longifolia*		
Scrophulariaceae	*Myoporum*	*montanum*		
Solanaceae	**Datura*	*leichhardtii*		
Solanaceae	*Nicotiana*	*benthamiana*		
Solanaceae	*Nicotiana*	*occidentalis*		
Solanaceae	*Solanum*	*horridum*		
Solanaceae	*Solanum*	*lasiophyllum*		
Solanaceae	**Solanum*	*nigrum*		
Solanaceae	*Solanum*	*phlomoides*		
Surianaceae	*Stylobasium*	*spathulatum*		
Typhaceae	*Typha*	*domingensis*		
Violaceae	*Hybanthus*	*aurantiacus*		
Zygophyllaceae	*Tribulus*	*astrocarpus*		
Zygophyllaceae	*Tribulus*	*hirsutus*		
Zygophyllaceae	*Tribulus*	*platypterus*		
Zygophyllaceae	*Tribulus*	*suberosus*		
Zygophyllaceae	**Tribulus*	*terrestris*		
Zygophyllaceae	*Zygophyllum*	*eichleri*		

APPENDIX 6

Records for significant flora recorded from the study area

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
Amaranthus	*centralis*			718849	7480472	50
Aristida	*lazaridis*			717326	7482158	50
Aristida	*lazaridis*			717407	7482083	50
Aristida	*lazaridis*			699822	7485651	50
Aristida	*lazaridis*			699792	7485655	50
Aristida	*lazaridis*			699838	7485642	50
Goodenia	*nuda*			712496	7485253	50
Goodenia	*nuda*			712496	7485253	50
Goodenia	*nuda*			713296	7485197	50
Goodenia	*nuda*			710846	7484736	50
Goodenia	*nuda*			714809	7484720	50
Goodenia	*nuda*			716249	7483193	50
Goodenia	*nuda*			717407	7482083	50
Goodenia	*nuda*			713111	7485212	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	699460	7485564	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	698507	7486178	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	698542	7486085	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	698693	7485849	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	699164	7485680	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	699184	7485729	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	698737	7485769	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	698796	7485702	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	701806	7486338	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	701846	7486357	50
Goodenia		sp.	East Pilbara (A.A. Mitchell PRP 727)	702259	7486158	50
Ipomoea	*racemigera*			719411	7479377	50
Ipomoea	*racemigera*			705931	7483910	50
Ipomoea	*racemigera*			703186	7485838	50
Ipomoea	*racemigera*			705275	7483990	50
Ipomoea	*racemigera*			707588	7483960	50
Rostellularia	*adscendens*	var.	*latifolia*	720780	7478613	50
Rostellularia	*adscendens*	var.	*latifolia*	712652	7485183	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
Rostellularia	*adscendens*	var.	*latifolia*	712613	7485119	50
Rostellularia	*adscendens*	var.	*latifolia*	712516	7485236	50
Rostellularia	*adscendens*	var.	*latifolia*	712339	7485364	50
Rostellularia	*adscendens*	var.	*latifolia*	698937	7485781	50
Rostellularia	*adscendens*	var.	*latifolia*	716848	7482623	50
Rostellularia	*adscendens*	var.	*latifolia*	716842	7482564	50
Rostellularia	*adscendens*	var.	*latifolia*	716592	7482671	50
Rostellularia	*adscendens*	var.	*latifolia*	716167	7483038	50
Rostellularia	*adscendens*	var.	*latifolia*	716224	7483028	50
Rostellularia	*adscendens*	var.	*latifolia*	719723	7479508	50
Rostellularia	*adscendens*	var.	*latifolia*	719851	7478677	50
Rostellularia	*adscendens*	var.	*latifolia*	713335	7484936	50
Rostellularia	*adscendens*	var.	*latifolia*	715928	7483229	50
Rostellularia	*adscendens*	var.	*latifolia*	715903	7483188	50
Rostellularia	*adscendens*	var.	*latifolia*	715898	7483171	50
Rostellularia	*adscendens*	var.	*latifolia*	715964	7483381	50
Rostellularia	*adscendens*	var.	*latifolia*	715984	7483147	50
Rostellularia	*adscendens*	var.	*latifolia*	716066	7483127	50
Rostellularia	*adscendens*	var.	*latifolia*	719809	7478692	50
Rostellularia	*adscendens*	var.	*latifolia*	714495	7484566	50
Rostellularia	*adscendens*	var.	*latifolia*	714809	7484720	50
Rostellularia	*adscendens*	var.	*latifolia*	719411	7479377	50
Rostellularia	*adscendens*	var.	*latifolia*	716066	7483129	50
Rostellularia	*adscendens*	var.	*latifolia*	705406	7484084	50
Rostellularia	*adscendens*	var.	*latifolia*	716181	7483162	50
Rostellularia	*adscendens*	var.	*latifolia*	719798	7478674	50
Rostellularia	*adscendens*	var.	*latifolia*	715784	7484086	50
Rostellularia	*adscendens*	var.	*latifolia*	700137	7486142	50
Rostellularia	*adscendens*	var.	*latifolia*	700086	7485932	50
Rostellularia	*adscendens*	var.	*latifolia*	700161	7485981	50
Rostellularia	*adscendens*	var.	*latifolia*	700014	7486073	50
Rostellularia	*adscendens*	var.	*latifolia*	712374	7485340	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
Rostellularia	*adscendens*	var.	*latifolia*	714433	7484598	50
Rostellularia	*adscendens*	var.	*latifolia*	714668	7484515	50
Rostellularia	*adscendens*	var.	*latifolia*	716651	7482962	50
Rostellularia	*adscendens*	var.	*latifolia*	716682	7482928	50
Rostellularia	*adscendens*	var.	*latifolia*	718444	7481376	50
Rostellularia	*adscendens*	var.	*latifolia*	702288	7486204	50
Rostellularia	*adscendens*	var.	*latifolia*	713296	7485197	50
Rostellularia	*adscendens*	var.	*latifolia*	717230	7482366	50
Rostellularia	*adscendens*	var.	*latifolia*	708038	7484061	50
Rostellularia	*adscendens*	var.	*latifolia*	708085	7484030	50
Rostellularia	*adscendens*	var.	*latifolia*	714964	7484651	50
Rostellularia	*adscendens*	var.	*latifolia*	703923	7485328	50
Rostellularia	*adscendens*	var.	*latifolia*	710835	7484750	50
Rostellularia	*adscendens*	var.	*latifolia*	713111	7485212	50
Rostellularia	*adscendens*	var.	*latifolia*	712446	7485292	50
Rostellularia	*adscendens*	var.	*latifolia*	712551	7485237	50
Rostellularia	*adscendens*	var.	*latifolia*	712811	7485091	50
Rostellularia	*adscendens*	var.	*latifolia*	705275	7483990	50
Rostellularia	*adscendens*	var.	*latifolia*	700862	7486157	50
Rostellularia	*adscendens*	var.	*latifolia*	701811	7486349	50
Rostellularia	*adscendens*	var.	*latifolia*	702217	7486231	50
Rostellularia	*adscendens*	var.	*latifolia*	702339	7486229	50
Rostellularia	*adscendens*	var.	*latifolia*	702332	7486231	50
Rostellularia	*adscendens*	var.	*latifolia*	705303	7483933	50

APPENDIX 7

Records for introduced weed species recorded from the study area

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Acetosa	vesicaria			720780	7478613	50
*Acetosa	vesicaria			712535	7485135	50
*Acetosa	vesicaria			710846	7484736	50
*Acetosa	vesicaria			718772	7480661	50
*Acetosa	vesicaria			716066	7483129	50
*Acetosa	vesicaria			714883	7484722	50
*Acetosa	vesicaria			715784	7484086	50
*Acetosa	vesicaria			715884	7483790	50
*Acetosa	vesicaria			712374	7485340	50
*Acetosa	vesicaria			712042	7485561	50
*Acetosa	vesicaria			715959	7484055	50
*Acetosa	vesicaria			715956	7483557	50
*Acetosa	vesicaria			712446	7485292	50
*Acetosa	vesicaria			713313	7485012	50
*Acetosa	vesicaria			719291	7480269	50
*Acetosa	vesicaria			713484	7485064	50
*Aerva	javanica			720780	7478613	50
*Aerva	javanica			712374	7485340	50
*Aerva	javanica			712535	7485135	50
*Aerva	javanica			705899	7484031	50
*Aerva	javanica			716837	7482450	50
*Aerva	javanica			714964	7484651	50
*Argemone	ochroleuca	subsp.	ochroleuca	720780	7478613	50
*Argemone	ochroleuca	subsp.	ochroleuca	714809	7484720	50
*Argemone	ochroleuca	subsp.	ochroleuca	719411	7479377	50
*Argemone	ochroleuca	subsp.	ochroleuca	705931	7483910	50
*Argemone	ochroleuca	subsp.	ochroleuca	712374	7485340	50
*Argemone	ochroleuca	subsp.	ochroleuca	707445	7484007	50
*Argemone	ochroleuca	subsp.	ochroleuca	706335	7483667	50
*Argemone	ochroleuca	subsp.	ochroleuca	721117	7478331	50
*Argemone	ochroleuca	subsp.	ochroleuca	718849	7480472	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Argemone	ochroleuca	subsp.	ochroleuca	719291	7480269	50
*Argemone	ochroleuca	subsp.	ochroleuca	713484	7485064	50
*Argemone	ochroleuca	subsp.	ochroleuca	712860	7485283	50
*Argemone	ochroleuca	subsp.	ochroleuca	712627	7485162	50
*Argemone	ochroleuca	subsp.	ochroleuca	712613	7485119	50
*Argemone	ochroleuca	subsp.	ochroleuca	712535	7485135	50
*Argemone	ochroleuca	subsp.	ochroleuca	705888	7484012	50
*Argemone	ochroleuca	subsp.	ochroleuca	720217	7478605	50
*Argemone	ochroleuca	subsp.	ochroleuca	714883	7484722	50
*Argemone	ochroleuca	subsp.	ochroleuca	705241	7484139	50
*Argemone	ochroleuca	subsp.	ochroleuca	706657	7483364	50
*Argemone	ochroleuca	subsp.	ochroleuca	707588	7483960	50
*Argemone	ochroleuca	subsp.	ochroleuca	707776	7483963	50
*Argemone	ochroleuca	subsp.	ochroleuca	719535	7479204	50
*Argemone	ochroleuca	subsp.	ochroleuca	714965	7484710	50
*Argemone	ochroleuca	subsp.	ochroleuca	715959	7484055	50
*Argemone	ochroleuca	subsp.	ochroleuca	713927	7485057	50
*Argemone	ochroleuca	subsp.	ochroleuca	714089	7485082	50
*Argemone	ochroleuca	subsp.	ochroleuca	714964	7484651	50
*Argemone	ochroleuca	subsp.	ochroleuca	715167	7484347	50
*Argemone	ochroleuca	subsp.	ochroleuca	704455	7484656	50
*Argemone	ochroleuca	subsp.	ochroleuca	719572	7479737	50
*Argemone	ochroleuca	subsp.	ochroleuca	711626	7485470	50
*Argemone	ochroleuca	subsp.	ochroleuca	713278	7485149	50
*Bidens	bipinnata			706791	7483622	50
*Bidens	bipinnata			710846	7484736	50
*Bidens	bipinnata			714495	7484566	50
*Bidens	bipinnata			719411	7479377	50
*Bidens	bipinnata			716066	7483129	50
*Bidens	bipinnata			715784	7484086	50
*Bidens	bipinnata			705931	7483910	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Bidens	*bipinnata*			712374	7485340	50
*Bidens	*bipinnata*			701378	7486111	50
*Bidens	*bipinnata*			702288	7486204	50
*Bidens	*bipinnata*			707445	7484007	50
*Bidens	*bipinnata*			706335	7483667	50
*Bidens	*bipinnata*			721117	7478331	50
*Bidens	*bipinnata*			719714	7478681	50
*Bidens	*bipinnata*			718849	7480472	50
*Bidens	*bipinnata*			719291	7480269	50
*Bidens	*bipinnata*			705275	7483990	50
*Bidens	*bipinnata*			713484	7485064	50
*Bidens	*bipinnata*			712613	7485119	50
*Bidens	*bipinnata*			712535	7485135	50
*Bidens	*bipinnata*			712339	7485364	50
*Bidens	*bipinnata*			705899	7484031	50
*Bidens	*bipinnata*			705886	7483999	50
*Bidens	*bipinnata*			702117	7486284	50
*Bidens	*bipinnata*			705012	7484059	50
*Bidens	*bipinnata*			716224	7483028	50
*Bidens	*bipinnata*			715903	7483188	50
*Bidens	*bipinnata*			715984	7483147	50
*Bidens	*bipinnata*			719809	7478692	50
*Bidens	*bipinnata*			NA	NA	50
*Bidens	*bipinnata*			714883	7484722	50
*Bidens	*bipinnata*			714231	7484837	50
*Bidens	*bipinnata*			714433	7484598	50
*Bidens	*bipinnata*			705241	7484139	50
*Bidens	*bipinnata*			707588	7483960	50
*Bidens	*bipinnata*			707776	7483963	50
*Bidens	*bipinnata*			714965	7484710	50
*Bidens	*bipinnata*			703840	7485533	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
**Bidens*	*bipinnata*			719716	7479266	50
**Bidens*	*bipinnata*			712042	7485561	50
**Bidens*	*bipinnata*			702857	7485814	50
**Bidens*	*bipinnata*			703490	7485706	50
**Bidens*	*bipinnata*			714964	7484651	50
**Bidens*	*bipinnata*			715167	7484347	50
**Bidens*	*bipinnata*			704455	7484656	50
**Bidens*	*bipinnata*			710701	7484900	50
**Bidens*	*bipinnata*			713321	7485029	50
**Bidens*	*bipinnata*			713313	7485012	50
**Cenchrus*	*ciliaris*			716683	7482884	50
**Cenchrus*	*ciliaris*			712860	7485283	50
**Cenchrus*	*ciliaris*			720780	7478613	50
**Cenchrus*	*ciliaris*			712678	7485202	50
**Cenchrus*	*ciliaris*			712627	7485162	50
**Cenchrus*	*ciliaris*			712613	7485119	50
**Cenchrus*	*ciliaris*			712535	7485135	50
**Cenchrus*	*ciliaris*			712339	7485364	50
**Cenchrus*	*ciliaris*			710846	7484736	50
**Cenchrus*	*ciliaris*			716837	7482450	50
**Cenchrus*	*ciliaris*			716695	7482583	50
**Cenchrus*	*ciliaris*			719851	7478677	50
**Cenchrus*	*ciliaris*			720217	7478605	50
**Cenchrus*	*ciliaris*			717931	7481470	50
**Cenchrus*	*ciliaris*			718772	7480661	50
**Cenchrus*	*ciliaris*			719809	7478692	50
**Cenchrus*	*ciliaris*			714495	7484566	50
**Cenchrus*	*ciliaris*			714809	7484720	50
**Cenchrus*	*ciliaris*			719411	7479377	50
**Cenchrus*	*ciliaris*			721172	7478678	50
**Cenchrus*	*ciliaris*			NA	NA	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Cenchrus	ciliaris			714687	7484681	50
*Cenchrus	ciliaris			714883	7484722	50
*Cenchrus	ciliaris			715784	7484086	50
*Cenchrus	ciliaris			705931	7483910	50
*Cenchrus	ciliaris			712374	7485340	50
*Cenchrus	ciliaris			715907	7483848	50
*Cenchrus	ciliaris			714433	7484598	50
*Cenchrus	ciliaris			717916	7481616	50
*Cenchrus	ciliaris			719535	7479204	50
*Cenchrus	ciliaris			714965	7484710	50
*Cenchrus	ciliaris			703186	7485838	50
*Cenchrus	ciliaris			717230	7482366	50
*Cenchrus	ciliaris			719716	7479266	50
*Cenchrus	ciliaris			715959	7484055	50
*Cenchrus	ciliaris			715956	7483557	50
*Cenchrus	ciliaris			707445	7484007	50
*Cenchrus	ciliaris			706335	7483667	50
*Cenchrus	ciliaris			714592	7484627	50
*Cenchrus	ciliaris			721117	7478331	50
*Cenchrus	ciliaris			715060	7484746	50
*Cenchrus	ciliaris			714964	7484651	50
*Cenchrus	ciliaris			715004	7484641	50
*Cenchrus	ciliaris			714943	7484323	50
*Cenchrus	ciliaris			715167	7484347	50
*Cenchrus	ciliaris			704455	7484656	50
*Cenchrus	ciliaris			719714	7478681	50
*Cenchrus	ciliaris			718849	7480472	50
*Cenchrus	ciliaris			711626	7485470	50
*Cenchrus	ciliaris			710701	7484900	50
*Cenchrus	ciliaris			715986	7484126	50
*Cenchrus	ciliaris			713278	7485149	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Cenchrus	ciliaris			719291	7480269	50
*Cenchrus	ciliaris			705022	7484002	50
*Cenchrus	ciliaris			713484	7485064	50
*Cenchrus	setiger			714809	7484720	50
*Cenchrus	setiger			701378	7486111	50
*Cenchrus	setiger			714943	7484323	50
*Cenchrus	setiger			710701	7484900	50
*Chloris	virgata			714495	7484566	50
*Chloris	virgata			702470	7486074	50
*Citrullus	colocynthis			720780	7478613	50
*Citrullus	colocynthis			721440	7478421	50
*Citrullus	colocynthis			713321	7485029	50
*Conyza	bonariensis			712042	7485561	50
*Cynodon	dactylon			719535	7479204	50
*Cynodon	dactylon			714965	7484710	50
*Cynodon	dactylon			712042	7485561	50
*Cynodon	dactylon			715959	7484055	50
*Cynodon	dactylon			719572	7479737	50
*Cynodon	dactylon			713278	7485149	50
*Cynodon	dactylon			719291	7480269	50
*Datura	leichhardtii			712627	7485162	50
*Datura	leichhardtii			712613	7485119	50
*Datura	leichhardtii			712535	7485135	50
*Datura	leichhardtii			714495	7484566	50
*Datura	leichhardtii			714809	7484720	50
*Datura	leichhardtii			719411	7479377	50
*Datura	leichhardtii			714712	7484699	50
*Datura	leichhardtii			714883	7484722	50
*Datura	leichhardtii			712374	7485340	50
*Datura	leichhardtii			707776	7483963	50
*Datura	leichhardtii			714964	7484651	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Datura	leichhardtii			715004	7484641	50
*Datura	leichhardtii			711626	7485470	50
*Datura	leichhardtii			713321	7485029	50
*Echinochloa	colona			702073	7486423	50
*Echinochloa	colona			702062	7486299	50
*Echinochloa	colona			702020	7486300	50
*Echinochloa	colona			705931	7483910	50
*Echinochloa	colona			701965	7486299	50
*Echinochloa	colona			701869	7486270	50
*Echinochloa	colona			702288	7486204	50
*Echinochloa	colona			714965	7484710	50
*Echinochloa	colona			703840	7485533	50
*Echinochloa	colona			712042	7485561	50
*Echinochloa	colona			715959	7484055	50
*Echinochloa	colona			706335	7483667	50
*Echinochloa	colona			704393	7484893	50
*Echinochloa	colona			719291	7480269	50
*Flaveria	trinervia			712678	7485202	50
*Flaveria	trinervia			712613	7485119	50
*Flaveria	trinervia			713296	7485197	50
*Flaveria	trinervia			705899	7484031	50
*Flaveria	trinervia			705886	7483999	50
*Flaveria	trinervia			702073	7486423	50
*Flaveria	trinervia			710846	7484736	50
*Flaveria	trinervia			714495	7484566	50
*Flaveria	trinervia			719411	7479377	50
*Flaveria	trinervia			705931	7483910	50
*Flaveria	trinervia			712374	7485340	50
*Flaveria	trinervia			714668	7484515	50
*Flaveria	trinervia			706657	7483364	50
*Flaveria	trinervia			707588	7483960	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Flaveria	trinervia			707776	7483963	50
*Flaveria	trinervia			702288	7486204	50
*Flaveria	trinervia			703186	7485838	50
*Flaveria	trinervia			715959	7484055	50
*Flaveria	trinervia			707445	7484007	50
*Flaveria	trinervia			706335	7483667	50
*Flaveria	trinervia			708038	7484061	50
*Flaveria	trinervia			704455	7484656	50
*Flaveria	trinervia			718849	7480472	50
*Flaveria	trinervia			713321	7485029	50
*Flaveria	trinervia			719291	7480269	50
*Flaveria	trinervia			713484	7485064	50
*Malvastrum	americanum			712860	7485283	50
*Malvastrum	americanum			720780	7478613	50
*Malvastrum	americanum			712627	7485162	50
*Malvastrum	americanum			712613	7485119	50
*Malvastrum	americanum			712535	7485135	50
*Malvastrum	americanum			712339	7485364	50
*Malvastrum	americanum			713296	7485197	50
*Malvastrum	americanum			705888	7484012	50
*Malvastrum	americanum			702073	7486423	50
*Malvastrum	americanum			702062	7486299	50
*Malvastrum	americanum			702020	7486300	50
*Malvastrum	americanum			710846	7484736	50
*Malvastrum	americanum			716695	7482583	50
*Malvastrum	americanum			716224	7483028	50
*Malvastrum	americanum			720217	7478605	50
*Malvastrum	americanum			711318	7485320	50
*Malvastrum	americanum			714495	7484566	50
*Malvastrum	americanum			714809	7484720	50
*Malvastrum	americanum			719411	7479377	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Malvastrum	americanum			716066	7483129	50
*Malvastrum	americanum			714712	7484699	50
*Malvastrum	americanum			714883	7484722	50
*Malvastrum	americanum			715784	7484086	50
*Malvastrum	americanum			712374	7485340	50
*Malvastrum	americanum			714433	7484598	50
*Malvastrum	americanum			714668	7484515	50
*Malvastrum	americanum			701965	7486299	50
*Malvastrum	americanum			701869	7486270	50
*Malvastrum	americanum			701794	7486218	50
*Malvastrum	americanum			717916	7481616	50
*Malvastrum	americanum			707588	7483960	50
*Malvastrum	americanum			701378	7486111	50
*Malvastrum	americanum			702288	7486204	50
*Malvastrum	americanum			714965	7484710	50
*Malvastrum	americanum			703186	7485838	50
*Malvastrum	americanum			703840	7485533	50
*Malvastrum	americanum			712042	7485561	50
*Malvastrum	americanum			715959	7484055	50
*Malvastrum	americanum			715956	7483557	50
*Malvastrum	americanum			706335	7483667	50
*Malvastrum	americanum			714592	7484627	50
*Malvastrum	americanum			714964	7484651	50
*Malvastrum	americanum			715004	7484641	50
*Malvastrum	americanum			714943	7484323	50
*Malvastrum	americanum			704455	7484656	50
*Malvastrum	americanum			719714	7478681	50
*Malvastrum	americanum			718849	7480472	50
*Malvastrum	americanum			711626	7485470	50
*Malvastrum	americanum			712446	7485292	50
*Malvastrum	americanum			713321	7485029	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Malvastrum	americanum			719291	7480269	50
*Malvastrum	americanum			705275	7483990	50
*Malvastrum	americanum			713484	7485064	50
*Setaria	verticillata			720780	7478613	50
*Setaria	verticillata			710846	7484736	50
*Setaria	verticillata			714495	7484566	50
*Setaria	verticillata			714809	7484720	50
*Setaria	verticillata			716066	7483129	50
*Setaria	verticillata			703790	7485518	50
*Setaria	verticillata			715784	7484086	50
*Setaria	verticillata			705931	7483910	50
*Setaria	verticillata			712374	7485340	50
*Setaria	verticillata			721117	7478331	50
*Setaria	verticillata			719714	7478681	50
*Setaria	verticillata			718849	7480472	50
*Setaria	verticillata			719291	7480269	50
*Setaria	verticillata			705275	7483990	50
*Setaria	verticillata			713484	7485064	50
*Setaria	verticillata			712627	7485162	50
*Setaria	verticillata			712535	7485135	50
*Setaria	verticillata			705899	7484031	50
*Setaria	verticillata			705886	7483999	50
*Setaria	verticillata			702020	7486300	50
*Setaria	verticillata			705012	7484059	50
*Setaria	verticillata			714883	7484722	50
*Setaria	verticillata			714668	7484515	50
*Setaria	verticillata			701869	7486270	50
*Setaria	verticillata			701794	7486218	50
*Setaria	verticillata			714965	7484710	50
*Setaria	verticillata			703840	7485533	50
*Setaria	verticillata			715959	7484055	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Setaria	verticillata			714964	7484651	50
*Setaria	verticillata			704455	7484656	50
*Setaria	verticillata			711626	7485470	50
*Setaria	verticillata			713278	7485149	50
*Setaria	verticillata			713321	7485029	50
*Sigesbeckia	orientalis			720780	7478613	50
*Sigesbeckia	orientalis			705886	7483999	50
*Sigesbeckia	orientalis			702062	7486299	50
*Sigesbeckia	orientalis			714883	7484722	50
*Sigesbeckia	orientalis			705931	7483910	50
*Sigesbeckia	orientalis			717916	7481616	50
*Sigesbeckia	orientalis			714965	7484710	50
*Sigesbeckia	orientalis			712042	7485561	50
*Sigesbeckia	orientalis			706335	7483667	50
*Sigesbeckia	orientalis			714964	7484651	50
*Sigesbeckia	orientalis			704455	7484656	50
*Sigesbeckia	orientalis			718849	7480472	50
*Sigesbeckia	orientalis			719291	7480269	50
*Sigesbeckia	orientalis			705275	7483990	50
*Sigesbeckia	orientalis			713484	7485064	50
*Sisymbrium	orientale			712535	7485135	50
*Sisymbrium	orientale			720217	7478605	50
*Sisymbrium	orientale			717916	7481616	50
*Solanum	nigrum			714495	7484566	50
*Solanum	nigrum			714883	7484722	50
*Solanum	nigrum			701965	7486299	50
*Solanum	nigrum			714965	7484710	50
*Solanum	nigrum			712042	7485561	50
*Solanum	nigrum			715959	7484055	50
*Solanum	nigrum			714592	7484627	50
*Solanum	nigrum			721117	7478331	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Solanum	nigrum			714964	7484651	50
*Solanum	nigrum			713321	7485029	50
*Solanum	nigrum			719291	7480269	50
*Solanum	nigrum			713484	7485064	50
*Sonchus	oleraceus			705899	7484031	50
*Sonchus	oleraceus			702160	7486294	50
*Sonchus	oleraceus			702062	7486299	50
*Sonchus	oleraceus			702020	7486300	50
*Sonchus	oleraceus			702117	7486284	50
*Sonchus	oleraceus			710846	7484736	50
*Sonchus	oleraceus			705931	7483910	50
*Sonchus	oleraceus			701965	7486299	50
*Sonchus	oleraceus			701869	7486270	50
*Sonchus	oleraceus			701378	7486111	50
*Sonchus	oleraceus			702288	7486204	50
*Sonchus	oleraceus			703186	7485838	50
*Sonchus	oleraceus			712042	7485561	50
*Sonchus	oleraceus			707445	7484007	50
*Sonchus	oleraceus			706335	7483667	50
*Sonchus	oleraceus			702813	7485818	50
*Sonchus	oleraceus			702857	7485814	50
*Sonchus	oleraceus			703490	7485706	50
*Sonchus	oleraceus			714592	7484627	50
*Sonchus	oleraceus			721117	7478331	50
*Sonchus	oleraceus			713278	7485149	50
*Sonchus	oleraceus			719291	7480269	50
*Sonchus	oleraceus			705275	7483990	50
*Sonchus	oleraceus			713484	7485064	50
*Sonchus	oleraceus			700814	7486184	50
*Tribulus	terrestris			710846	7484736	50
*Tribulus	terrestris			714809	7484720	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
*Tribulus	terrestris			719411	7479377	50
*Tribulus	terrestris			712374	7485340	50
*Tridax	procumbens			720529	7478542	50
*Tridax	procumbens			715959	7484055	50
*Tridax	procumbens			713321	7485029	50
*Tribulus	terrestris			703840	7485533	50
*Vachellia	farnesiana			720780	7478613	50
*Vachellia	farnesiana			702062	7486299	50
*Vachellia	farnesiana			702020	7486300	50
*Vachellia	farnesiana			716837	7482450	50
*Vachellia	farnesiana			717931	7481470	50
*Vachellia	farnesiana			715984	7483147	50
*Vachellia	farnesiana			718772	7480661	50
*Vachellia	farnesiana			714495	7484566	50
*Vachellia	farnesiana			714809	7484720	50
*Vachellia	farnesiana			714883	7484722	50
*Vachellia	farnesiana			699965	7485896	50
*Vachellia	farnesiana			701965	7486299	50
*Vachellia	farnesiana			702288	7486204	50
*Vachellia	farnesiana			713670	7484942	50
*Vachellia	farnesiana			719716	7479266	50
*Vachellia	farnesiana			715956	7483557	50
*Vachellia	farnesiana			702857	7485814	50
*Vachellia	farnesiana			701751	7486309	50
*Vachellia	farnesiana			713927	7485057	50
*Vachellia	farnesiana			715060	7484746	50
*Vachellia	farnesiana			715167	7484347	50
*Vachellia	farnesiana			718849	7480472	50
*Vachellia	farnesiana			713278	7485149	50
*Vachellia	farnesiana			702380	7486239	50
*Vachellia	farnesiana			719291	7480269	50

GENUS	SPECIES	INFRA RANK	INFRA NAME	EASTING_m	NORTHING_m	MGA ZONE
**Vachellia*	*farnesiana*			705275	7483990	50
**Vachellia*	*farnesiana*			705022	7484002	50
**Vachellia*	*farnesiana*			700814	7486184	50

APPENDIX 8

Site description and species composition for the 40 quadrats assessed within the study area

SITE DESCRIPTIONS

Site	Vegetation Association	Slope	Soil Type	Soil Colour
MC-01	Low Open Woodland of Eucalyptus camaldulensis, Melaleuca argentea, Acacia coriacea subsp. pendens with Scattered Trees of Eucalyptus victrix over Scattered Tall Shrubs of Melaleuca glomerata over Scattered Herbs of Ammannia baccifera, Pluchea rubelliflora	Low	Sandy Loam	Red
MC-02	Woodland of Eucalyptus camaldulensis over Low Woodland of Acacia coriacea subsp. pendens over Open Hummock Grassland of Triodia longiceps, Triodia pungens over Open Tussock Grassland of Sorghum plumosum, Themeda triandra, Eragrostis tenellula	Low	Sandy Loam	Brown
MC-03	Open Forest of Eucalyptus camaldulensis, Melaleuca argentea over Low Open Forest of Atalaya hemiglauca, Acacia coriacea subsp. pendens, Acacia ampliceps over Sedges of Typha domingensis, Cyperus vaginatus, Schoenoplectus subulatus with High Shrubland of Melaleuca glomerata, Melaleuca bracteata over Open Tussock Grassland of Themeda triandra, Eulalia aurea, Enteropogon ramosus	Flat	Light Clay	Brown
MC-04	Open Woodland of Eucalyptus camaldulensis over Very Open Sedges of Typha domingensis, Schoenoplectus subulatus, Cyperus vaginatus over Very Open Tussock Grassland of Leptochloa fusca subsp. fusca, Sorghum plumosum, Eriachne tenuiculmis and Open Herbs of Potamogeton tricarinatus	Low	Light Clay	Brown
MC-05	Hummock Grassland of Triodia wiseana with Open Shrubland of Eremophila fraseri, Senna glutinosa subsp. glutinosa, Senna artemisioides subsp. helmsii	Flat	Sandy Loam	Brown
MC-06	Hummock Grassland of Triodia pungens, Triodia longiceps over Open Tussock Grassland of *Cenchrus ciliaris, Enneapogon lindleyanus, Themeda triandra with Open Woodland of Eucalyptus camaldulensis, Eucalyptus victrix over Low Open Woodland of Acacia citrinoviridis, Acacia coriacea subsp. pendens, Atalaya hemiglauca	Flat	Sandy Loam	Brown
MC-07	Woodland of Eucalyptus camaldulensis, Eucalyptus victrix over Low Woodland of Acacia coriacea subsp. pendens, Eucalyptus (regeneration), Atalaya hemiglauca over Low Open Shrubland of Corchorus crozophorfolius, Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186) over Very Open Tussock Grassland of Cymbopogon procerus, Eriachne tenuiculmis. *Cenchrus ciliaris	Flat	Sand	Brown
MC-08	Hummock Grassland of Triodia pungens with Low Open Woodland of Eucalyptus leucophloia subsp. leucophloia, Acacia pruinocarpa over High Open Shrubland of Grevillea wickhamii, Acacia monticola	Low	Sandy Loam	Brown
MC-09	Hummock Grassland of Triodia longiceps with High Shrubland of Petalostylis labicheoides, Acacia dictyophleba, Gossypium robinsonii with Open Woodland of Eucalyptus victrix over Low Open Woodland of Eucalyptus victrix, Hakea lorea subsp. lorea, Acacia pruinocarpa	Low	Clay Loam	Brown
MC-10	Hummock Grassland of Triodia wiseana with Open Shrubland of Gossypium robinsonii over Low Open Shrubland of Solanum lasiophyllum, Grevillea wickhamii	Low	Sandy Loam	Brown

Site	Vegetation Association	Slope	Soil Type	Soil Colour
MC-11	Low Shrubland of Atalaya hemiglauca (regeneration), Pterocaulon shpacelatum, Corchorus crozophorifolius over Open Tussock Grassland of Eriachne tenuiculmis, *Cenchrus ciliaris, Enneapogon lindleyanus with Low Open Woodland of Eucalyptus victrix, Atalaya hemiglauca, Acacia coriacea subsp. pendens over Very Open Hummock Grassland of Triodia pungens, Triodia longiceps	Low	Sandy Loam	Brown
MC-12	Hummock Grassland of Triodia pungens, Triodia wiseana with Low Woodland of Acacia pruinocarpa, Corymbia hamersleyana, Acacia coriacea subsp. pendens over Shrubland of Corchorus crozophorifolius, Acacia pyrifolia	Flat	Sandy Loam	Brown
MC-13	Hummock Grassland of Triodia wiseana with Low Woodland of Eucalyptus leucophloia subsp. leucophloia, Acacia pruinocarpa over Scattered Low Shrubs of Ptilotus rotundifolius, Corchorus lasiocarpus subsp. lasiocarpus	Low	Sandy Loam	Brown
MC-14	Low Open Heath of Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186), Corchorus crozophorifolius with Scattered Trees of Eusalyptus camaldulensis, (Eucalyptus leucophloia subsp. leucophloia) over Scattered Tussock Grass of Eriachne tenuiculmis	Flat	Clay Loam	Brown
MC-15	Low Open Forest of Acacia citrinoviridis over Open Hummock Grassland of Triodia pungens over Open Tussock Grassland of Eriachne tenuiculmis, Enneapogon lindleyanus with Low Open Shrubland of Diptercanthus australasicus	Low	Loam	Brown
MC-16	Hummock Grassland of Triodia pungens, Triodia longiceps with Low Open Woodland of Corymbia hamersleyana, Hakea lorea subsp. lorea, Atalaya hemiglauca over Open Shrubland of Gosspium robinsonii over Very Open Tussock Grassland of Chrysopogon fallax. Paraneurachne muelleri, Themeda triandra	Low	Sandy Loam	Brown
MC-17	Open Forest of Eucalyptus camaldulensis, Melaleuca argentea over Low Open Forest of Acacia coriacea subsp. pendens, Melaleuca argentea, Atalaya hemiglauca over High Shrubland of Melaleuca glomerata, Atalaya hemiglauca, Melaleuca glomerata (young) over Open Sedges of Cyperus vaginatus, Typha domingensis with Very Open Tussock Grassland of Sorghum plumosum, Eulalia aurea, Themeda triandra	Low	Sandy Loam	Brown
MC-18	Hummock Grassland of Triodia wiseana with High Open Shrubland of Acacia inaequilatera, Acacia synchronicia, Acacia bivenosa 'wispy' over Low Open Shrubland of Senna artemisioides subsp. oligophylla	Low	Sandy Loam	Brown
MC-19	Hummock Grassland of Triodia angusta, Triodia wiseana with Open Mallee of Eucalyptus socialis subsp. eucentrica over High Open Shrubland of Acacia bivenosa (wispy form), Petalostylis labicheoides	Low	Silty Clay Loam	Brown
MC-20	Open Forest of Eucalyptus victrix, Eucalyptus camaldulensis over High Shrubland of Melaleuca brateata, Melaleuca glomerata with Low Open Woodland of Acacia ampliceps. Atalaya hemiglauca over Very Open Tussock Grassland of Triodia pungens	Low	Light Clay	Brown

Site	Vegetation Association	Slope	Soil Type	Soil Colour
MC-21	Closed Hummock Grassland of Triodia angusta, Triodia wiseana with Open Mallee of Eucalyptus socialis subsp. eucentrica, Eucalyptus xerothermica over High Open Shrubland of Acacia bivenosa (wispy form)	Low	Loam	Brown
MC-22	Triodia Hummock Grassland of Triodia wiseana with Low Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186) with Scattered Low Trees of Corymbia hamersleyana, Acacia pruinocarpa over Scattered High Shrubs of Acacia inaequilatera	Low	Sandy Loam	Brown
MC-23	Triodia Closed Hummock Grassland of Triodia wiseana with Low Open Woodland of Corymbia hamersleyana over Open Shrubland of Acacia arida over Low Open Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Ptilotus astrolasius, Hibiscus sturtii var. camplyochlamys	Low	Silty Loam	Brown
MC-24	Open Woodland of Eucalyptus camaldulensis, Eucalyptus victrix, (Melaleuca argentea dead) over Low Open Shrubland of Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186), Corchorus crozophorifolius over Very Open Tussock Grassland of Sorghum plumosum, Eulalia aurea, Themeda triandra	Flat	Sandy Clay Loam	Brown
MC-25	Open Woodland of Eucalyptus camaldulensis, Eucalyptus victrix, Melaleuca argentea over High Open Shrubland of Melaleuca glomerata, Myoporum montanum over Very Open Herbs of Pluchea rubelliflora, Stemodia grossa, Centipede minima subsp. macrocephala over very Open Sedges of Cyperus vaginatus, MC25.08	Low	Light Clay	Brown
MC-26	Hummock Grassland of Triodia wiseana, Triodia pungens with Low Woodland of Acacia pruinocarpa, Eucalyptus leucophloia subsp. leucophloia, Acacia coriacea subsp. pendens over Open Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Senna glutinosa subsp. luerssenii, Senna glutinosa subsp. glutinosa	Moderate	Sandy Loam	Brown
MC-27	Low Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Senna notabilis, Indigofera monophylla with High Open Shrubland of Acacia inaequilatera over Very Open Hummock Grassland of Triodia wiseana, Triodia pungens with Scattered Low Trees of Corymbia hamersleyana, Acacia aptaneura	Low	Sandy Loam	Brown
MC-28	Tussock Grassland of Sorghum plumosum, Eriachne tenuiculmis, Themeda triandra with Open Woodland of Eucalyptus camaldulensis, Eucalyptus victrix over Low Open Woodland of Eucalyptus victrix, Eucalyptus camaldulensis, Acacia coriacea subsp. pendens over High Open Shrubland of Grevillea pyramidalis subsp. leucodendron, Gossypium robinsonii, Acacia pyrifolia over Very Open Hummock Grassland of Triodia pungens, Triodia wiseana. Triodia longiceps	Low	Silty Loam	Brown
MC-29	Hummock Grassland of Triodia brizoides, Triodia wiseana with Low Open Woodland of Eucalyptus leucophloia subsp. leucophloia over Very Open Tussock Grassland of Themeda triandra, Eriachne mucronata, Eriachne lanata	Steep	Sandy Loam	Brown

Site	Vegetation Association	Slope	Soil Type	Soil Colour
MC-30	Closed Hummock Grassland of Triodia wiseana, Triodia angusta with Low Open Woodland of Eucalyptus xerothermica, Corymbia hamersleyana over Very Open Mallee of Eucalyptus socialis subsp eucentrica over High Open Shrubland of Acacia inquilatera, Acacia bivenosa 'wispy'	Low	Loam	Brown
MC-31	Hummock Grassland of Triodia pungens, Triodia longiceps with Low Open Woodland of Eucalyptus victrix, Corymbia aspera, Hakea lorea subsp. lorea over High Open Shrubland of Acacia dictyophleba, Acacia pachyacra over Very Open Tussock Grassland of Digitaria ctenantha, Enneapogon lindleyanus, Themeda triandra	Flat		Brown
MC-32	Tussock Grassland of Eulalia aurea, Themeda triandra, Eriachne tenuiculmis with Shrubland of Acacia tumida var. pilbarensis, Gossypium robinsonii over Open Hummock Grassland of Triodia pungens with Open Woodland of Eucalyptus victrix	Low	Sandy Loam	Brown
MC-33	Closed Tussock Grassland of *Cenchrus ciliaris, Themeda triandra, Bothriochloa ewartiana with Open Woodland of Eucalyptus victrix over Very Open Tussock Grassland of Triodia pungens	Flat	Sandy Loam	Brown
MC-34	Sedges of Typha domingensis, Cyperus vaginatus with Woodland of Eucalyptus camaldulensis, Eucalyptus camaldulensis, Eucalyptus victrix over Low Open Woodland of Acacia coriacea subsp. pendens, Melaleuca argentea	Flat	Sand	Brown
MC-35	Hummock Grassland of Triodia pungens with Shrubland of Gossypium robinsonii, Eremophila longifolia, Acacia dictyophleba over Very Open Tussock Grassland of *Cenchrus ciliaris, Eragrostis eriopoda with Scattered Low Trees of Acacia pruinocarpa, Corymbia aspera, Atalaya hemiglauca	Flat	Sandy Loam	Brown
MC-36	Open Hummock Grassland of Triodia wiseana, Triodia pungens with Low Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Acacia adoxa var adoxa, Sida arenicola with Low Open Woodland of Eucalyptus leucophloia subsp. leucophloia, Acacia pruinocarpa	Steep	Loam	Brown
MC-37	Woodland of Eucalyptus camaldulensis over Low Open Shrubland of Tephrosia rosea var. Fortescue creeks (M. I. H. Brooker 2186), Corchorus crozophorifolius, Indigofera monophylla over Very Open Tussock Grassland of *Cenchrus ciliaris, Eriachne tenuiculmis, Eulalia aurea	Low	Clayey Sand	Brown
MC-38	Tussock Grassland of Themeda triandra, Eulalia aurea, Aristida inaequiglumis with Open Woodland of Eucalyptus victrix, Corymbia aspera over Low Open Woodland of Corymbia aspera, Hakea lorea subsp. lorea over High Open Shrubland of Gossypium robinsonii, Eremophila longifolia, Atalaya hemiglauca over Very Open Hummock Grassland of Triodia pungens	Low	Clay Loam	Brown
MC-39	Hummock Grassland of Triodia wiseana, Triodia pungens with Shrubland of Acacia monticola, Grevillea wickhamii over Low Open Shrubland of Corchorus lasiocarpus subsp. lasiocarpus, Eremophila fraseri	Low	Sandy Loam	Brown

Site	Vegetation Association	Slope	Soil Type	Soil Colour
MC-40	Hummock Grassland of Triodia schinzii over Open Tussock Grassland of Paraneurachne muelleri, Eragrostis eriopoda, Eulalia aurea with Low Open Woodland of Hakea lorea subsp. lorea, Corymbia aspera, Corymbia hamersleyana over Open Shrubland of Acacia dictyophleba, Senna artemisioides subsp. filiformis	Low	Loamy Sand	Red

SPECIES COMPOSITION

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC01	*Acacia*	*ampliceps*			5	<2
MC01	*Acacia*	*coriacea*	subsp.	*pendens*	5	<2
MC01	*Acacia*	*pyrifolia*			1-2	<2
MC01	*Alternanthera*	*nodiflora*			0.2	<2
MC01	*Ammannia*	*baccifera*			0.15	<2
MC01	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.1	<2
MC01	*Atalaya*	*hemiglauca*			1	<2
MC01	*Bidens*	*bipinnata*			0.2	<2
MC01	*Capparis*	*lasiantha*			0.1	<2
MC01	*Cenchrus*	*ciliaris*			0.3	<2
MC01	*Centipeda*	*minima*	subsp.	*macrocephala*	0.2	<2
MC01	*Cleome*	*viscosa*			0.2	<2
MC01	*Corchorus*	*crozophorifolius*			0.5	<2
MC01	*Cymbopogon*	*ambiguus*			0.5	<2
MC01	*Cymbopogon*	*procerus*			1.2	<2
MC01	*Cyperus*	*difformis*			0.4	<2
MC01	*Cyperus*	*iria*			0.25	<2
MC01	*Cyperus*	*squarrosus*			0.05	<2
MC01	*Cyperus*	*vaginatus*			0.5	<2
MC01	*Cyperus*	*vaginatus*			0.2	<2
MC01	*Dodonaea*	*lanceolata*	var.	*lanceolata*	1.6	<2
MC01	*Echinochloa*	*colona*			0.2	<2
MC01	*Eleocharis*	*atropurpurea*			0.1	<2
MC01	*Enneapogon*	*lindleyanus*			0.4	<2
MC01	*Enteropogon*	*ramosus*			1	<2
MC01	*Eragrostis*	*tenellula*			0.1	<2
MC01	*Eriachne*	*tenuiculmis*			0.5	<2
MC01	*Eucalyptus*	*camaldulensis*			10	<2
MC01	*Eucalyptus*	*victrix*			15	<2
MC01	*Eulalia*	*aurea*			0.5	<2
MC01	*Euphorbia*	*trigonosperma*			0.2	<2
MC01	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC01	*Fimbristylis*	*microcarya*			0.2	<2
MC01	*Flaveria*	*trinervia*			0.1	<2
MC01	*Glycine*	*canescens*			0.3	<2
MC01	*Hybanthus*	*aurantiacus*			0.3	<2
MC01	*Ipomoea*	*racemigera*			0.1	<2
MC01	*Leptochloa*	*fusca*	subsp.	*fusca*	0.7	<2
MC01	*Melaleuca*	*argentea*			8	<2
MC01	*Melaleuca*	*glomerata*			1.5	<2
MC01	*Myoporum*	*montanum*			0.5	<2
MC01	*Phyllanthus*	*maderaspatensis*			0.3	<2
MC01	*Pluchea*	*rubelliflora*			0.4	<2
MC01	*Potamogeton*	*tricarinatus*			0.2	<2
MC01	*Potamogeton*	*tricarinatus*			0.6	<2
MC01	*Rhynchosia*	*minima*			0.5	<2
MC01	*Santalum*	*lanceolatum*			2	<2
MC01	*Schoenoplectus*	*sp. Indet*			0.2	<2
MC01	*Sesbania*	*cannabina*			0.5	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC01	*Setaria*	*verticillata*			0.3	<2
MC01	*Sigesbeckia*	*orientalis*			0.15	<2
MC01	*Sonchus*	*oleraceus*			0.2	<2
MC01	*Sorghum*	*plumosum*			1.5	<2
MC01	*Stemodia*	*grossa*			0.6	<2
MC01	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC01	*Themeda*	*triandra*			0.8	<2
MC01	*Triodia*	*pungens*			0.8	<2
MC01	*Triodia*	*wiseana*			0.5	<2
MC01	*Vigna*	*lanceolata*			0.3	<2
MC02	*Abutilon*		sp.	indet	0.5	<2
MC02	*Acacia*	*coriacea*	subsp.	*pendens*	8	2 to 10
MC02	*Acacia*	*pyrifolia*			3	2 to 10
MC02	*Acacia*	*tumida*	var.	*pilbarensis*	2	<2
MC02	*Amaranthus*	*undulatus*			0.1	<2
MC02	*Androcalva*	*luteiflora*			2	2 to 10
MC02	*Aristida*	*inaequiglumis*			0.5	<2
MC02	*Atalaya*	*hemiglauca*			2.5	<2
MC02	*Bidens*	*bipinnata*			0.2	<2
MC02	*Bonamia*	*erecta*			0.3	<2
MC02	*Bonamia*	*pilbarensis*			0.1	<2
MC02	*Bothriochloa*	*ewartiana*			1	<2
MC02	*Capparis*	*lasiantha*			0.1	<2
MC02	*Cassytha*	*capillaris*			0.1	<2
MC02	*Clerodendrum*	*floribundum*	var.	*angustifolium*	2	<2
MC02	*Corchorus*	*crozophorifolius*			1	2 to 10
MC02	*Corchorus*	*tridens*			0.1	<2
MC02	*Cymbopogon*	*ambiguus*			0.5	<2
MC02	*Cymbopogon*	*procerus*			1.7	<2
MC02	*Duperreya*	*commixta*			1	<2
MC02	*Enneapogon*	*robustissimus*			0.4	<2
MC02	*Eragrostis*	*tenellula*			0.2	<2
MC02	*Eremophila*	*longifolia*			2	<2
MC02	*Eriachne*	*tenuiculmis*			0.5	<2
MC02	*Eucalyptus*	*camaldulensis*			14	11 to 30
MC02	*Eulalia*	*aurea*			0.5	<2
MC02	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC02	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.2	<2
MC02	*Euphorbia*	*trigonosperma*			0.1	<2
MC02	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC02	*Glycine*	*canescens*			0.3	<2
MC02	*Gossypium*	*australe*			1	<2
MC02	*Gossypium*	*robinsonii*			1.5	<2
MC02	*Ipomoea*	*racemigera*			0.1	<2
MC02	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC02	*Malvastrum*	*americanum*			0.4	<2
MC02	*Paspalidium*	*basicladum*			0.45	<2
MC02	*Petalostylis*	*labicheoides*			1.8	<2
MC02	*Phyllanthus*	*maderaspatensis*			0.15	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC02	*Pluchea*	*rubelliflora*			0.5	<2
MC02	*Polymeria*	*ambigua*			0.1	<2
MC02	*Pterocaulon*		sp.	indet	0.1	<2
MC02	*Rostellularia*	*adscendens*	var.	*latifolia*	0.4	<2
MC02	*Santalum*	*lanceolatum*			0.2	<2
MC02	*Senna*	*artemisioides*	subsp.	*filifolia*	3	<2
MC02	*Senna*	*artemisioides*	subsp.	*oligophylla*	1	<2
MC02	*Setaria*	*surgens*			0.5	<2
MC02	*Setaria*	*verticillata*			0.4	<2
MC02	*Sida*	*fibulifera*			0.3	<2
MC02	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1.6	<2
MC02	*Sigesbeckia*	*orientalis*			1	2 to 10
MC02	*Solanum*	*phlomoides*			0.4	<2
MC02	*Sonchus*	*oleraceus*			0.2	<2
MC02	*Sorghum*	*plumosum*			2	11 to 30
MC02	*Streptoglossa*		sp.	indet	0.2	<2
MC02	*Stylobasium*	*spathulatum*			3	<2
MC02	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC02	*Themeda*	*triandra*			0.5	<2
MC02	*Trichodesma*	*zeylanicum*			0.7	<2
MC02	*Triodia*	*longiceps*			1	2 to 10
MC02	*Triodia*	*pungens*			0.5	2 to 10
MC02	*Vachellia*	*farnesiana*			2	<2
MC02	*Waltheria*	*indica*			0.5	<2
MC03	*Acacia*	*ampliceps*			5	2 to 10
MC03	*Acacia*	*coriacea*	subsp.	*pendens*	8	11 to 30
MC03	*Acacia*	*pyrifolia*			2	<2
MC03	*Ammannia*	*baccifera*			0.1	<2
MC03	*Amyema*	*hilliana*				<2
MC03	*Amyema*	*miquelii*				<2
MC03	*Atalaya*	*hemiglauca*			6	2 to 10
MC03	*Bidens*	*bipinnata*			0.2	<2
MC03	*Calotis*	*plumulifera*			0.3	<2
MC03	*Capparis*	*spinosa*	var.	*nummularia*	1.5	<2
MC03	*Cassytha*	*capillaris*			0.1	<2
MC03	*Centipeda*	*minima*	subsp.	*macrocephala*	0.1	<2
MC03	*Chrysopogon*	*fallax*			1.5	<2
MC03	*Corchorus*	*crozophorifolius*			1.5	<2
MC03	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC03	*Cucumis*	*variabilis*			0.3	<2
MC03	*Cymbopogon*	*procerus*			1.5	<2
MC03	*Cyperus*	*vaginatus*			1	11 to 30
MC03	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.2	<2
MC03	*Echinochloa*	*colona*			0.4	<2
MC03	*Enneapogon*	*lindleyanus*			0.5	<2
MC03	*Enneapogon*	*polyphyllus*			0.2	<2
MC03	*Enneapogon*	*robustissimus*			0.6	<2
MC03	*Enteropogon*	*ramosus*			1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC03	*Eragrostis*	*cumingii*			0.1	<2
MC03	*Eragrostis*	*tenellula*			0.2	<2
MC03	*Eriachne*	*tenuiculmis*			0.4	<2
MC03	*Eucalyptus*	*camaldulensis*			25	11 to 30
MC03	*Eucalyptus*	*victrix*			15	<2
MC03	*Eulalia*	*aurea*			1	2 to 10
MC03	*Euphorbia*	*australis*	var.	*subtomentosa*	0.2	<2
MC03	*Euphorbia*	*trigonosperma*			0.2	<2
MC03	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC03	*Flaveria*	*trinervia*			0.35	<2
MC03	*Glycine*	*canescens*			0.3	<2
MC03	*Gossypium*	*robinsonii*			2	<2
MC03	*Hakea*	*lorea*	subsp.	*lorea*	4	<2
MC03	*Hybanthus*	*aurantiacus*			0.5	<2
MC03	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC03	*Malvastrum*	*americanum*			1	<2
MC03	*Melaleuca*	*argentea*			15	2 to 10
MC03	*Melaleuca*	*bracteata*			7	2 to 10
MC03	*Melaleuca*	*glomerata*			6	2 to 10
MC03	*Myoporum*	*montanum*			1	<2
MC03	*Paspalidium*	*basicladum*			0.5	<2
MC03	*Phyllanthus*	*maderaspatensis*			0.45	<2
MC03	*Pluchea*	*rubelliflora*			0.3	<2
MC03	*Potamogeton*	*tricarinatus*			0.3	2 to 10
MC03	*Pterocaulon*	*serrulatum*			0.2	<2
MC03	*Ptilotus*	*nobilis*			0.3	<2
MC03	*Rhynchosia*	*minima*			0.5	<2
MC03	*Rostellularia*	*adscendens*	var.	*latifolia*	0.15	<2
MC03	*Schenkia*	*australis*			0.1	<2
MC03	*Schoenoplectus*	*subulatus*			2	2 to 10
MC03	*Setaria*	*surgens*			0.5	<2
MC03	*Sonchus*	*oleraceus*			0.4	<2
MC03	*Sorghum*	*plumosum*			2	2 to 10
MC03	*Stemodia*		sp.	indet	0.1	<2
MC03	*Themeda*	*triandra*			1.5	2 to 10
MC03	*Typha*	*domingensis*			2	11 to 30
MC03	*Vachellia*	*farnesiana*			0.2	<2
MC03	*Waltheria*	*indica*			0.5	<2
MC04	*Acacia*	*ampliceps*				<2
MC04	*Acacia*	*coriacea*	subsp.	*pendens*	8	<2
MC04	*Acacia*	*maitlandii*			1.5	<2
MC04	*Acacia*	*tumida*	var.	*pilbarensis*	2	<2
MC04	*Ammannia*	*baccifera*			0.25	<2
MC04	*Amyema*	*miquelii*				<2
MC04	*Aristida*	*contorta*			0.3	<2
MC04	*Bothriochloa*	*ewartiana*			1.2	<2
MC04	*Cenchrus*	*ciliaris*			0.5	<2
MC04	*Centipeda*	*minima*	subsp.	*macrocephala*	0.1	<2
MC04	*Cleome*	*viscosa*			0.65	<2
MC04	*Corchorus*	*crozophorifolius*			0.5	<2
MC04	*Corchorus*	*sidoides*	subsp.	*sidoides*	0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC04	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC04	*Cucumis*	*variabilis*			0.3	<2
MC04	*Cymbopogon*	*ambiguus*			1	<2
MC04	*Cyperus*	*squarrosus*			0.15	<2
MC04	*Cyperus*	*vaginatus*			1	<2
MC04	*Enneapogon*	*lindleyanus*			0.5	<2
MC04	*Enteropogon*	*ramosus*			0.7	<2
MC04	*Eragrostis*	*cumingii*			0.4	<2
MC04	*Eragrostis*	*tenellula*			0.5	<2
MC04	*Eriachne*	*mucronata*			0.35	<2
MC04	*Eriachne*	*tenuiculmis*			0.4	2 to 10
MC04	*Eucalyptus*	*camaldulensis*			20	2 to 10
MC04	*Eulalia*	*aurea*			0.5	<2
MC04	*Euphorbia*	*trigonosperma*			0.2	<2
MC04	*Fimbristylis*	*microcarya*			0.15	<2
MC04	*Flaveria*	*trinervia*			0.3	<2
MC04	*Glycine*	*canescens*			0.3	<2
MC04	*Hybanthus*	*aurantiacus*			0.4	<2
MC04	*Ipomoea*	*racemigera*			0.1	<2
MC04	*Leptochloa*	*fusca*	subsp.	*fusca*	1.5	2 to 10
MC04	*Malvastrum*	*americanum*			0.4	<2
MC04	*Melaleuca*	*bracteata*			2	<2
MC04	*Melaleuca*	*glomerata*			4	<2
MC04	*Myoporum*	*montanum*			3	<2
MC04	*Phyllanthus*	*maderaspatensis*			0.5	<2
MC04	*Pluchea*	*rubelliflora*			0.4	<2
MC04	*Potamogeton*	*tricarinatus*			0.5	2 to 10
MC04	*Schenkia*	*australis*			0.1	<2
MC04	*Schoenoplectus*	*subulatus*			2	2 to 10
MC04	*Sonchus*	*oleraceus*			1	<2
MC04	*Sorghum*	*plumosum*			2	2 to 10
MC04	*Stemodia*	*grossa*			0.35	<2
MC04	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.3	<2
MC04	*Themeda*	*triandra*			1	<2
MC04	*Triodia*	*longiceps*			2	<2
MC04	*Triodia*	*wiseana*			1	<2
MC04	*Typha*	*domingensis*			2	2 to 10
MC04	*Waltheria*	*indica*			0.4	<2
MC05	*Acacia*	*ancistrocarpa*			1.5	<2
MC05	*Acacia*	*pruinocarpa*			1	<2
MC05	*Acacia*	*sibirica*			1.5	<2
MC05	*Aristida*	*contorta*			0.3	<2
MC05	*Boerhavia*	*coccinea*			0.2	<2
MC05	*Bulbostylis*	*barbata*			0.1	<2
MC05	*Cheilanthes*	*brownii*			0.1	<2
MC05	*Cleome*	*viscosa*			0.5	<2
MC05	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.3	<2
MC05	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC05	*Cymbopogon*	*ambiguus*			1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC05	*Dysphania*	*rhadinostachya*			0.2	<2
MC05	*Enneapogon*	*caerulescens*			0.4	<2
MC05	*Enneapogon*	*lindleyanus*			0.3	<2
MC05	*Eremophila*	*fraseri*	subsp.	*fraseri*	1	2 to 10
MC05	*Eriachne*	*pulchella*	subsp.	*dominii*	0.15	<2
MC05	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC05	*Euphorbia*	*biconvexa*			0.4	<2
MC05	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.3	<2
MC05	*Euphorbia*	*trigonosperma*			0.2	<2
MC05	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC05	*Glycine*	*canescens*			0.3	<2
MC05	*Gossypium*	*australe*			1	<2
MC05	*Gossypium*	*robinsonii*			2.5	<2
MC05	*Indigofera*	*colutea*			0.15	<2
MC05	*Indigofera*	*rugosa*			1	<2
MC05	*Paspalidium*	*clementii*			0.3	<2
MC05	*Perotis*	*rara*			0.1	<2
MC05	*Polycarpaea*	*corymbosa*			0.1	<2
MC05	*Polycarpaea*	*longiflora*			0.2	<2
MC05	*Portulaca*	*oleracea*			0.1	<2
MC05	*Rhynchosia*	*minima*			0.5	<2
MC05	*Schizachyrium*	*fragile*			0.2	<2
MC05	*Senna*	*artemisioides*	subsp.	*helmsii*	1	<2
MC05	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2
MC05	*Senna*	*glutinosa*	subsp.	*glutinosa*	1	<2
MC05	*Senna*	*glutinosa*	subsp.	*pruinosa*	0.5	<2
MC05	*Senna*	*glutinosa*	subsp.	*x luerssenii*	0.5	<2
MC05	*Setaria*	*verticillata*			0.25	<2
MC05	*Sida*	*echinocarpa*			0.5	<2
MC05	*Solanum*	*horridum*			0.3	<2
MC05	*Sorghum*	*plumosum*			1.5	<2
MC05	*Swainsona*	*decurrens*			0.3	<2
MC05	*Themeda*	*triandra*			0.5	<2
MC05	*Trachymene*	*oleracea*			0.1	<2
MC05	*Tripogon*	*lolliformis*			0.15	<2
MC06	*Abutilon*	*fraseri*			1	<2
MC06	*Abutilon*	*macrum*			1	<2
MC06	*Abutilon*	*macrum*			1	<2
MC06	*Acacia*	*citrinoviridis*			8	2 to 10
MC06	*Acacia*	*coriacea*	subsp.	*pendens*	7	2 to 10
MC06	*Acacia*	*dictyophleba*			4	<2
MC06	*Acacia*	*pyrifolia*			0.5	<2
MC06	*Acrachne*	*racemosa*			0.4	<2
MC06	*Alternanthera*	*nana*			0.2	<2
MC06	*Amaranthus*	*undulatus*			0.5	<2
MC06	*Androcalva*	*luteiflora*			2	<2
MC06	*Atalaya*	*hemiglauca*			6	2 to 10
MC06	*Bidens*	*bipinnata*			0.3	<2
MC06	*Boerhavia*	*coccinea*			0.2	<2
MC06	*Bulbostylis*	*barbata*			0.1	<2
MC06	*Capparis*	*lasiantha*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC06	*Cenchrus*	*ciliaris*			1	2 to 10
MC06	*Chloris*	*virgata*			0.6	<2
MC06	*Convolvulus*	*clementii*			0.1	<2
MC06	*Corchorus*	*crozophorifolius*			1	2 to 10
MC06	*Corchorus*	*tridens*			0.15	<2
MC06	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.25	<2
MC06	*Cucumis*	*variabilis*			0.3	<2
MC06	*Cymbopogon*	*ambiguus*			1	<2
MC06	*Cymbopogon*	*procerus*			1.5	<2
MC06	*Dactylotenium*	*radulans*			0.1	<2
MC06	*Datura*	*leichhardtii*			0.7	<2
MC06	*Digitaria*	*brownii*			1	<2
MC06	*Digitaria*	*ctenantha*			0.3	<2
MC06	*Duperreya*	*commixta*			1	<2
MC06	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.2	<2
MC06	*Dysphania*	*rhadinostachya*			0.2	<2
MC06	*Enchylaena*	*tomentosa*	var.	*tomentosa*	1	<2
MC06	*Enneapogon*	*lindleyanus*			0.4	2 to 10
MC06	*Enneapogon*	*robustissimus*			1	<2
MC06	*Enteropogon*	*ramosus*			1	<2
MC06	*Eragrostis*	*cumingii*			0.1	<2
MC06	*Eragrostis*	*tenellula*			0.1	<2
MC06	*Eremophila*	*longifolia*			3	<2
MC06	*Eriachne*	*tenuiculmis*			0.6	<2
MC06	*Eucalyptus*	*camaldulensis*			20	2 to 10
MC06	*Eucalyptus*	*victrix*			20	2 to 10
MC06	*Eulalia*	*aurea*			1	2 to 10
MC06	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC06	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.3	<2
MC06	*Euphorbia*	*trigonosperma*			0.2	<2
MC06	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.15	<2
MC06	*Flaveria*	*trinervia*			0.4	<2
MC06	*Glycine*	*canescens*			0.3	<2
MC06	*Gomphrena*	*cunninghamii*			0.1	<2
MC06	*Gossypium*	*australe*			1	<2
MC06	*Gossypium*	*robinsonii*			2	<2
MC06	*Hakea*	*lorea*	subsp.	*lorea*	4	<2
MC06	*Haloragis*	*gossei*			0.2	<2
MC06	*Indigofera*	*colutea*			0.15	<2
MC06	*Indigofera*	*linnaei*			0.2	<2
MC06	*Ipomoea*	*muelleri*			0.3	<2
MC06	*Ipomoea*	*muelleri*			0.3	<2
MC06	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC06	*Malvastrum*	*americanum*			0.5	2 to 10
MC06	*Melhania*	*oblongifolia*			0.4	<2
MC06	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.1	<2
MC06	*Paspalidium*	*basicladum*			0.5	<2
MC06	*Perotis*	*rara*			0.1	<2
MC06	*Petalostylis*	*labicheoides*			4	<2
MC06	*Phyllanthus*	*maderaspatensis*			0.35	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC06	*Polymeria*	*ambigua*			0.1	<2
MC06	*Portulaca*	*oleracea*			0.1	<2
MC06	*Pterocaulon*	*sphacelatum*			0.3	<2
MC06	*Ptilotus*	*astrolasius*			0.4	<2
MC06	*Rhynchosia*	*minima*			0.5	<2
MC06	*Rostellularia*	*adscendens*	var.	*latifolia*	0.25	<2
MC06	*Senna*	*artemisioides*	subsp.	*filifolia*	2	<2
MC06	*Senna*	*notabilis*			0.2	<2
MC06	*Setaria*	*verticillata*			0.4	<2
MC06	*Sida*	*fibulifera*			0.2	2 to 10
MC06	*Solanum*	*horridum*			0.2	<2
MC06	*Solanum*	*lasiophyllum*			0.5	<2
MC06	*Solanum*	*nigrum*			0.4	<2
MC06	*Sorghum*	*plumosum*			1.5	<2
MC06	*Sporobolus*	*australasicus*			0.15	<2
MC06	*Stylobasium*	*spathulatum*			4	<2
MC06	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.4	<2
MC06	*Themeda*	*triandra*			1	2 to 10
MC06	*Triodia*	*longiceps*			1.8	2 to 10
MC06	*Triodia*	*pungens*			1.3	11 to 30
MC06	*Triraphis*	*mollis*			0.35	<2
MC06	*Vachellia*	*farnesiana*			2	<2
MC06	*Waltheria*	*indica*			0.5	<2
MC07	*Acacia*	*ampliceps*			5	<2
MC07	*Acacia*	*coriacea*	subsp.	*pendens*	12	11 to 30
MC07	*Acacia*	*pyrifolia*			2	<2
MC07	*Acetosa*	*vesicaria*			0.2	<2
MC07	*Alternanthera*	*nana*			0.2	<2
MC07	*Amaranthus*	*undulatus*			0.3	<2
MC07	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.2	<2
MC07	*Aristida*	*holathera*	var.	*holathera*	0.2	<2
MC07	*Atalaya*	*hemiglauca*			7	2 to 10
MC07	*Bidens*	*bipinnata*			0.3	<2
MC07	*Boerhavia*	*coccinea*			0.2	<2
MC07	*Cenchrus*	*ciliaris*			0.5	<2
MC07	*Cleome*	*viscosa*			0.1	<2
MC07	*Corchorus*	*crozophorifolius*			1	2 to 10
MC07	*Corchorus*	*tridens*			0.1	<2
MC07	*Cucumis*	*variabilis*			0.3	<2
MC07	*Cymbopogon*	*procerus*			1	<2
MC07	*Cyperus*	*vaginatus*			1	<2
MC07	*Digitaria*	*brownii*			0.7	<2
MC07	*Enneapogon*	*lindleyanus*			0.3	<2
MC07	*Enneapogon*	*robustissimus*			0.5	<2
MC07	*Enteropogon*	*ramosus*			1	<2
MC07	*Eragrostis*	*tenellula*			0.1	<2
MC07	*Eriachne*	*tenuiculmis*			0.6	<2
MC07	*Eucalyptus*	*camaldulensis*			25	2 to 10
MC07	*Eucalyptus*	*victrix*			20	2 to 10

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC07	*Eulalia*	*aurea*			1	<2
MC07	*Euphorbia*	*trigonosperma*			0.2	<2
MC07	*Flaveria*	*trinervia*			0.3	<2
MC07	*Gossypium*	*robinsonii*			3	<2
MC07	*Lepidium*	*muelleri-ferdinandii*			0.2	<2
MC07	*Malvastrum*	*americanum*			0.5	<2
MC07	*Melaleuca*	*argentea*			7	<2
MC07	*Melaleuca*	*glomerata*			5	<2
MC07	*Nicotiana*	*occidentalis*			0.4	<2
MC07	*Paspalidium*	*basicladum*			0.5	<2
MC07	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC07	*Pluchea*	*rubelliflora*			0.3	<2
MC07	*Ptilotus*	*nobilis*			0.1	<2
MC07	*Setaria*	*verticillata*			0.4	<2
MC07	*Sigesbeckia*	*orientalis*			0.5	<2
MC07	*Solanum*	*nigrum*			0.3	<2
MC07	*Sonchus*	*oleraceus*			0.2	<2
MC07	*Sorghum*	*plumosum*			2	<2
MC07	*Stemodia*	*grossa*			0.2	<2
MC07	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC07	*Themeda*	*triandra*			1	<2
MC07	*Triodia*	*pungens*			1	<2
MC07	*Waltheria*	*indica*			0.7	<2
MC08	*Acacia*	*coriacea*	subsp.	*pendens*	3	<2
MC08	*Acacia*	*maitlandii*			2	<2
MC08	*Acacia*	*monticola*			4	2 to 10
MC08	*Acacia*	*pruinocarpa*			8	2 to 10
MC08	*Cassytha*	*capillaris*			0.1	<2
MC08	*Cheilanthes*	*brownii*			0.2	<2
MC08	*Cheilanthes*	*sieberi*	subsp.	*sieberi*	0.3	<2
MC08	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.5	<2
MC08	*Cymbopogon*	*ambiguus*			0.5	<2
MC08	*Duperreya*	*commixta*			1	2 to 10
MC08	*Dysphania*	*rhadinostachya*			0.3	<2
MC08	*Enneapogon*	*lindleyanus*			0.3	<2
MC08	*Enneapogon*	*polyphyllus*			0.4	<2
MC08	*Enteropogon*	*ramosus*			0.5	<2
MC08	*Eremophila*	*jucunda*	subsp.	*pulcherrima*	1	2 to 10
MC08	*Eremophila*	*latrobei*	subsp.	*filiformis*	2	2 to 10
MC08	*Eremophila*	*latrobei*	subsp.	*latrobei*	1	<2
MC08	*Eriachne*	*mucronata*			0.4	<2
MC08	*Eriachne*	*pulchella*	subsp.	*dominii*	0.15	<2
MC08	*Eucalyptus*	*camaldulensis*			4	<2
MC08	*Eucalyptus*	*leucophloia*	subsp.	*leucophloia*	8	2 to 10
MC08	*Eucalyptus*	*victrix*			5	<2
MC08	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.2	<2
MC08	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC08	*Goodenia*	*microptera*			0.5	<2
MC08	*Goodenia*	*triodiophila*			0.4	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC08	*Gossypium*	*australe*			0.6	<2
MC08	*Gossypium*	*robinsonii*			2	<2
MC08	*Grevillea*	*wickhamii*	subsp.	*hispidula*	4	2 to 10
MC08	*Hibiscus*	*coatesii*			1	<2
MC08	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC08	*Malvastrum*	*americanum*			0.2	<2
MC08	*Mirbelia*	*viminalis*			1	<2
MC08	*Paspalidium*	*clementii*			0.2	<2
MC08	*Petalostylis*	*labicheoides*			1.5	<2
MC08	*Phyllanthus*	*maderaspatensis*			0.3	<2
MC08	*Ptilotus*	*nobilis*			0.3	<2
MC08	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC08	*Senna*	*glutinosa*	subsp.	*x luerssenii*	2	<2
MC08	*Senna*	*notabilis*			0.4	<2
MC08	*Sida*	*fibulifera*			0.2	<2
MC08	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1	<2
MC08	*Solanum*	*lasiophyllum*			0.5	<2
MC08	*Solanum*	*phlomoides*			0.5	<2
MC08	*Themeda*	*triandra*			0.5	<2
MC08	*Trachymene*	*oleracea*			0.1	<2
MC08	*Triodia*	*pungens*			1	31 to 70
MC08	*Triodia*	*wiseana*			1	<2
MC09	*Acacia*	*ancistrocarpa*			3	<2
MC09	*Acacia*	*bivenosa*			2	<2
MC09	*Acacia*	*coriacea*	subsp.	*pendens*	4	<2
MC09	*Acacia*	*dictyophleba*			3	2 to 10
MC09	*Acacia*	*pruinocarpa*			5	2 to 10
MC09	*Acacia*	*pyrifolia*			2	<2
MC09	*Acacia*	*tumida*	var.	*pilbarensis*	4	<2
MC09	*Acetosa*	*vesicaria*			0.4	<2
MC09	*Acrachne*	*racemosa*			0.3	<2
MC09	*Androcalva*	*luteiflora*			2	<2
MC09	*Aristida*	*contorta*			0.3	<2
MC09	*Atalaya*	*hemiglauca*			5	<2
MC09	*Bidens*	*bipinnata*			0.35	<2
MC09	*Boerhavia*	*coccinea*			0.3	<2
MC09	*Bonamia*	*erecta*			0.5	<2
MC09	*Bulbostylis*	*barbata*			0.1	<2
MC09	*Calotis*	*plumulifera*			0.2	<2
MC09	*Cenchrus*	*ciliaris*			0.5	<2
MC09	*Chrysocephalum*	*apiculatum*			0.3	<2
MC09	*Cleome*	*viscosa*			0.2	<2
MC09	*Convolvulus*	*clementii*			0.1	<2
MC09	*Corchorus*	*crozophorifolius*			1	<2
MC09	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.3	<2
MC09	*Corchorus*	*sidoides*	subsp.	*sidoides*	0.25	<2
MC09	*Corchorus*	*tridens*			0.1	<2
MC09	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC09	*Cucumis*	*variabilis*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC09	*Digitaria*	*ctenantha*			0.3	<2
MC09	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.2	<2
MC09	*Dysphania*	*rhadinostachya*			0.25	<2
MC09	*Enneapogon*	*lindleyanus*			0.4	<2
MC09	*Enneapogon*	*polyphyllus*			0.4	<2
MC09	*Enneapogon*	*robustissimus*			0.5	<2
MC09	*Eragrostis*	*cumingii*			0.1	<2
MC09	*Eragrostis*	*tenellula*			0.2	<2
MC09	*Eriachne*	*tenuiculmis*			0.5	2 to 10
MC09	*Eucalyptus*	*victrix*			20	2 to 10
MC09	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	31 to 70
MC09	*Euphorbia*	*biconvexa*			0.4	<2
MC09	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.5	<2
MC09	*Euphorbia*	*trigonosperma*			0.2	<2
MC09	*Evolvulus*	*alsinoides*	var.	*villosicalyx*	0.2	<2
MC09	*Flaveria*	*trinervia*			0.3	<2
MC09	*Goodenia*	*nuda*			0.4	<2
MC09	*Gossypium*	*robinsonii*			2	2 to 10
MC09	*Hakea*	*lorea*	subsp.	*lorea*	6	2 to 10
MC09	*Heliotropium*	*cunninghamii*			0.2	<2
MC09	*Heliotropium*	*cunninghamii*			0.3	<2
MC09	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.6	<2
MC09	*Hybanthus*	*aurantiacus*			0.4	<2
MC09	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC09	*Malvastrum*	*americanum*			0.5	<2
MC09	*Melhania*	*oblongifolia*			0.2	<2
MC09	*Nicotiana*	*occidentalis*			0.2	<2
MC09	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.1	<2
MC09	*Paspalidium*	*clementii*			0.3	<2
MC09	*Perotis*	*rara*			0.1	<2
MC09	*Petalostylis*	*labicheoides*			4	2 to 10
MC09	*Phyllanthus*	*erwinii*			0.15	<2
MC09	*Phyllanthus*	*maderaspatensis*			0.25	<2
MC09	*Polycarpaea*	*longiflora*			0.3	<2
MC09	*Polymeria*	*ambigua*			0.1	<2
MC09	*Polymeria*	*ambigua*			0.1	<2
MC09	*Portulaca*	*oleracea*			0.1	<2
MC09	*Pterocaulon*	*sphacelatum*			0.1	<2
MC09	*Ptilotus*	*astrolasius*			0.35	<2
MC09	*Ptilotus*	*nobilis*			0.2	<2
MC09	*Rhynchosia*	*minima*			0.4	<2
MC09	*Senna*	*artemisioides*	subsp.	*filifolia*	2	<2
MC09	*Senna*	*artemisioides*	subsp.	*helmsii*	1	<2
MC09	*Senna*	*artemisioides*	subsp.	*oligophylla*	1	<2
MC09	*Senna*	*artemisioides*	subsp.	*oligophylla* x sp. Meekatharra (E. Bailey 1-26)	1.5	<2
MC09	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC09	*Setaria*	*verticillata*			0.4	<2
MC09	*Sida*	*fibulifera*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC09	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1	<2
MC09	*Solanum*	*lasiophyllum*			0.5	<2
MC09	*Sonchus*	*oleraceus*			0.2	<2
MC09	*Sporobolus*	*australasicus*			0.15	<2
MC09	*Themeda*	*triandra*			1	<2
MC09	*Tribulus*	*hirsutus*			0.1	<2
MC09	*Tribulus*	*terrestris*			0.1	<2
MC09	*Triodia*	*longiceps*			1.5	2 to 10
MC09	*Triodia*	*pungens*			1	<2
MC09	*Triraphis*	*mollis*			0.2	<2
MC09	*Waltheria*	*indica*			0.8	<2
MC09	*Waltheria*	*indica*			0.5	<2
MC10	*Acacia*	*ancistrocarpa*			1	<2
MC10	*Acacia*	*dictyophleba*			0.5	<2
MC10	*Acacia*	*inaequilatera*			0.5	<2
MC10	*Acacia*	*maitlandii*			0.5	<2
MC10	*Acacia*	*pruinocarpa*			0.4	<2
MC10	*Acacia*	*tenuissima*			0.6	<2
MC10	*Acacia*	*tumida*	var.	*pilbarensis*	0.6	<2
MC10	*Aristida*	*holathera*	var.	*holathera*	0.3	<2
MC10	*Aristida*	*inaequiglumis*			0.6	<2
MC10	*Boerhavia*	*coccinea*			0.1	<2
MC10	*Bonamia*	*erecta*			0.5	<2
MC10	*Bonamia*	*media*			0.2	<2
MC10	*Bulbostylis*	*barbata*			0.1	<2
MC10	*Cheilanthes*	*brownii*			0.2	<2
MC10	*Cleome*	*viscosa*			0.15	<2
MC10	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.5	<2
MC10	*Corymbia*	*hamersleyana*			4	<2
MC10	*Cucumis*	*variabilis*			0.3	<2
MC10	*Cymbopogon*	*ambiguus*			0.5	<2
MC10	*Cymbopogon*	*obtectus*			0.3	<2
MC10	*Cymbopogon*	*procerus*			1.2	<2
MC10	*Duperreya*	*commixta*			1	<2
MC10	*Dysphania*	*kalpari*			0.2	<2
MC10	*Dysphania*	*rhadinostachya*			0.3	<2
MC10	*Enneapogon*	*polyphyllus*			0.3	<2
MC10	*Eriachne*	*aristidea*			0.2	<2
MC10	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC10	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.2	<2
MC10	*Euphorbia*	*trigonosperma*			0.3	<2
MC10	*Goodenia*	*microptera*			0.3	<2
MC10	*Goodenia*	*muelleriana*			0.3	<2
MC10	*Goodenia*	*triodiophila*			0.3	<2
MC10	*Gossypium*	*australe*			1	<2
MC10	*Gossypium*	*robinsonii*			2	2 to 10
MC10	*Grevillea*	*wickhamii*	subsp.	*hispidula*	1	<2
MC10	*Hakea*	*chordophylla*			0.6	<2
MC10	*Heliotropium*	*pachyphyllum*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC10	*Hibiscus*	*coatesii*			1.3	<2
MC10	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.5	<2
MC10	*Iseilema*	*membranaceum*			0.1	<2
MC10	*Isotropis*	*atropurpurea*			0.4	<2
MC10	*Paraneurachne*	*muelleri*			0.5	2 to 10
MC10	*Petalostylis*	*labicheoides*			0.5	<2
MC10	*Polycarpaea*	*holtzei*			0.1	<2
MC10	*Polycarpaea*	*longiflora*			0.1	<2
MC10	*Polygala*	*glaucifolia*			0.01	<2
MC10	*Ptilotus*	*aervoides*			0.1	<2
MC10	*Ptilotus*	*aervoides*			1	<2
MC10	*Ptilotus*	*astrolasius*			0.4	<2
MC10	*Ptilotus*	*auriculifolius*			0.4	<2
MC10	*Ptilotus*	*calostachyus*			0.7	<2
MC10	*Ptilotus*	*nobilis*			0.5	<2
MC10	*Rhynchosia*	*minima*			0.4	<2
MC10	*Salsola*	*australis*			0.1	<2
MC10	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.3	<2
MC10	*Senna*	*glutinosa*	subsp.	*glutinosa*	1	<2
MC10	*Senna*	*glutinosa*	subsp.	*pruinosa*	0.5	<2
MC10	*Senna*	*notabilis*			0.2	<2
MC10	*Setaria*	*surgens*			0.2	<2
MC10	*Sida*	*echinocarpa*			0.5	<2
MC10	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1.3	<2
MC10	*Solanum*	*lasiophyllum*			1	<2
MC10	*Sporobolus*	*australasicus*			0.1	<2
MC10	*Swainsona*	*decurrens*			0.2	<2
MC10	*Tephrosia*	*oxalidea*			0.15	<2
MC10	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.3	<2
MC10	*Themeda*	*triandra*			0.5	<2
MC10	*Tribulus*	*platypterus*			1	<2
MC10	*Triodia*	*wiseana*			0.7	31 to 70
MC10	*Triumfetta*	*clementii*			0.4	<2
MC11	*Abutilon*	*macrum*			1	<2
MC11	*Abutilon*	*otocarpum*			0.45	<2
MC11	*Abutilon*		sp.	Dioicum (A.A. Mitchell PRP 1618)	1	<2
MC11	*Acacia*	*coriacea*	subsp.	*pendens*	3	<2
MC11	*Acacia*	*pyrifolia*			0.5	<2
MC11	*Acetosa*	*vesicaria*			0.4	<2
MC11	*Aerva*	*javanica*			0.5	<2
MC11	*Amaranthus*	*undulatus*			0.5	<2
MC11	*Androcalva*	*luteiflora*			0.5	<2
MC11	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.05	<2
MC11	*Aristida*	*contorta*			0.35	<2
MC11	*Aristida*	*holathera*	var.	*holathera*	0.5	<2
MC11	*Atalaya*	*hemiglauca*			6	2 to 10
MC11	*Bidens*	*bipinnata*			0.2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC11	*Boerhavia*	*coccinea*			0.35	<2
MC11	*Bothriochloa*	*ewartiana*			1	<2
MC11	*Cenchrus*	*ciliaris*			0.5	2 to 10
MC11	*Chrysocephalum*	*apiculatum*			0.35	<2
MC11	*Cleome*	*viscosa*			0.2	<2
MC11	*Corchorus*	*crozophorifolius*			1	2 to 10
MC11	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.5	<2
MC11	*Corchorus*	*sidoides*	subsp.	*sidoides*	0.4	<2
MC11	*Corchorus*	*tridens*			0.1	<2
MC11	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC11	*Cucumis*	*variabilis*			0.3	<2
MC11	*Datura*	*leichhardtii*			0.5	<2
MC11	*Digitaria*	*ctenantha*			0.3	2 to 10
MC11	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*	0.4	<2
MC11	*Duperreya*	*commixta*			1	<2
MC11	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.1	<2
MC11	*Dysphania*	*rhadinostachya*			0.35	<2
MC11	*Enneapogon*	*caerulescens*			0.3	<2
MC11	*Enneapogon*	*lindleyanus*			0.5	2 to 10
MC11	*Enneapogon*	*robustissimus*			1	<2
MC11	*Eragrostis*	*cumingii*			0.05	<2
MC11	*Eragrostis*	*tenellula*			0.15	<2
MC11	*Eriachne*	*tenuiculmis*			0.6	2 to 10
MC11	*Eucalyptus*	*victrix*			14	<2
MC11	*Euphorbia*	*australis*	var.	*subtomentosa*	0.2	<2
MC11	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.35	<2
MC11	*Euphorbia*	*trigonosperma*			0.2	<2
MC11	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC11	*Flaveria*	*trinervia*			0.3	<2
MC11	*Gomphrena*	*cunninghamii*			0.1	<2
MC11	*Gossypium*	*australe*			2	<2
MC11	*Gossypium*	*robinsonii*			2	2 to 10
MC11	*Heliotropium*	*cunninghamii*			0.25	<2
MC11	*Heliotropium*	*tenuifolium*			0.25	<2
MC11	*Hibiscus*	*coatesii*			1	<2
MC11	*Hibiscus*	*leptocladus*			0.5	<2
MC11	*Hybanthus*	*aurantiacus*			0.4	<2
MC11	*Indigofera*	*linifolia*			0.2	<2
MC11	*Indigofera*	*linnaei*			0.2	<2
MC11	*Ipomoea*	*muelleri*			0.3	<2
MC11	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC11	*Lepidium*	*muelleri-ferdinandii*			0.25	<2
MC11	*Malvastrum*	*americanum*			0.5	2 to 10
MC11	*Nicotiana*	*occidentalis*			0.35	<2
MC11	*Paraneurachne*	*muelleri*			0.6	<2
MC11	*Paspalidium*	*clementii*			0.2	<2
MC11	*Perotis*	*rara*			0.1	<2
MC11	*Phyllanthus*	*erwinii*			0.1	<2
MC11	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC11	*Polycarpaea*	*corymbosa*			0.2	<2
MC11	*Polycarpaea*	*longiflora*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC11	*Polymeria*	*ambigua*			0.1	<2
MC11	*Portulaca*	*oleracea*			0.05	<2
MC11	*Pterocaulon*	*sphacelatum*			1	2 to 10
MC11	*Ptilotus*	*nobilis*			0.3	<2
MC11	*Ptilotus*	*obovatus*	var.	*obovatus*	0.5	<2
MC11	*Rostellularia*	*adscendens*	var.	*latifolia*	0.25	<2
MC11	*Scaevola*	*amblyanthera*	var.	*centralis*	0.2	<2
MC11	*Senna*	*artemisioides*	subsp.	*filifolia*	1	<2
MC11	*Senna*	*notabilis*			0.35	<2
MC11	*Setaria*	*verticillata*			0.35	<2
MC11	*Sida*	*echinocarpa*			1	<2
MC11	*Sida*	*fibulifera*			0.2	2 to 10
MC11	*Sida*	*fibulifera*			0.3	<2
MC11	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	<2
MC11	*Solanum*	*phlomoides*			0.5	2 to 10
MC11	*Sporobolus*	*australasicus*			0.15	<2
MC11	*Streptoglossa*	*decurrens*			0.4	<2
MC11	*Stylobasium*	*spathulatum*			2	<2
MC11	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	2 to 10
MC11	*Tephrosia*		sp.	Bungaroo Creek (M.G. Trudgen 11601)	0.3	<2
MC11	*Themeda*	*triandra*			1	<2
MC11	*Trachymene*	*oleracea*			0.1	<2
MC11	*Tragus*	*australianus*			0.15	<2
MC11	*Tribulus*	*hirsutus*			0.1	<2
MC11	*Tribulus*	*terrestris*			0.1	<2
MC11	*Trichodesma*	*zeylanicum*			0.5	<2
MC11	*Triodia*	*longiceps*			0.5	<2
MC11	*Triodia*	*pungens*			0.5	2 to 10
MC11	*Triraphis*	*mollis*			0.3	<2
MC11	*Triumfetta*	*clementii*			0.4	<2
MC11	*Waltheria*	*indica*			0.7	<2
MC12	*Abutilon*	*macrum*			0.5	<2
MC12	*Acacia*	*coriacea*	subsp.	*pendens*	4	2 to 10
MC12	*Acacia*	*dictyophleba*			0.2	<2
MC12	*Acacia*	*pruinocarpa*			5	2 to 10
MC12	*Acacia*	*pyrifolia*			1	11 to 30
MC12	*Acetosa*	*vesicaria*			0.6	<2
MC12	*Amaranthus*	*cuspidifolius*			0.3	<2
MC12	*Androcalva*	*luteiflora*			2	<2
MC12	*Aristida*	*inaequiglumis*			1	<2
MC12	*Atalaya*	*hemiglauca*			2	<2
MC12	*Bidens*	*bipinnata*			0.3	<2
MC12	*Bulbostylis*	*barbata*			0.1	<2
MC12	*Calotis*	*plumulifera*			0.2	<2
MC12	*Cheilanthes*	*sieberi*	subsp.	*sieberi*	0.2	<2
MC12	*Chrysocephalum*	*apiculatum*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC12	*Cleome*	*viscosa*			0.2	<2
MC12	*Corchorus*	*crozophorifolius*			1	2 to 10
MC12	*Corymbia*	*hamersleyana*			6	2 to 10
MC12	*Cymbopogon*	*procerus*			1.2	<2
MC12	*Dicladanthera*	*forrestii*			0.3	<2
MC12	*Digitaria*	*brownii*			0.4	<2
MC12	*Duperreya*	*commixta*			1	<2
MC12	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.15	<2
MC12	*Dysphania*	*rhadinostachya*			0.3	<2
MC12	*Enneapogon*	*lindleyanus*			0.5	<2
MC12	*Enneapogon*	*polyphyllus*			0.2	<2
MC12	*Eragrostis*	*cumingii*			0.1	<2
MC12	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC12	*Eriachne*	*tenuiculmis*			0.5	2 to 10
MC12	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.3	<2
MC12	*Euphorbia*	*trigonosperma*			0.3	<2
MC12	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC12	*Evolvulus*	*alsinoides*	var.	*villosicalyx*	0.1	<2
MC12	*Gomphrena*	*cunninghamii*			0.1	<2
MC12	*Goodenia*	*triodiophila*			0.4	<2
MC12	*Grevillea*	*wickhamii*	subsp.	*hispidula*	2.5	<2
MC12	*Hakea*	*lorea*	subsp.	*lorea*	5	<2
MC12	*Heliotropium*	*cunninghamii*			0.2	<2
MC12	*Hybanthus*	*aurantiacus*			0.4	<2
MC12	*Indigofera*	*monophylla*			0.5	<2
MC12	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC12	*Lepidium*	*oxytrichum*			0.1	<2
MC12	*Malvastrum*	*americanum*			0.4	<2
MC12	*Melhania*	*oblongifolia*			0.4	<2
MC12	*Nicotiana*	*benthamiana*			0.5	<2
MC12	*Paraneurachne*	*muelleri*			0.5	<2
MC12	*Paspalidium*	*basicladum*			0.4	<2
MC12	*Phyllanthus*	*erwinii*			0.1	<2
MC12	*Phyllanthus*	*maderaspatensis*			0.3	<2
MC12	*Polycarpaea*	*corymbosa*			0.1	<2
MC12	*Polycarpaea*	*longiflora*			0.25	<2
MC12	*Polymeria*	*ambigua*			0.1	<2
MC12	*Portulaca*	*oleracea*			0.1	<2
MC12	*Pterocaulon*	*sphacelatum*			0.2	<2
MC12	*Ptilotus*	*astrolasius*			0.3	<2
MC12	*Ptilotus*	*nobilis*			0.25	<2
MC12	*Ptilotus*	*obovatus*	var.	*obovatus*	0.4	<2
MC12	*Rhagodia*	*eremaea*			0.5	<2
MC12	*Rostellularia*	*adscendens*	var.	*latifolia*	0.3	<2
MC12	*Senna*	*artemisioides*	subsp.	*filifolia*	2	<2
MC12	*Setaria*	*verticillata*			0.5	<2
MC12	*SIda*	*fibulifera*			0.2	<2
MC12	*Sida*	*fibulifera*			0.3	<2
MC12	*Sida*	*fibulifera*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC12	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC12	*Solanum*	*lasiophyllum*			0.5	<2
MC12	*Solanum*	*phlomoides*			0.5	<2
MC12	*Sporobolus*	*australasicus*			0.1	<2
MC12	*Themeda*	*triandra*			0.6	<2
MC12	*Trichodesma*	*zeylanicum*			0.4	<2
MC12	*Triodia*	*pungens*			1	31 to 70
MC12	*Triodia*	*wiseana*			1	2 to 10
MC12	*Waltheria*	*indica*			0.3	<2
MC13	*Abutilon*	*fraseri*			0.35	<2
MC13	*Abutilon*	*lepidium*			0.6	<2
MC13	*Acacia*	*ancistrocarpa*			2	<2
MC13	*Acacia*	*bivenosa*			0.5	<2
MC13	*Acacia*	*pruinocarpa*			8	2 to 10
MC13	*Acacia*	*tenuissima*			2	<2
MC13	*Amyema*	*miquelii*				<2
MC13	*Aristida*	*holathera*	var.	*holathera*	1	<2
MC13	*Cheilanthes*	*sieberi*	subsp.	*sieberi*	0.15	<2
MC13	*Corchorus*	*crozophorifolius*			1	<2
MC13	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.4	<2
MC13	*Cucumis*	*variabilis*			0.3	<2
MC13	*Cymbopogon*	*ambiguus*			0.3	<2
MC13	*Cymbopogon*	*obtectus*			1	<2
MC13	*Digitaria*	*brownii*			0.7	<2
MC13	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*	1	<2
MC13	*Duperreya*	*commixta*			1	<2
MC13	*Dysphania*	*rhadinostachya*			0.1	<2
MC13	*Enneapogon*	*lindleyanus*			1	<2
MC13	*Eremophila*	*fraseri*	subsp.	*fraseri*	1.5	<2
MC13	*Eriachne*	*mucronata*			0.4	<2
MC13	*Eucalyptus*	*leucophloia*	subsp.	*leucophloia*	8	2 to 10
MC13	*Gomphrena*	*cunninghamii*			0.5	<2
MC13	*Goodenia*	*muelleriana*			0.4	<2
MC13	*Goodenia*	*stobbsiana*			0.3	<2
MC13	*Hakea*	*chordophylla*			6	<2
MC13	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.25	<2
MC13	*Paraneurachne*	*muelleri*			0.5	<2
MC13	*Ptilotus*	*astrolasius*			0.4	<2
MC13	*Ptilotus*	*calostachyus*			1.5	<2
MC13	*Ptilotus*	*fusiformis*			0.1	<2
MC13	*Ptilotus*	*nobilis*			0.6	<2
MC13	*Ptilotus*	*obovatus*	var.	*obovatus*	0.1	<2
MC13	*Ptilotus*	*rotundifolius*			1	<2
MC13	*Senna*	*artemisioides*	subsp.	*oligophylla*	1	<2
MC13	*Senna*	*glutinosa*	subsp.	*glutinosa*	2.5	<2
MC13	*Senna*	*glutinosa*	subsp.	*pruinosa*	2.5	<2
MC13	*Senna*	*glutinosa*	subsp.	*x luerssenii*	1	<2
MC13	*Sida*		sp.	Pilbara (A. A. Mitchell PRP 1543)	0.5	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC13	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	<2
MC13	*Solanum*	*horridum*			0.2	<2
MC13	*Solanum*	*lasiophyllum*			0.5	<2
MC13	*Trachymene*	*oleracea*			2	<2
MC13	*Tribulus*	*suberosus*			0.5	<2
MC13	*Triodia*	*pungens*			0.5	<2
MC13	*Triodia*	*wiseana*			1	31 to 70
MC14	*Acacia*	*pyrifolia*			1	<2
MC14	*Acetosa*	*vesicaria*			0.2	<2
MC14	*Atalaya*	*hemiglauca*			4	<2
MC14	*Boerhavia*	*coccinea*			0.1	<2
MC14	*Cleome*	*viscosa*			0.4	<2
MC14	*Corchorus*	*crozophorifolius*			1	11 to 30
MC14	*Cucumis*	*variabilis*			0.3	<2
MC14	*Cymbopogon*	*ambiguus*			0.4	<2
MC14	*Enneapogon*	*lindleyanus*			0.3	<2
MC14	*Eriachne*	*pulchella*	subsp.	*dominii*	0.15	<2
MC14	*Eriachne*	*tenuiculmis*			0.5	<2
MC14	*Eucalyptus*	*camaldulensis*			15	<2
MC14	*Euphorbia*	*australis*	var.	*subtomentosa*	0.02	<2
MC14	*Gomphrena*	*canescens*			0.2	<2
MC14	*Gomphrena*	*cunninghamii*			0.1	<2
MC14	*Heliotropium*	*cunninghamii*			0.3	2 to 10
MC14	*Hybanthus*	*aurantiacus*			0.25	<2
MC14	*Ipomoea*	*muelleri*			0.3	<2
MC14	*Phyllanthus*	*maderaspatensis*			0.2	<2
MC14	*Polymeria*	*ambigua*			0.1	<2
MC14	*Ptilotus*	*nobilis*			0.1	<2
MC14	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	31 to 70
MC15	*Abutilon*	*fraseri*			0.2	<2
MC15	*Abutilon*	*macrum*			1	<2
MC15	*Abutilon*		sp.	Dioicum (A.A. Mitchell PRP 1618)	2	<2
MC15	*Acacia*	*citrinoviridis*			10	31 to 70
MC15	*Acacia*	*coriacea*	subsp.	*pendens*	6	<2
MC15	*Acacia*	*pyrifolia*			2	<2
MC15	*Acacia*	*pyrifolia*			2	<2
MC15	*Acetosa*	*vesicaria*			0.3	<2
MC15	*Androcalva*	*luteiflora*			2	<2
MC15	*Aristida*	*contorta*			0.3	<2
MC15	*Aristida*	*inaequiglumis*			1	<2
MC15	*Atalaya*	*hemiglauca*			6	<2
MC15	*Bidens*	*bipinnata*			0.3	<2
MC15	*Boerhavia*	*coccinea*			0.2	<2
MC15	*Bonamia*	*erecta*			0.3	<2
MC15	*Bulbostylis*	*barbata*			0.1	<2
MC15	*Calotis*	*plumulifera*			0.2	<2
MC15	*Cenchrus*	*ciliaris*			0.5	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC15	*Cheilanthes*	*sieberi*	subsp.	*sieberi*	0.25	<2
MC15	*Cleome*	*viscosa*			0.2	<2
MC15	*Convolvulus*	*clementii*			0.1	<2
MC15	*Corchorus*	*crozophorifolius*			1	2 to 10
MC15	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	1	<2
MC15	*Corchorus*	*tridens*			0.2	<2
MC15	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.25	<2
MC15	*Cymbopogon*	*ambiguus*			1	<2
MC15	*Cymbopogon*	*ambiguus*			1	<2
MC15	*Cymbopogon*	*obtectus*			0.5	<2
MC15	*Dicladanthera*	*forrestii*			0.4	<2
MC15	*Digitaria*	*brownii*			0.5	<2
MC15	*Digitaria*	*ctenantha*			0.3	<2
MC15	*Diptercanthus*	*australasicus*	subsp.	*australasicus*	0.4	2 to 10
MC15	*Duperreya*	*commixta*			1	<2
MC15	*Dysphania*	*rhadinostachya*			0.3	<2
MC15	*Enchylaena*	*tomentosa*	var.	*tomentosa*	0.25	<2
MC15	*Enneapogon*	*lindleyanus*			0.3	2 to 10
MC15	*Enneapogon*	*robustissimus*			0.5	<2
MC15	*Eragrostis*	*tenellula*			0.2	<2
MC15	*Eriachne*	*mucronata*			0.4	<2
MC15	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	2 to 10
MC15	*Eriachne*	*pulchella*	subsp.	*dominii*	0.2	<2
MC15	*Eriachne*	*tenuiculmis*			0.5	2 to 10
MC15	*Eucalyptus*	*victrix*			8	<2
MC15	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.6	<2
MC15	*Euphorbia*	*trigonosperma*			0.25	<2
MC15	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC15	*Gomphrena*	*cunninghamii*			0.2	<2
MC15	*Gossypium*	*australe*			2	<2
MC15	*Gossypium*	*robinsonii*			3	<2
MC15	*Heliotropium*	*cunninghamii*			0.2	<2
MC15	*Hibiscus*	*coatesii*			1	<2
MC15	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.5	<2
MC15	*Hybanthus*	*aurantiacus*			0.35	<2
MC15	*Malvastrum*	*americanum*			0.3	<2
MC15	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.15	<2
MC15	*Paraneurachne*	*muelleri*			0.5	<2
MC15	*Paspalidium*	*basicladum*			0.5	<2
MC15	*Paspalidium*	*clementii*			0.2	<2
MC15	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC15	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC15	*Pluchea*		sp.	indet	0.2	<2
MC15	*Polycarpaea*	*corymbosa*			0.2	<2
MC15	*Polycarpaea*	*holtzei*			0.1	<2
MC15	*Polycarpaea*	*longiflora*			0.3	2 to 10
MC15	*Polymeria*	*ambigua*			0.1	<2
MC15	*Portulaca*	*oleracea*			0.05	<2
MC15	*Pterocaulon*	*sphacelatum*			0.2	<2
MC15	*Ptilotus*	*astrolasius*			0.4	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC15	*Ptilotus*	*nobilis*			0.4	<2
MC15	*Ptilotus*	*obovatus*	var.	*obovatus*	1	<2
MC15	*Rhynchosia*	*minima*			0.4	<2
MC15	*Rostellularia*	*adscendens*	var.	*latifolia*	0.2	<2
MC15	*Salsola*	*australis*			1	<2
MC15	*Setaria*	*verticillata*			0.5	<2
MC15	*Solanum*	*lasiophyllum*			0.6	<2
MC15	*Sporobolus*	*australasicus*			0.1	<2
MC15	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC15	*Themeda*	*triandra*			1	<2
MC15	*Trichodesma*	*zeylanicum*			0.5	<2
MC15	*Triodia*	*longiceps*			1	<2
MC15	*Triodia*	*pungens*			1	2 to 10
MC15	*Triodia*	*wiseana*			1	<2
MC15	*Triumfetta*	*clementii*			0.3	<2
MC15	*Waltheria*	*indica*			0.5	<2
MC16	*Abutilon*	*macrum*			0.5	<2
MC16	*Acacia*	*bivenosa*			1	<2
MC16	*Acacia*	*dictyophleba*			2	<2
MC16	*Acacia*	*pruinocarpa*			5	<2
MC16	*Acacia*	*pyrifolia*			0.5	<2
MC16	*Androcalva*	*luteiflora*			1.5	<2
MC16	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.05	<2
MC16	*Aristida*	*holathera*	var.	*holathera*	0.4	<2
MC16	*Aristida*	*inaequiglumis*			0.7	<2
MC16	*Atalaya*	*hemiglauca*			4	2 to 10
MC16	*Boerhavia*	*coccinea*			0.3	<2
MC16	*Bonamia*	*erecta*			0.35	2 to 10
MC16	*Bonamia*	*media*			0.1	<2
MC16	*Bothriochloa*	*ewartiana*			1.2	<2
MC16	*Bulbostylis*	*barbata*			0.1	<2
MC16	*Calotis*	*plumulifera*			0.1	<2
MC16	*Cenchrus*	*ciliaris*			0.7	2 to 10
MC16	*Cenchrus*	*setiger*			1	<2
MC16	*Chrysocephalum*	*apiculatum*			0.25	<2
MC16	*Chrysopogon*	*fallax*			1	<2
MC16	*Cleome*	*viscosa*			0.3	<2
MC16	*Corchorus*	*crozophorifolius*			1	<2
MC16	*Corchorus*	*tridens*			0.2	<2
MC16	*Corymbia*	*hamersleyana*			12	2 to 10
MC16	*Cullen*	*leucochaites*			1.5	<2
MC16	*Cyperus*	*bifax*			0.8	<2
MC16	*Cyperus*	*bulbosus*			0.2	<2
MC16	*Datura*	*leichhardtii*			1	<2
MC16	*Dicladanthera*	*forrestii*			0.3	<2
MC16	*Digitaria*	*ctenantha*			0.2	<2
MC16	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*	0.3	<2
MC16	*Duperreya*	*commixta*			1	<2
MC16	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC16	*Dysphania*	*rhadinostachya*			0.25	<2
MC16	*Enneapogon*	*caerulescens*			0.3	<2
MC16	*Enneapogon*	*lindleyanus*			0.5	<2
MC16	*Enneapogon*	*robustissimus*			0.8	<2
MC16	*Enteropogon*	*ramosus*			1	<2
MC16	*Eragrostis*	*cumingii*			0.1	<2
MC16	*Eragrostis*	*dielsii*			0.1	<2
MC16	*Eragrostis*	*eriopoda*			0.45	<2
MC16	*Eremophila*	*longifolia*			1.5	<2
MC16	*Eriachne*	*obtusa*			0.6	<2
MC16	*Eulalia*	*aurea*			1	<2
MC16	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC16	*Euphorbia*	*biconvexa*			0.3	<2
MC16	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.35	<2
MC16	*Euphorbia*	*trigonosperma*			0.2	<2
MC16	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC16	*Glycine*	*canescens*			0.3	<2
MC16	*Goodenia*	*microptera*			0.3	<2
MC16	*Goodenia*	*nuda*			0.4	<2
MC16	*Gossypium*	*australe*			1	<2
MC16	*Gossypium*	*robinsonii*			3	2 to 10
MC16	*Hakea*	*lorea*	subsp.	*lorea*	6	2 to 10
MC16	*Heliotropium*	*cunninghamii*			0.1	<2
MC16	*Hibiscus*	*coatesii*			1	<2
MC16	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.3	<2
MC16	*Indigofera*	*colutea*			0.1	<2
MC16	*Indigofera*	*linifolia*			0.2	<2
MC16	*Indigofera*	*linnaei*			0.1	<2
MC16	*Ipomoea*	*polymorpha*			0.05	<2
MC16	*Iseilema*	*membranaceum*			0.2	<2
MC16	*Malvastrum*	*americanum*			0.35	<2
MC16	*Melhania*	*oblongifolia*			0.4	<2
MC16	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.1	<2
MC16	*Paraneurachne*	*muelleri*			0.4	<2
MC16	*Paspalidium*	*basicladum*			0.5	<2
MC16	*Paspalidium*	*rarum*			0.1	<2
MC16	*Perotis*	*rara*			0.1	<2
MC16	*Phyllanthus*	*erwinii*			0.2	<2
MC16	*Phyllanthus*	*maderaspatensis*			0.2	<2
MC16	*Polymeria*	*ambigua*			0.1	<2
MC16	*Portulaca*	*oleracea*			0.1	<2
MC16	*Ptilotus*	*astrolasius*			1	<2
MC16	*Ptilotus*	*fusiformis*			0.3	<2
MC16	*Ptilotus*	*nobilis*			0.4	<2
MC16	*Rhynchosia*	*minima*			0.4	<2
MC16	*Rostellularia*	*adscendens*	var.	*latifolia*	0.15	<2
MC16	*Salsola*	*australis*			0.5	<2
MC16	*Sclerolaena*	*cornishiana*			0.3	<2
MC16	*Senna*	*artemisioides*	subsp.	*filifolia*	1	<2
MC16	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC16	*Setaria*	*verticillata*			0.4	<2
MC16	*Sida*	*echinocarpa*			0.25	<2
MC16	*Sida*	*fibulifera*			0.4	<2
MC16	*Sida*	*fibulifera*			0.2	2 to 10
MC16	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC16	*Solanum*	*lasiophyllum*			1	<2
MC16	*Solanum*	*phlomoides*			0.5	<2
MC16	*Sorghum*	*plumosum*			2	<2
MC16	*Sporobolus*	*australasicus*			0.1	<2
MC16	*Swainsona*	*kingii*			0.1	<2
MC16	*Tephrosia*		sp.	Newman (A.A. Mitchell PRP 29)	0.1	<2
MC16	*Themeda*	*triandra*			1	2 to 10
MC16	*Tragus*	*australianus*			0.1	<2
MC16	*Tribulus*	*terrestris*			0.1	<2
MC16	*Triodia*	*longiceps*			1	2 to 10
MC16	*Triodia*	*pungens*			1	31 to 70
MC16	*Triraphis*	*mollis*			0.4	<2
MC16	*Vachellia*	*farnesiana*			3	<2
MC17	*Acacia*	*ampliceps*			6	2 to 10
MC17	*Acacia*	*coriacea*	subsp.	*pendens*	8	11 to 30
MC17	*Acacia*	*pyrifolia*			2	<2
MC17	*Amaranthus*	*undulatus*			0.4	<2
MC17	*Amyema*	*miquelii*				<2
MC17	*Androcalva*	*luteiflora*			2	<2
MC17	*Aristida*	*inaequiglumis*			0.75	<2
MC17	*Atalaya*	*hemiglauca*			5	2 to 10
MC17	*Bidens*	*bipinnata*			0.2	<2
MC17	*Capparis*	*spinosa*	var.	*nummularia*	1	<2
MC17	*Cenchrus*	*setiger*			0.8	<2
MC17	*Corchorus*	*crozophorifolius*			1.5	<2
MC17	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.25	<2
MC17	*Cymbopogon*	*procerus*			1.5	<2
MC17	*Cyperus*	*vaginatus*			1	11 to 30
MC17	*Duperreya*	*commixta*			1	<2
MC17	*Enteropogon*	*ramosus*			1	<2
MC17	*Eragrostis*	*tenellula*			0.3	<2
MC17	*Eremophila*	*longifolia*			1	<2
MC17	*Eucalyptus*	*camaldulensis*			28	11 to 30
MC17	*Eulalia*	*aurea*			1	<2
MC17	*Euphorbia*	*trigonosperma*			0.2	<2
MC17	*Glycine*	*canescens*			0.3	<2
MC17	*Gossypium*	*robinsonii*			2.5	<2
MC17	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC17	*Malvastrum*	*americanum*			0.5	<2
MC17	*Melaleuca*	*argentea*			20	11 to 30
MC17	*Melaleuca*	*bracteata*			7	2 to 10
MC17	*Melaleuca*	*glomerata*			6	11 to 30
MC17	*Myoporum*	*montanum*			4	2 to 10

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC17	*Paspalidium*	*basicladum*			0.5	<2
MC17	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC17	*Pluchea*	*rubelliflora*			0.3	2 to 10
MC17	*Rhynchosia*	*minima*			0.4	<2
MC17	*Sida*		cf.	Spiciform Panicles	2	<2
MC17	*Sonchus*	*oleraceus*			0.3	<2
MC17	*Sorghum*	*plumosum*			2	2 to 10
MC17	*Stemodia*	*grossa*			0.4	<2
MC17	*Stylobasium*	*spathulatum*			2	<2
MC17	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	1	<2
MC17	*Themeda*	*triandra*			1	<2
MC17	*Triodia*	*longiceps*			1.5	2 to 10
MC17	*Triodia*	*pungens*			1	<2
MC17	*Typha*	*domingensis*			2	<2
MC18	*Acacia*	*ancistrocarpa*			1.5	<2
MC18	*Acacia*	*bivenosa (wispy form)*			3	<2
MC18	*Acacia*	*inaequilatera*			2	2 to 10
MC18	*Acacia*	*pruinocarpa*			0.5	<2
MC18	*Acacia*	*synchronicia*			1.5	<2
MC18	*Aristida*	*contorta*			0.25	<2
MC18	*Aristida*	*contorta*			0.5	<2
MC18	*Aristida*	*holathera*	var.	*holathera*	0.3	<2
MC18	*Aristida*	*inaequiglumis*			1	<2
MC18	*Boerhavia*	*coccinea*			0.15	<2
MC18	*Bothriochloa*	*ewartiana*			1	<2
MC18	*Corchorus*	*crozophorifolius*			0.35	<2
MC18	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.2	<2
MC18	*Enneapogon*	*robustissimus*			0.2	2 to 10
MC18	*Eucalyptus*	*xerothermica*			3	<2
MC18	*Eulalia*	*aurea*			0.3	<2
MC18	*Euphorbia*	*australis*	var.	*subtomentosa*	0.01	<2
MC18	*Gomphrena*	*canescens*			0.3	<2
MC18	*Goodenia*	*muelleriana*			0.5	<2
MC18	*Haloragis*	*gossei*			0.1	<2
MC18	*Heliotropium*	*chrysocarpum*			0.25	<2
MC18	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.2	<2
MC18	*Paraneurachne*	*muelleri*			0.45	<2
MC18	*Petalostylis*	*labicheoides*			2	<2
MC18	*Ptilotus*	*astrolasius*			0.3	<2
MC18	*Ptilotus*	*auriculifolius*			0.3	<2
MC18	*Ptilotus*	*calostachyus*			0.3	<2
MC18	*Ptilotus*	*nobilis*			0.6	2 to 10
MC18	*Salsola*	*australis*			0.5	<2
MC18	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	2 to 10
MC18	*Solanum*	*lasiophyllum*			0.2	<2
MC18	*Sporobolus*	*australasicus*			0.2	<2
MC18	*Swainsona*	*decurrens*			0.3	<2
MC18	*Themeda*	*triandra*			1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC18	*Tribulus*	*hirsutus*			0.1	<2
MC18	*Triodia*	*wiseana*			0.5	31 to 70
MC18	*Triodia*		sp.	Shovelanna Hill (S. van Leeuwen 3835)	0.5	<2
MC18	*Zygophyllum*	*eichleri*			0.1	<2
MC19	*Acacia*	*bivenosa (wispy form)*			3	2 to 10
MC19	*Corymbia*	*hamersleyana*			4	<2
MC19	*Eucalyptus*	*socialis*	subsp.	*eucentrica*	3	11 to 30
MC19	*Goodenia*		sp.	East Pilbara (A.A. Mitchell PRP 727)	0.2	<2
MC19	*Halgania*	*cyanea*	var.	Allambi Stn (B.W. Strong 676)	0.4	<2
MC19	*Heliotropium*	*chyrsocarpum*			0.1	<2
MC19	*Paraneurachne*	*muelleri*			0.5	<2
MC19	*Petalostylis*	*labicheoides*			2	<2
MC19	*Phyllanthus*	*erwinii*			0.1	<2
MC19	*Ptilotus*	*astrolasius*			0.2	<2
MC19	*Ptilotus*	*clementii*			0.3	<2
MC19	*Ptilotus*	*nobilis*			0.3	<2
MC19	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.2	<2
MC19	*Solanum*	*lasiophyllum*			0.4	<2
MC19	*Triodia*	*angusta*			1.5	11 to 30
MC19	*Triodia*	*wiseana*			1	11 to 30
MC20	*Acacia*	*ampliceps*			6	2 to 10
MC20	*Acacia*	*maitlandii*			2.5	<2
MC20	*Acacia*	*pyrifolia*			0.6	<2
MC20	*Acacia*	*tumida*	var.	*pilbarensis*	0.5	<2
MC20	*Ammannia*	*baccifera*			0.1	<2
MC20	*Androcalva*	*luteiflora*			2	<2
MC20	*Atalaya*	*hemiglauca*			0.4	<2
MC20	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.1	<2
MC20	*Cymbopogon*	*procerus*			1	<2
MC20	*Cyperus*	*vaginatus*			1	2 to 10
MC20	*Eremophila*	*longifolia*			1	<2
MC20	*Eucalyptus*	*camaldulensis*			15	2 to 10
MC20	*Eucalyptus*	*victrix*			15	11 to 30
MC20	*Eulalia*	*aurea*			0.5	<2
MC20	*Glycine*	*canescens*			0.3	<2
MC20	*Gossypium*	*australe*			0.5	<2
MC20	*Gossypium*	*robinsonii*			4	<2
MC20	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC20	*Melaleuca*	*bracteata*			5	31 to 70
MC20	*Melaleuca*	*glomerata*			5	2 to 10
MC20	*Petalostylis*	*labicheoides*			4	<2
MC20	*Pterocaulon*	*sphacelatum*			0.4	<2
MC20	*Senna*	*artemisioides*	subsp.	*filifolia*	0.6	<2
MC20	*Sorghum*	*plumosum*			1	<2
MC20	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC20	*Themeda*	*triandra*			0.5	2 to 10

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC20	*Triodia*	*pungens*			0.5	2 to 10
MC20	*Typha*	*domingensis*			1.5	2 to 10
MC21	*Acacia*	*bivenosa (wispy form)*			4	2 to 10
MC21	*Aristida*	*holathera*	var.	*holathera*	0.3	<2
MC21	*Eucalyptus*	*socialis*	subsp.	*eucentrica*	2	2 to 10
MC21	*Eucalyptus*	*xerothermica*			4	2 to 10
MC21	*Eucalyptus*	*xerothermica*			7	<2
MC21	*Exocarpos*	*sparteus*			3	<2
MC21	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC21	*Paraneurachne*	*muelleri*			0.4	<2
MC21	*Petalostylis*	*labicheoides*			2	<2
MC21	*Stylobasium*	*spathulatum*			2	<2
MC21	*Triodia*	*angusta*			1.4	31 to 70
MC21	*Triodia*	*wiseana*			1	2 to 10
MC22	*Acacia*	*ancistrocarpa*			0.5	<2
MC22	*Acacia*	*aptaneura*			1	<2
MC22	*Acacia*	*inaequilatera*			0.5	<2
MC22	*Acacia*	*pruinocarpa*			1	<2
MC22	*Aristida*	*holathera*	var.	*holathera*	0.4	<2
MC22	*Bonamia*	*media*			0.15	<2
MC22	*Bulbostylis*	*barbata*			0.1	<2
MC22	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.5	11 to 30
MC22	*Corymbia*	*hamersleyana*			5	2 to 10
MC22	*Cullen*	*leucochaites*			0.5	<2
MC22	*Cymbopogon*	*ambiguus*			1.3	<2
MC22	*Cymbopogon*	*obtectus*			0.5	<2
MC22	*Duperreya*	*commixta*			1	<2
MC22	*Dysphania*	*rhadinostachya*			0.2	<2
MC22	*Enneapogon*	*polyphyllus*			0.4	<2
MC22	*Eremophila*	*longifolia*			1	<2
MC22	*Eriachne*	*mucronata*			0.4	<2
MC22	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.1	<2
MC22	*Goodenia*	*microptera*			0.4	<2
MC22	*Goodenia*	*muelleriana*			0.25	<2
MC22	*Goodenia*	*stobbsiana*			0.25	<2
MC22	*Gossypium*	*australe*			0.3	<2
MC22	*Hakea*	*chordophylla*			0.6	<2
MC22	*Heliotropium*		sp.	indet	0.25	<2
MC22	*Hibiscus*	*coatesii*			1	<2
MC22	*Paraneurachne*	*muelleri*			0.3	<2
MC22	*Polycarpaea*	*holtzei*			0.1	<2
MC22	*Polycarpaea*	*longiflora*			0.2	<2
MC22	*Ptilotus*	*astrolasius*			0.4	<2
MC22	*Ptilotus*	*clementii*			0.3	<2
MC22	*Ptilotus*	*nobilis*			0.3	<2
MC22	*Rhynchosia*	*minima*			0.4	<2
MC22	*Salsola*	*australis*			0.4	<2
MC22	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.4	<2
MC22	*Senna*	*glutinosa*	subsp.	*glutinosa*	1	<2
MC22	*Senna*	*glutinosa*	subsp.	*pruinosa*	1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC22	*Senna*	*glutinosa*	subsp.	*x luerssenii*	0.5	<2
MC22	*Senna*	*notabilis*			0.2	<2
MC22	*Sida*	*arenicola*			2	<2
MC22	*Sida*	*echinocarpa*			0.3	<2
MC22	*Sida*		sp.	Pilbara (A. A. Mitchell PRP 1543)	0.4	<2
MC22	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC22	*Solanum*	*lasiophyllum*			0.4	<2
MC22	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.4	<2
MC22	*Tephrosia*		sp.	NW Eremaean (S. van Leeuwen et al. PBS 0356)	0.1	<2
MC22	*Tribulus*	*platypterus*			1	<2
MC22	*Trichodesma*	*zeylanicum*			0.5	<2
MC22	*Triodia*	*wiseana*			1	31 to 70
MC22	*Triumfetta*	*chaetocarpa*			0.3	<2
MC22	*Triumfetta*	*clementii*			0.3	<2
MC23	*Acacia*	*ancistrocarpa*			3	<2
MC23	*Acacia*	*arida*			3	2 to 10
MC23	*Acacia*	*bivenosa*			3	<2
MC23	*Acacia*	*citrinoviridis*			3	<2
MC23	*Acacia*	*coriacea*	subsp.	*pendens*	2	<2
MC23	*Acacia*	*pyrifolia*			3	<2
MC23	*Aristida*	*holathera*	var.	*holathera*	0.5	<2
MC23	*Bidens*	*bipinnata*			0.2	<2
MC23	*Bonamia*	*erecta*			0.4	<2
MC23	*Bothriochloa*	*ewartiana*			1	<2
MC23	*Clerodendrum*	*floribundum*	var.	*angustifolium*	2	<2
MC23	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	1	2 to 10
MC23	*Corymbia*	*hamersleyana*			8	2 to 10
MC23	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC23	*Cymbopogon*	*ambiguus*			1	<2
MC23	*Digitaria*	*brownii*			1	<2
MC23	*Digitaria*	*ctenantha*			0.2	<2
MC23	*Dysphania*	*rhadinostachya*			0.2	<2
MC23	*Enneapogon*	*caerulescens*			0.3	<2
MC23	*Enneapogon*	*lindleyanus*			0.4	<2
MC23	*Enneapogon*	*polyphyllus*			0.3	<2
MC23	*Enneapogon*	*robustissimus*			1	<2
MC23	*Eremophila*	*longifolia*			3	<2
MC23	*Eriachne*	*mucronata*			0.4	<2
MC23	*Eriachne*	*tenuiculmis*			0.5	<2
MC23	*Eulalia*	*aurea*			1.2	<2
MC23	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.5	<2
MC23	*Euphorbia*	*trigonosperma*			0.1	<2
MC23	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC23	*Gossypium*	*australe*			3	<2
MC23	*Gossypium*	*robinsonii*			1.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC23	*Grevillea*	*pyramidalis*	subsp.	*leucodendron*	4	<2
MC23	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.4	<2
MC23	*Hybanthus*	*aurantiacus*			1	<2
MC23	*Indigofera*	*monophylla*			0.4	<2
MC23	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC23	*Lysiana*	*casuarinae*			5	<2
MC23	*Melhania*	*oblongifolia*			0.4	<2
MC23	*Paraneurachne*	*muelleri*			0.4	<2
MC23	*Petalostylis*	*labicheoides*			3	<2
MC23	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC23	*Polycarpaea*	*longiflora*			0.2	<2
MC23	*Polymeria*	*ambigua*			0.1	<2
MC23	*Pterocaulon*	*sphacelatum*			0.1	<2
MC23	*Ptilotus*	*astrolasius*			0.4	<2
MC23	*Ptilotus*	*obovatus*	var.	*obovatus*	0.4	<2
MC23	*Rhynchosia*	*minima*			0.4	<2
MC23	*Senna*	*artemisioides*	subsp.	*oligophylla*	2	<2
MC23	*Senna*	*ferraria*			4	<2
MC23	*Senna*	*glutinosa*	subsp.	*glutinosa*	3	<2
MC23	*Sida*	*clementii*			0.5	<2
MC23	*Sida*	*fibulifera*			0.25	<2
MC23	*Solanum*	*horridum*			0.2	<2
MC23	*Solanum*	*lasiophyllum*			0.7	<2
MC23	*Sporobolus*	*australasicus*			0.1	<2
MC23	*Stylobasium*	*spathulatum*			1.5	<2
MC23	*Themeda*	*triandra*			1	<2
MC23	*Triodia*	*pungens*			1	<2
MC23	*Triodia*	*wiseana*			3	71 to 100
MC23	*Waltheria*	*indica*			0.5	<2
MC24	*Acacia*	*coriacea*	subsp.	*pendens*	4	<2
MC24	*Acacia*	*pyrifolia*			1	<2
MC24	*Amaranthus*	*undulatus*			0.2	<2
MC24	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.1	<2
MC24	*Atalaya*	*hemiglauca*			5	<2
MC24	*Bidens*	*bipinnata*			0.3	<2
MC24	*Bothriochloa*	*ewartiana*			0.7	<2
MC24	*Cenchrus*	*ciliaris*			0.3	<2
MC24	*Centipeda*	*minima*	subsp.	*macrocephala*	0.2	<2
MC24	*Cleome*	*viscosa*			0.3	<2
MC24	*Corchorus*	*crozophorifolius*			1.5	<2
MC24	*Corchorus*	*tridens*			0.2	<2
MC24	*Cucumis*	*variabilis*			0.3	<2
MC24	*Cymbopogon*	*procerus*			1.2	<2
MC24	*Cyperus*	*vaginatus*			1	<2
MC24	*Dichanthium*	*sericeum*	subsp.	*sericeum*	0.2	<2
MC24	*Dysphania*	*rhadinostachya*			0.2	<2
MC24	*Enneapogon*	*lindleyanus*			0.2	<2
MC24	*Enteropogon*	*ramosus*			0.5	<2
MC24	*Eragrostis*	*tenellula*			0.2	<2
MC24	*Eriachne*	*tenuiculmis*			0.5	<2
MC24	*Eucalyptus*	*camaldulensis*			15	2 to 10

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC24	*Eucalyptus*	*victrix*			10	2 to 10
MC24	*Eulalia*	*aurea*			0.5	<2
MC24	*Euphorbia*	*trigonosperma*			0.2	<2
MC24	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC24	*Flaveria*	*trinervia*			0.3	<2
MC24	*Gossypium*	*robinsonii*			2	<2
MC24	*Hybanthus*	*aurantiacus*			0.3	<2
MC24	*Ipomoea*	*muelleri*			0.3	<2
MC24	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC24	*Melaleuca*	*argentea (dead)*			20	2 to 10
MC24	*Phyllanthus*	*maderaspatensis*			0.25	<2
MC24	*Pluchea*	*rubelliflora*			0.2	<2
MC24	*Pterocaulon*	*sphacelatum*			0.2	<2
MC24	*Ptilotus*	*exaltatus*			0.3	<2
MC24	*Sesbania*	*cannabina*			1.3	<2
MC24	*Sonchus*	*oleraceus*			0.3	<2
MC24	*Sorghum*	*plumosum*			1.2	2 to 10
MC24	*Stemodia*	*grossa*			0.2	<2
MC24	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	1	2 to 10
MC24	*Themeda*	*triandra*			0.7	<2
MC24	*Vigna*	*lanceolata*			0.3	<2
MC25	*Acacia*	*ampliceps*			6	<2
MC25	*Acacia*	*bivenosa*			0.5	<2
MC25	*Acacia*	*coriacea*	subsp.	*pendens*	7	<2
MC25	*Alternanthera*	*denticulata*			0.3	<2
MC25	*Alternanthera*	*nana*			0.1	<2
MC25	*Amaranthus*	*undulatus*			0.5	<2
MC25	*Ammannia*	*baccifera*			0.35	<2
MC25	*Ammannia*	*multiflora*			0.15	<2
MC25	*Amyema*	*miquelii*				<2
MC25	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.1	<2
MC25	*Bergia*	*pedicellaris*			0.2	<2
MC25	*Bidens*	*bipinnata*			0.2	<2
MC25	*Brachyachne*	*convergens*			0.15	<2
MC25	*Cenchrus*	*ciliaris*			0.3	<2
MC25	*Centipeda*	*minima*	subsp.	*macrocephala*	0.15	<2
MC25	*Cleome*	*viscosa*			0.25	<2
MC25	*Corchorus*	*crozophorifolius*			1	<2
MC25	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.25	<2
MC25	*Cucumis*	*variabilis*			0.3	<2
MC25	*Cyperus*	*difformis*			0.5	2 to 10
MC25	*Cyperus*	*iria*			0.2	<2
MC25	*Cyperus*	*squarrosus*			0.1	<2
MC25	*Cyperus*	*vaginatus*			1	2 to 10
MC25	*Dactylotenium*	*radulans*			0.1	<2
MC25	*Digitaria*	*ctenantha*			0.3	<2
MC25	*Dysphania*	*rhadinostachya*			0.2	<2
MC25	*Echinochloa*	*colona*			0.3	<2
MC25	*Eleocharis*	*atropurpurea*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC25	*Enneapogon*	*caerulescens*			0.4	<2
MC25	*Enneapogon*	*caerulescens*			0.2	<2
MC25	*Enteropogon*	*ramosus*			1	<2
MC25	*Eragrostis*	*cumingii*			0.1	<2
MC25	*Eragrostis*	*tenellula*			0.25	2 to 10
MC25	*Eragrostis*	*tenellula*			0.75	<2
MC25	*Eucalyptus*	*camaldulensis*			20	2 to 10
MC25	*Eucalyptus*	*victrix*			15	<2
MC25	*Eulalia*	*aurea*			1	<2
MC25	*Euphorbia*	*biconvexa*			0.3	<2
MC25	*Euphorbia*	*trigonosperma*			0.2	<2
MC25	*Fimbristylis*	*littoralis*			0.1	<2
MC25	*Fimbristylis*	*microcarya*			0.15	<2
MC25	*Flaveria*	*trinervia*			0.15	<2
MC25	*Fuirena*	*ciliaris*			0.15	<2
MC25	*Goodenia*	*lamprosperma*			0.3	<2
MC25	*Gossypium*	*robinsonii*			2	<2
MC25	*Hybanthus*	*aurantiacus*			0.3	<2
MC25	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC25	*Leptochloa*	*fusca*	subsp.	*fusca*	1	<2
MC25	*Malvastrum*	*americanum*			0.5	<2
MC25	*Marsilea*	*hirsuta*			0.2	<2
MC25	*Melaleuca*	*argentea*			16	<2
MC25	*Melaleuca*	*bracteata*			5	<2
MC25	*Melaleuca*	*glomerata*			6	2 to 10
MC25	*Myoporum*	*montanum*			3	2 to 10
MC25	*Peplidium*	*maritimum*			0.05	<2
MC25	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC25	*Pluchea*	*rubelliflora*			0.4	2 to 10
MC25	*Potamogeton*	*tricarinatus*			0.5	<2
MC25	*Pterocaulon*	*sphacelatum*			0.5	<2
MC25	*Ptilotus*	*gomphrenoides*	var.	*gomphrenoides*	0.1	<2
MC25	*Samolus*	*repens*			1	<2
MC25	*Schoenoplectus*	*laevis*			0.2	<2
MC25	*Schoenoplectus*	*subulatus*			1	<2
MC25	*Sesbania*	*cannabina*			0.5	<2
MC25	*Sigesbeckia*	*orientalis*			1	<2
MC25	*Sonchus*	*oleraceus*			0.4	<2
MC25	*Sorghum*	*plumosum*			1.5	<2
MC25	*Stemodia*	*grossa*			0.5	2 to 10
MC25	*Streptoglossa*	*bubakii*			0.4	<2
MC25	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC25	*Typha*	*domingensis*			0.5	<2
MC25	*Vigna*	*lanceolata*			0.3	<2
MC26	*Acacia*	*coriacea*	subsp.	*pendens*	6	2 to 10
MC26	*Acacia*	*monticola*			2	<2
MC26	*Acacia*	*pruinocarpa*			8	2 to 10
MC26	*Acacia*	*tetragonophylla*			2	<2
MC26	*Bonamia*	*erecta*			0.4	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC26	*Cheilanthes*	*sieberi*	subsp.	*sieberi*	0.2	<2
MC26	*Corchorus*	*crozophorifolius*			1	<2
MC26	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	1.5	2 to 10
MC26	*Cymbopogon*	*obtectus*			0.5	<2
MC26	*Duperreya*	*commixta*			1	<2
MC26	*Dysphania*	*kalpari*			0.2	<2
MC26	*Dysphania*	*rhadinostachya*			0.2	<2
MC26	*Eremophila*	*latrobei*	subsp.	*filiformis*	1.5	<2
MC26	*Eriachne*	*mucronata*			0.4	<2
MC26	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC26	*Eucalyptus*	*leucophloia*	subsp.	*leucophloia*	12	2 to 10
MC26	*Goodenia*	*stobbsiana*			0.4	<2
MC26	*Gossypium*	*australe*			0.5	<2
MC26	*Grevillea*	*wickhamii*	subsp.	*hispidula*	2	<2
MC26	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC26	*Portulaca*	*oleracea*			1	<2
MC26	*Ptilotus*	*astrolasius*			0.5	<2
MC26	*Ptilotus*	*calostachyus*			0.3	<2
MC26	*Ptilotus*	*nobilis*			0.4	<2
MC26	*Santalum*	*lanceolatum*			1.7	<2
MC26	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2
MC26	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC26	*Senna*	*glutinosa*	subsp.	*pruinosa*	0.5	<2
MC26	*Senna*	*glutinosa*	subsp.	*x luerssenii*	1.5	<2
MC26	*Senna*	*notabilis*			0.3	<2
MC26	*Sida*		sp.	indet	0.4	<2
MC26	*Solanum*	*lasiophyllum*			0.5	<2
MC26	*Trachymene*	*oleracea*			1	<2
MC26	*Tribulus*	*suberosus*			0.7	<2
MC26	*Triodia*	*pungens*			1	2 to 10
MC26	*Triodia*	*wiseana*			1	31 to 70
MC27	*Acacia*	*ancistrocarpa*			0.3	<2
MC27	*Acacia*	*aptaneura*			7	<2
MC27	*Acacia*	*bivenosa (wispy form)*			1.5	<2
MC27	*Acacia*	*coriacea*	subsp.	*pendens*	0.5	<2
MC27	*Acacia*	*dictyophleba*			0.5	<2
MC27	*Acacia*	*inaequilatera*			3	2 to 10
MC27	*Acacia*	*pruinocarpa*			4	<2
MC27	*Acacia*	*tetragonophylla*			0.3	<2
MC27	*Androcalva*	*luteiflora*			0.3	<2
MC27	*Aristida*	*holathera*	var.	*holathera*	0.4	<2
MC27	*Bonamia*	*erecta*			0.3	<2
MC27	*Bonamia*	*media*			0.2	<2
MC27	*Codonocarpus*	*cotinifolius*			0.2	<2
MC27	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	1	11 to 30
MC27	*Corymbia*	*hamersleyana*			4	2 to 10
MC27	*Cymbopogon*	*ambiguus*			1.2	<2
MC27	*Cymbopogon*	*obtectus*			0.5	<2
MC27	*Dysphania*	*rhadinostachya*			0.3	<2
MC27	*Enneapogon*	*caerulescens*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC27	*Eragrostis*	*eriopoda*			0.5	<2
MC27	*Eremophila*	*fraseri*	subsp.	*fraseri*	1	<2
MC27	*Euphorbia*	*australis*	var.	*subtomentosa*	0.02	<2
MC27	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.2	<2
MC27	*Goodenia*	*microptera*			0.4	<2
MC27	*Gossypium*	*australe*			0.5	<2
MC27	*Hakea*	*chordophylla*			2	<2
MC27	*Heliotropium*	*inexplicitum*			0.1	<2
MC27	*Heliotropium*	*pachyphyllum*			0.4	<2
MC27	*Hibiscus*	*brachychlaenus*			1.5	<2
MC27	*Hibiscus*	*leptocladus*			0.3	<2
MC27	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.5	<2
MC27	*Indigofera*	*monophylla*			0.4	2 to 10
MC27	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC27	*Mollugo*	*molluginea*			0.2	<2
MC27	*Paraneurachne*	*muelleri*			0.5	<2
MC27	*Peripleura*	*obovata*			0.4	<2
MC27	*Phyllanthus*	*erwinii*			0.2	<2
MC27	*Polycarpaea*	*corymbosa*			0.15	<2
MC27	*Ptilotus*	*astrolasius*			0.3	<2
MC27	*Ptilotus*	*auriculifolius*			0.4	<2
MC27	*Ptilotus*	*calostachyus*			1	<2
MC27	*Scaevola*	*parvifolia*	subsp.	*pilbarae*	0.3	<2
MC27	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2
MC27	*Senna*	*ferraria*			1.5	<2
MC27	*Senna*	*glutinosa*	subsp.	*glutinosa*	1.5	<2
MC27	*Senna*	*notabilis*			0.5	2 to 10
MC27	*Sida*	*arenicola*			1	<2
MC27	*Sida*	*echinocarpa*			1.5	2 to 10
MC27	*Sida*	*echinocarpa*			0.4	<2
MC27	*Sida*		sp.	Pilbara (A. A. Mitchell PRP 1543)	0.6	<2
MC27	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC27	*Solanum*	*phlomoides*			0.5	<2
MC27	*Streptoglossa*	*decurrens*			0.4	<2
MC27	*Tephrosia*	*oxalidea*			0.05	<2
MC27	*Tephrosia*		sp.	Bungaroo Creek (M.E. Trudgen 11601)	0.4	<2
MC27	*Trachymene*	*oleracea*			0.3	<2
MC27	*Tribulus*	*platypterus*			0.5	<2
MC27	*Triodia*	*pungens*			0.3	<2
MC27	*Triodia*	*wiseana*			0.5	2 to 10
MC27	*Yakirra*	*australiensis*			0.1	<2
MC28	*Acacia*	*ampliceps*			4	<2
MC28	*Acacia*	*ancistrocarpa*			3	2 to 10
MC28	*Acacia*	*bivenosa*			4	<2
MC28	*Acacia*	*coriacea*	subsp.	*pendens*	8	2 to 10
MC28	*Acacia*	*pyrifolia*			2	<2
MC28	*Acacia*	*tetragonophylla*			2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC28	*Atalaya*	*hemiglauca*			3	<2
MC28	*Boerhavia*	*burbidgeana*			0.1	<2
MC28	*Bonamia*	*media*			0.1	<2
MC28	*Cassytha*	*capillaris*			0.1	<2
MC28	*Cleome*	*viscosa*			0.2	<2
MC28	*Clerodendrum*	*floribundum*	var.	*angustifolium*	2	<2
MC28	*Codonocarpus*	*cotinifolius*			1	<2
MC28	*Corchorus*	*crozophorifolius*			1	2 to 10
MC28	*Cymbopogon*	*ambiguus*			1	<2
MC28	*Enneapogon*	*lindleyanus*			0.7	<2
MC28	*Enneapogon*	*robustissimus*			1	2 to 10
MC28	*Eriachne*	*tenuiculmis*			0.4	2 to 10
MC28	*Eucalyptus*	*camaldulensis*			14	2 to 10
MC28	*Eucalyptus*	*victrix*			14	2 to 10
MC28	*Eulalia*	*aurea*			1.2	<2
MC28	*Euphorbia*	*trigonosperma*			0.2	<2
MC28	*Evolvulus*	*alsinoides*	var.	*villosicalyx*	0.1	<2
MC28	*Gomphrena*	*canescens*			0.3	<2
MC28	*Gossypium*	*robinsonii*			4	2 to 10
MC28	*Grevillea*	*pyramidalis*	subsp.	*leucodendron*	3	2 to 10
MC28	*Hakea*	*chordophylla*			3	<2
MC28	*Heliotropium*	*cunninghamii*			0.2	<2
MC28	*Hybanthus*	*aurantiacus*			0.3	<2
MC28	*Melhania*	*oblongifolia*			0.4	<2
MC28	*Paraneurachne*	*muelleri*			0.4	<2
MC28	*Petalostylis*	*labicheoides*			2	<2
MC28	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC28	*Rhynchosia*	*minima*			0.4	<2
MC28	*Rostellularia*	*adscendens*	var.	*latifolia*	0.2	<2
MC28	*Scaevola*	*spinescens*			1	<2
MC28	*Senna*	*artemisioides*	subsp.	*oligophylla*	2	<2
MC28	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC28	*Sorghum*	*plumosum*			2	11 to 30
MC28	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.4	<2
MC28	*Themeda*	*triandra*			1	11 to 30
MC28	*Triodia*	*longiceps*			2	<2
MC28	*Triodia*	*pungens*			1	2 to 10
MC28	*Triodia*	*wiseana*			1	<2
MC29	*Acacia*	*atkinsiana*			2	<2
MC29	*Acacia*	*bivenosa (wispy form)*			2	<2
MC29	*Acacia*	*synchronicia*			2	<2
MC29	*Acacia*	*tetragonophylla*			1	<2
MC29	*Aristida*	*contorta*			0.2	<2
MC29	*Aristida*	*inaequiglumis*			1	<2
MC29	*Atalaya*	*hemiglauca*			2	<2
MC29	*Capparis*	*lasiantha*			0.1	<2
MC29	*Cymbopogon*	*ambiguus*			0.5	<2
MC29	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*	0.2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC29	*Duperreya*	*commixta*			1	<2
MC29	*Enneapogon*	*polyphyllus*			0.1	<2
MC29	*Eriachne*	*lanata*			0.3	<2
MC29	*Eriachne*	*mucronata*			0.4	<2
MC29	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC29	*Eucalyptus*	*leucophloia*	subsp.	*leucophloia*	10	2 to 10
MC29	*Gompholobium*	*oreophilum*			0.5	<2
MC29	*Goodenia*	*stobbsiana*			0.3	<2
MC29	*Heliotropium*	*chrysocarpum*			0.3	<2
MC29	*Hibiscus*	*coatesii*			1	<2
MC29	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC29	*Lepidium*	*oxytrichum*			0.1	<2
MC29	*Lepidium*	*pedicellosum*			0.45	<2
MC29	*Paraneurachne*	*muelleri*			0.3	<2
MC29	*Ptilotus*	*astrolasius*			0.4	<2
MC29	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2
MC29	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC29	*Senna*	*glutinosa*	subsp.	*x luerssenii*	1	<2
MC29	*Solanum*	*horridum*			0.2	<2
MC29	*Themeda*	*triandra*			1	2 to 10
MC29	*Triodia*	*brizoides*			1	11 to 30
MC29	*Triodia*	*wiseana*			1.2	11 to 30
MC29	*Ventilago*	*viminea*			3	<2
MC30	*Acacia*	*ancistrocarpa*			2.5	<2
MC30	*Acacia*	*bivenosa (wispy form)*			5	2 to 10
MC30	*Acacia*	*inaequilatera*			4	<2
MC30	*Acacia*	*maitlandii*			3	<2
MC30	*Acacia*	*sibirica*			2	<2
MC30	*Acacia*	*tenuissima*			2	<2
MC30	*Acacia*	*tetragonophylla*			2	<2
MC30	*Corymbia*	*hamersleyana*			8	<2
MC30	*Dysphania*	*kalpari*			0.1	<2
MC30	*Eucalyptus*	*socialis*	subsp.	*eucentrica*	3	2 to 10
MC30	*Eucalyptus*	*xerothermica*			10	2 to 10
MC30	*Petalostylis*	*labicheoides*			2	<2
MC30	*Rhynchosia*	*minima*			0.4	<2
MC30	*Stackhousia*	*muricata*	subsp.	annual (W.R. Barker 2172)	0.3	<2
MC30	*Themeda*	*triandra*			0.6	<2
MC30	*Triodia*	*angusta*			1.5	2 to 10
MC30	*Triodia*	*wiseana*			1.5	31 to 70
MC31	*Abutilon*	*fraseri*			0.5	<2
MC31	*Abutilon*	*otocarpum*			0.3	<2
MC31	*Acacia*	*bivenosa*			3	<2
MC31	*Acacia*	*citrinoviridis*			6	<2
MC31	*Acacia*	*coriacea*	subsp.	*pendens*	2	<2
MC31	*Acacia*	*dictyophleba*			4	2 to 10
MC31	*Acacia*	*pachyacra*			4	<2
MC31	*Acrachne*	*racemosa*			0.3	<2
MC31	*Alternanthera*	*nana*			0.2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC31	*Amaranthus*	*undulatus*			0.5	<2
MC31	*Amyema*	*miquelii*				<2
MC31	*Androcalva*	*luteiflora*			4	<2
MC31	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.05	<2
MC31	*Atalaya*	*hemiglauca*			4	<2
MC31	*Bidens*	*bipinnata*			0.4	2 to 10
MC31	*Boerhavia*	*coccinea*			0.2	<2
MC31	*Bonamia*	*erecta*			0.5	<2
MC31	*Bonamia*	*media*			0.1	<2
MC31	*Bothriochloa*	*ewartiana*			1	<2
MC31	*Bulbostylis*	*barbata*			0.1	<2
MC31	*Calotis*	*hispidula*			0.2	<2
MC31	*Cenchrus*	*ciliaris*			0.5	2 to 10
MC31	*Centipeda*	*minima*	subsp.	*macrocephala*	0.2	<2
MC31	*Chrysocephalum*	*apiculatum*			0.3	<2
MC31	*Chrysopogon*	*fallax*			1.5	<2
MC31	*Cleome*	*viscosa*			0.2	<2
MC31	*Corchorus*	*crozophorifolius*			0.4	<2
MC31	*Corchorus*	*tridens*			0.2	2 to 10
MC31	*Corymbia*	*aspera*			9	<2
MC31	*Cucumis*	*variabilis*			0.3	<2
MC31	*Dactylotenium*	*radulans*			0.2	<2
MC31	*Datura*	*leichhardtii*			0.4	<2
MC31	*Digitaria*	*ctenantha*			0.3	2 to 10
MC31	*Duperreya*	*commixta*			1	<2
MC31	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.1	<2
MC31	*Dysphania*	*rhadinostachya*			0.3	<2
MC31	*Enneapogon*	*caerulescens*			0.4	<2
MC31	*Enneapogon*	*lindleyanus*			0.4	<2
MC31	*Enneapogon*	*robustissimus*			1	<2
MC31	*Enteropogon*	*ramosus*			1	<2
MC31	*Eragrostis*	*cumingii*			0.4	<2
MC31	*Eragrostis*	*eriopoda*			0.5	<2
MC31	*Eragrostis*	*tenellula*			0.2	<2
MC31	*Eremophila*	*longifolia*			2	<2
MC31	*Eriachne*	*tenuiculmis*			0.5	<2
MC31	*Eucalyptus*	*victrix*			15	2 to 10
MC31	*Euphorbia*	*australis*	var.	*subtomentosa*	0.01	<2
MC31	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.3	<2
MC31	*Euphorbia*	*trigonosperma*			0.1	<2
MC31	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.25	<2
MC31	*Flaveria*	*trinervia*			0.4	<2
MC31	*Glycine*	*canescens*			0.3	<2
MC31	*Goodenia*	*microptera*			0.2	<2
MC31	*Gossypium*	*australe*			0.5	<2
MC31	*Hakea*	*lorea*	subsp.	*lorea*	4	<2
MC31	*Indigofera*	*colutea*			0.2	<2
MC31	*Indigofera*	*linnaei*			0.1	<2
MC31	*Ipomoea*	*muelleri*			0.3	<2
MC31	*Ipomoea*	*polymorpha*			0.1	<2
MC31	*Ipomoea*	*racemigera*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC31	*Iseilema*	*membranaceum*			0.15	<2
MC31	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC31	*Malvastrum*	*americanum*			0.5	<2
MC31	*Melhania*	*oblongifolia*			0.4	<2
MC31	*Nicotiana*	*occidentalis*			0.3	<2
MC31	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.2	<2
MC31	*Paspalidium*	*basicladum*			0.5	<2
MC31	*Perotis*	*rara*			0.1	<2
MC31	*Phyllanthus*	*erwinii*			0.1	<2
MC31	*Phyllanthus*	*maderaspatensis*			0.2	<2
MC31	*Pluchea*	*dentex*			0.5	<2
MC31	*Polycarpaea*	*corymbosa*			0.2	<2
MC31	*Polycarpaea*	*longiflora*			0.2	<2
MC31	*Polymeria*	*ambigua*			0.1	<2
MC31	*Portulaca*	*oleracea*			0.01	<2
MC31	*Pterocaulon*	*sphacelatum*			0.3	<2
MC31	*Ptilotus*	*astrolasius*			0.3	<2
MC31	*Ptilotus*	*auriculifolius*			0.3	<2
MC31	*Ptilotus*	*nobilis*			0.4	<2
MC31	*Rhagodia*	*eremaea*			1	<2
MC31	*Rhynchosia*	*minima*			0.4	<2
MC31	*Rostellularia*	*adscendens*	var.	*latifolia*	0.4	<2
MC31	*Salsola*	*australis*			0.3	<2
MC31	*Santalum*	*lanceolatum*			2	<2
MC31	*Senna*	*artemisioides*	subsp.	*filifolia*	1.5	<2
MC31	*Senna*	*artemisioides*	subsp.	*filifolia*	2	<2
MC31	*Senna*	*notabilis*			0.1	<2
MC31	*Setaria*	*surgens*			0.5	<2
MC31	*Sida*	*fibulifera*			0.25	<2
MC31	*Sida*	*fibulifera*			0.3	<2
MC31	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	0.5	<2
MC31	*Solanum*	*horridum*			0.3	<2
MC31	*Solanum*	*lasiophyllum*			0.3	<2
MC31	*Sporobolus*	*australasicus*			0.1	<2
MC31	*Swainsona*	*kingii*			0.01	<2
MC31	*Themeda*	*triandra*			1	<2
MC31	*Tragus*	*australianus*			0.1	<2
MC31	*Tribulus*	*terrestris*			0.1	<2
MC31	*Triodia*	*longiceps*			1	<2
MC31	*Triodia*	*pungens*			1	31 to 70
MC31	*Triodia*	*wiseana*			1	<2
MC31	*Triraphis*	*mollis*			0.2	<2
MC31	*Urochloa*	*piligera*			0.2	<2
MC31	*Vigna*	*lanceolata*			0.3	<2
MC31	*Wahlenbergia*	*tumidifructa*			0.3	<2
MC31	*Waltheria*	*indica*			0.3	<2
MC32	*Abutilon*	*otocarpum*			0.3	<2
MC32	*Acacia*	*adoxa*	var.	*adoxa*	0.35	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC32	*Acacia*	*coriacea*	subsp.	*pendens*	3	<2
MC32	*Acacia*	*elachantha*			2	<2
MC32	*Acacia*	*hilliana*			0.4	<2
MC32	*Acacia*	*tumida*	var.	*pilbarensis*	2	2 to 10
MC32	*Androcalva*	*luteiflora*			2	<2
MC32	*Aristida*	*holathera*	var.	*holathera*	0.4	<2
MC32	*Atalaya*	*hemiglauca*			3	<2
MC32	*Bidens*	*bipinnata*			0.35	<2
MC32	*Boerhavia*	*coccinea*			0.2	<2
MC32	*Cenchrus*	*ciliaris*			0.5	<2
MC32	*Corchorus*	*crozophorifolius*			1	<2
MC32	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.4	<2
MC32	*Corchorus*	*sidoides*	subsp.	*sidoides*	0.35	<2
MC32	*Corchorus*	*tridens*			0.1	<2
MC32	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC32	*Cyperus*	*vaginatus*			1	<2
MC32	*Duperreya*	*commixta*			1	<2
MC32	*Enneapogon*	*lindleyanus*			0.4	<2
MC32	*Enteropogon*	*ramosus*			1	<2
MC32	*Eragrostis*	*eriopoda*			0.4	<2
MC32	*Eriachne*	*mucronata*			0.4	<2
MC32	*Eriachne*	*tenuiculmis*			0.5	<2
MC32	*Eucalyptus*	*victrix*			15	2 to 10
MC32	*Eulalia*	*aurea*			0.35	11 to 30
MC32	*Eulalia*	*aurea*			1	2 to 10
MC32	*Euphorbia*	*biconvexa*			0.4	<2
MC32	*Euphorbia*	*tannensis*	subsp.	*eremophila*	1	<2
MC32	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC32	*Goodenia*	*lamprosperma*			0.4	<2
MC32	*Goodenia*	*muelleriana*			0.5	<2
MC32	*Gossypium*	*australe*			1	<2
MC32	*Gossypium*	*robinsonii*			2.5	2 to 10
MC32	*Heliotropium*	*cunninghamii*			0.3	<2
MC32	*Heliotropium*	*pachyphyllum*			0.4	<2
MC32	*Indigofera*	*linnaei*			0.1	<2
MC32	*Indigofera*	*monophylla*			0.4	<2
MC32	*Ipomoea*	*muelleri*			0.3	<2
MC32	*Malvastrum*	*americanum*			0.5	<2
MC32	*Melaleuca*	*glomerata*			2	<2
MC32	*Melhania*	*oblongifolia*			0.4	<2
MC32	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.15	<2
MC32	*Paraneurachne*	*muelleri*			0.4	<2
MC32	*Paspalidium*	*basicladum*			0.5	<2
MC32	*Phyllanthus*	*maderaspatensis*			0.45	<2
MC32	*Polymeria*	*ambigua*			0.1	<2
MC32	*Rhynchosia*	*minima*			0.4	<2
MC32	*Senna*	*notabilis*			0.4	<2
MC32	*Setaria*	*verticillata*			0.5	<2
MC32	*Sida*	*fibulifera*			0.4	<2
MC32	*Sida*	*fibulifera*			0.3	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC32	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC32	*Solanum*	*phlomoides*			0.5	<2
MC32	*Sporobolus*	*australasicus*			0.1	<2
MC32	*Themeda*	*triandra*			1	11 to 30
MC32	*Triodia*	*pungens*			1	11 to 30
MC33	*Abutilon*	*macrum*			1	<2
MC33	*Abutilon*	*otocarpum*			0.2	<2
MC33	*Acacia*	*ampliceps*			6	<2
MC33	*Acacia*	*coriacea*	subsp.	*pendens*	7	<2
MC33	*Acacia*	*dictyophleba*			2	<2
MC33	*Acacia*	*pruinocarpa*			3	<2
MC33	*Acacia*	*pyrifolia*			0.6	<2
MC33	*Acacia*	*tumida*	var.	*pilbarensis*	1	<2
MC33	*Acetosa*	*vesicaria*			0.2	<2
MC33	*Aerva*	*javanica*			0.5	<2
MC33	*Amaranthus*	*undulatus*			0.7	<2
MC33	*Amaranthus*	*undulatus*			0.3	<2
MC33	*Androcalva*	*luteiflora*			2	<2
MC33	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.05	<2
MC33	*Atalaya*	*hemiglauca*			6	2 to 10
MC33	*Boerhavia*	*coccinea*			0.2	<2
MC33	*Bothriochloa*	*ewartiana*			0.6	<2
MC33	*Cenchrus*	*ciliaris*			0.6	31 to 70
MC33	*Citrullus*	*colocynthis*			0.1	<2
MC33	*Corchorus*	*crozophorifolius*			1	2 to 10
MC33	*Corchorus*	*tridens*			0.1	<2
MC33	*Dactylotenium*	*radulans*			0.2	<2
MC33	*Dicladanthera*	*forrestii*			0.4	<2
MC33	*Duperreya*	*commixta*			1	<2
MC33	*Dysphania*	*melanocarpa*			0.2	<2
MC33	*Dysphania*	*rhadinostachya*			0.2	<2
MC33	*Enneapogon*	*caerulescens*			0.1	<2
MC33	*Enneapogon*	*robustissimus*			0.5	<2
MC33	*Enteropogon*	*ramosus*			0.1	<2
MC33	*Eragrostis*	*cumingii*			0.1	<2
MC33	*Eriachne*	*mucronata*			0.3	<2
MC33	*Eriachne*	*tenuiculmis*			0.5	<2
MC33	*Eucalyptus*	*victrix*			15	2 to 10
MC33	*Euphorbia*	*australis*	var.	*subtomentosa*	0.01	<2
MC33	*Euphorbia*	*trigonosperma*			0.2	<2
MC33	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC33	*Glycine*	*canescens*			0.3	<2
MC33	*Goodenia*	*triodiophila*			0.2	<2
MC33	*Gossypium*	*australe*			1	<2
MC33	*Gossypium*	*robinsonii*			2	2 to 10
MC33	*Hakea*	*lorea*	subsp.	*lorea*	2	<2
MC33	*Hybanthus*	*aurantiacus*			0.5	<2
MC33	*Indigofera*	*monophylla*			0.5	<2
MC33	*Ipomoea*	*muelleri*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC33	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC33	*Lysiana*	*casuarinae*			5	<2
MC33	*Malvastrum*	*americanum*			0.5	<2
MC33	*Melhania*	*oblongifolia*			0.2	<2
MC33	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.2	<2
MC33	*Paraneurachne*	*muelleri*			0.5	<2
MC33	*Paspalidium*	*basicladum*			0.3	<2
MC33	*Perotis*	*rara*			0.1	<2
MC33	*Phyllanthus*	*erwinii*			0.1	<2
MC33	*Phyllanthus*	*maderaspatensis*			0.5	<2
MC33	*Polymeria*	*ambigua*			0.1	<2
MC33	*Portulaca*	*oleracea*			0.05	<2
MC33	*Pterocaulon*	*sphacelatum*			0.2	<2
MC33	*Rhynchosia*	*minima*			0.2	<2
MC33	*Rostellularia*	*adscendens*	var.	*latifolia*	0.4	<2
MC33	*Sclerolaena*	*cornishiana*			0.4	<2
MC33	*Setaria*	*verticillata*			0.5	<2
MC33	*Sida*	*fibulifera*			0.2	<2
MC33	*Sida*	*fibulifera*			0.2	<2
MC33	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	0.2	<2
MC33	*Sigesbeckia*	*orientalis*			0.3	<2
MC33	*Stylobasium*	*spathulatum*			2	2 to 10
MC33	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.4	<2
MC33	*Themeda*	*triandra*			0.5	2 to 10
MC33	*Triodia*	*pungens*			1	2 to 10
MC33	*Vachellia*	*farnesiana*			2.5	<2
MC33	*Waltheria*	*indica*			0.5	<2
MC34	*Abutilon*	*macrum*			1	<2
MC34	*Acacia*	*ampliceps*			6	2 to 10
MC34	*Acacia*	*coriacea*	subsp.	*pendens*	8	11 to 30
MC34	*Androcalva*	*luteiflora*			2	<2
MC34	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.1	<2
MC34	*Atalaya*	*hemiglauca*			6	2 to 10
MC34	*Bidens*	*bipinnata*			0.3	<2
MC34	*Boerhavia*	*coccinea*			0.2	<2
MC34	*Cenchrus*	*ciliaris*			1	<2
MC34	*Centipeda*	*minima*	subsp.	*macrocephala*	0.2	<2
MC34	*Cleome*	*viscosa*			0.1	<2
MC34	*Clerodendrum*	*floribundum*	var.	*angustifolium*	1	<2
MC34	*Corchorus*	*crozophorifolius*			1	<2
MC34	*Cucumis*	*variabilis*			0.3	<2
MC34	*Cymbopogon*	*procerus*			1.5	<2
MC34	*Cyperus*	*vaginatus*			1	2 to 10
MC34	*Dicladanthera*	*forrestii*			0.5	<2
MC34	*Duperreya*	*commixta*			1	<2
MC34	*Enneapogon*	*lindleyanus*			0.6	<2
MC34	*Eriachne*	*tenuiculmis*			0.5	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC34	*Eucalyptus*	*camaldulensis*			15	11 to 30
MC34	*Eucalyptus*	*victrix*			15	2 to 10
MC34	*Eulalia*	*aurea*			1	2 to 10
MC34	*Euphorbia*	*biconvexa*			0.2	<2
MC34	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.6	<2
MC34	*Glycine*	*canescens*			0.3	2 to 10
MC34	*Gossypium*	*robinsonii*			1	<2
MC34	*Hybanthus*	*aurantiacus*			0.5	<2
MC34	*Indigofera*	*monophylla*			0.2	<2
MC34	*Ipomoea*	*muelleri*			0.2	<2
MC34	*Lepidium*	*muelleri-ferdinandii*			0.2	<2
MC34	*Melaleuca*	*argentea*			10	2 to 10
MC34	*Melaleuca*	*glomerata*			6	2 to 10
MC34	*Paspalidium*	*basicladum*			0.5	<2
MC34	*Phyllanthus*	*maderaspatensis*			0.5	<2
MC34	*Pluchea*	*rubelliflora*			0.2	<2
MC34	*Potamogeton*	*tricarinatus*			1	2 to 10
MC34	*Ptilotus*	*astrolasius*			0.4	<2
MC34	*Setaria*	*verticillata*			0.3	<2
MC34	*Solanum*	*nigrum*			0.5	<2
MC34	*Sonchus*	*oleraceus*			0.2	<2
MC34	*Sorghum*	*plumosum*			2	<2
MC34	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.5	<2
MC34	*Themeda*	*triandra*			0.5	2 to 10
MC34	*Triodia*	*pungens*			1	<2
MC34	*Typha*	*domingensis*			2.5	31 to 70
MC34	*Vigna*	*lanceolata*			0.3	<2
MC34	*Waltheria*	*indica*			0.5	<2
MC35	*Abutilon*		sp.	indet	0.1	<2
MC35	*Acacia*	*dictyophleba*			1	<2
MC35	*Acacia*	*pachyacra*			2	<2
MC35	*Acacia*	*pruinocarpa*			2	<2
MC35	*Acacia*	*pyrifolia*			1	<2
MC35	*Acetosa*	*vesicaria*			0.4	<2
MC35	*Alternanthera*	*nana*			0.3	<2
MC35	*Amaranthus*	*undulatus*			0.4	<2
MC35	*Androcalva*	*luteiflora*			1	<2
MC35	*Aristida*	*holathera*	var.	*holathera*	0.5	<2
MC35	*Atalaya*	*hemiglauca*			2	<2
MC35	*Boerhavia*	*coccinea*			0.1	<2
MC35	*Bonamia*	*erecta*			0.25	<2
MC35	*Calotis*	*hispidula*			0.1	<2
MC35	*Cenchrus*	*ciliaris*			0.2	2 to 10
MC35	*Chrysocephalum*	*apiculatum*			0.3	<2
MC35	*Cleome*	*viscosa*			0.2	<2
MC35	*Corymbia*	*aspera*			8	<2
MC35	*Dactylotenium*	*radulans*			0.1	<2
MC35	*Dicrastylis*	*cordifolia*			1	<2
MC35	*Duperreya*	*commixta*			1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC35	*Enneapogon*	*lindleyanus*			0.3	<2
MC35	*Enneapogon*	*polyphyllus*			0.2	<2
MC35	*Eragrostis*	*cumingii*			0.1	<2
MC35	*Eragrostis*	*eriopoda*			0.4	<2
MC35	*Eremophila*	*longifolia*			1	<2
MC35	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC35	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.3	<2
MC35	*Euphorbia*	*trigonosperma*			0.3	<2
MC35	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.1	<2
MC35	*Gossypium*	*australe*			0.5	<2
MC35	*Gossypium*	*robinsonii*			2	2 to 10
MC35	*Hakea*	*lorea*	subsp.	*lorea*	2	<2
MC35	*Heliotropium*	*chrysocarpum*			0.2	<2
MC35	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.3	<2
MC35	*Hybanthus*	*aurantiacus*			0.4	<2
MC35	*Indigofera*	*linnaei*			0.15	<2
MC35	*Ipomoea*	*muelleri*			0.1	<2
MC35	*Ipomoea*	*muelleri*			0.1	<2
MC35	*Notoleptopus*	*decaisnei*	var.	Orbicularis (A.B. Craig 428)	0.2	<2
MC35	*Paraneurachne*	*muelleri*			0.5	<2
MC35	*Paspalidium*	*rarum*			0.1	<2
MC35	*Perotis*	*rara*			0.1	<2
MC35	*Polymeria*	*ambigua*			0.1	<2
MC35	*Portulaca*	*oleracea*			0.02	<2
MC35	*Ptilotus*	*astrolasius*			0.4	<2
MC35	*Ptilotus*	*carinatus*			0.3	<2
MC35	*Ptilotus*	*nobilis*			0.5	<2
MC35	*Rhynchosia*	*minima*			0.2	<2
MC35	*Salsola*	*australis*			0.3	<2
MC35	*Senna*	*notabilis*			0.6	<2
MC35	*Sida*	*fibulifera*			0.4	<2
MC35	*Sida*	*fibulifera*			0.3	<2
MC35	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	1.5	<2
MC35	*Solanum*	*phlomoides*			0.2	<2
MC35	*Sporobolus*	*australasicus*			0.2	<2
MC35	*Tragus*	*australianus*			0.1	<2
MC35	*Triodia*	*pungens*			1	31 to 70
MC35	*Triraphis*	*mollis*			0.2	<2
MC35	*Vachellia*	*farnesiana*			2	<2
MC35	*Waltheria*	*indica*			0.4	<2
MC36	*Acacia*	*adoxa*	var.	*adoxa*	0.25	2 to 10
MC36	*Acacia*	*ancistrocarpa*			2	<2
MC36	*Acacia*	*dictyophleba*			1	<2
MC36	*Acacia*	*inaequilatera*			2	<2
MC36	*Acacia*	*monticola*			2	<2
MC36	*Acacia*	*pruinocarpa*			6	2 to 10
MC36	*Atalaya*	*hemiglauca*			2	<2
MC36	*Bonamia*	*media*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC36	*Clerodendrum*	*floribundum*	var.	*angustifolium*	2	<2
MC36	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	1	11 to 30
MC36	*Cucumis*	*variabilis*			0.3	<2
MC36	*Dipteracanthus*	*australasicus*	subsp.	*australasicus*	0.45	<2
MC36	*Duperreya*	*commixta*			1	<2
MC36	*Dysphania*	*rhadinostachya*			0.2	<2
MC36	*Enneapogon*	*lindleyanus*			0.4	<2
MC36	*Enneapogon*	*polyphyllus*			0.3	<2
MC36	*Eremophila*	*longifolia*			1	<2
MC36	*Eriachne*	*lanata*			0.5	<2
MC36	*Eriachne*	*mucronata*			0.35	<2
MC36	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC36	*Eucalyptus*	*leucophloa*	subsp.	*leucophloia*	8	2 to 10
MC36	*Gomphrena*	*cunninghamii*			0.1	<2
MC36	*Goodenia*	*microptera*			0.4	<2
MC36	*Goodenia*	*stobbsiana*			0.4	<2
MC36	*Gossypium*	*australe*			1	<2
MC36	*Gossypium*	*robinsonii*			2	<2
MC36	*Grevillea*	*wickhamii*	subsp.	*hispidula*	3	<2
MC36	*Hibiscus*	*coatesii*			0.4	<2
MC36	*Indigofera*	*monophylla*			0.4	<2
MC36	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC36	*Paraneurachne*	*muelleri*			0.4	<2
MC36	*Ptilotus*	*astrolasius*			0.4	<2
MC36	*Ptilotus*	*calostachyus*			1	<2
MC36	*Ptilotus*	*nobilis*			1	<2
MC36	*Senna*	*glutinosa*	subsp.	*glutinosa*	1	<2
MC36	*Senna*	*glutinosa*	subsp.	*pruinosa*	0.5	<2
MC36	*Sida*	*arenicola*			1.5	<2
MC36	*Sida*	*echinocarpa*			0.5	<2
MC36	*Sida*		sp.	Pilbara (A. A. Mitchell PRP 1543)	0.6	<2
MC36	*Solanum*	*phlomoides*			0.4	<2
MC36	*Tephrosia*	*oxalidea*			0.1	<2
MC36	*Tephrosia*	*virens*			1	<2
MC36	*Tribulus*	*hirsutus*			0.1	<2
MC36	*Tribulus*	*platypterus*			0.5	<2
MC36	*Triodia*	*pungens*			1	2 to 10
MC36	*Triodia*	*wiseana*			1	2 to 10
MC37	*Abutilon*	*otocarpum*			0.2	<2
MC37	*Acacia*	*citrinoviridis*			6	<2
MC37	*Acacia*	*coriacea*	subsp.	*pendens*	8	2 to 10
MC37	*Acacia*	*pyrifolia*			1.5	<2
MC37	*Acetosa*	*vesicaria*			0.3	<2
MC37	*Alternanthera*	*nana*			0.2	<2
MC37	*Alternanthera*	*nodiflora*			0.1	<2
MC37	*Amaranthus*	*undulatus*			0.4	<2
MC37	*Amaranthus*	*undulatus*			0.2	<2
MC37	*Ammannia*	*multiflora*			0.25	<2
MC37	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.2	<2
MC37	*Atalaya*	*hemiglauca*			2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC37	*Bergia*	*trimera*			0.3	<2
MC37	*Bidens*	*bipinnata*			0.3	<2
MC37	*Bothriochloa*	*ewartiana*			0.5	<2
MC37	*Cenchrus*	*ciliaris*			0.5	2 to 10
MC37	*Centipeda*	*minima*	subsp.	*macrocephala*	0.2	<2
MC37	*Cleome*	*viscosa*			0.3	<2
MC37	*Corchorus*	*crozophorifolius*			1	2 to 10
MC37	*Cucumis*	*variabilis*			0.3	<2
MC37	*Cymbopogon*	*procerus*			1.5	<2
MC37	*Cynodon*	*dactylon*			0.25	<2
MC37	*Cyperus*	*difformis*			0.3	<2
MC37	*Cyperus*	*ixiocarpus*			0.2	<2
MC37	*Cyperus*	*squarrosus*			0.2	<2
MC37	*Cyperus*	*vaginatus*			1	2 to 10
MC37	*Dactylotenium*	*radulans*			0.1	<2
MC37	*Dysphania*	*melanocarpa*	forma	*melanocarpa*	0.2	<2
MC37	*Dysphania*	*rhadinostachya*			0.3	<2
MC37	*Echinochloa*	*colona*			0.4	<2
MC37	*Enneapogon*	*lindleyanus*			0.4	<2
MC37	*Enneapogon*	*lindleyanus*			0.4	<2
MC37	*Enneapogon*	*robustissimus*			0.5	<2
MC37	*Enteropogon*	*ramosus*			0.5	<2
MC37	*Eragrostis*	*tenellula*			0.3	<2
MC37	*Eriachne*	*pulchella*	subsp.	*dominii*	0.2	<2
MC37	*Eriachne*	*tenuiculmis*			0.5	<2
MC37	*Eucalyptus*	*camaldulensis*			20	2 to 10
MC37	*Eulalia*	*aurea*			0.5	<2
MC37	*Euphorbia*	*trigonosperma*			0.2	<2
MC37	*Fimbristylis*	*microcarya*			0.2	<2
MC37	*Flaveria*	*trinervia*			0.3	<2
MC37	*Glycine*	*canescens*			0.3	<2
MC37	*Goodenia*	*lamprosperma*			0.3	<2
MC37	*Heliochyrsum*	*luteoalbum*			0.3	<2
MC37	*Hybanthus*	*aurantiacus*			0.3	<2
MC37	*Indigofera*	*monophylla*			1	2 to 10
MC37	*Ipomoea*	*muelleri*			0.1	<2
MC37	*Lepidium*	*muelleri-ferdinandii*			0.2	<2
MC37	*Malvastrum*	*americanum*			0.2	<2
MC37	*Marselia*	*hirsuta*			0.2	<2
MC37	*Melaleuca*	*glomerata*			4	<2
MC37	*Nicotiana*	*occidentalis*			0.2	<2
MC37	*Paspalidium*	*rarum*			0.1	<2
MC37	*Phyllanthus*	*maderaspatensis*			0.2	<2
MC37	*Pluchea*	*rubelliflora*			0.3	<2
MC37	*Polycarpaea*	*longiflora*			0.2	<2
MC37	*Pterocaulon*	*sphacelatum*			0.2	<2
MC37	*Ptilotus*	*nobilis*			0.3	<2
MC37	*Salsola*	*australis*			0.3	<2
MC37	*Setaria*	*verticillata*			0.2	<2
MC37	*Sigesbeckia*	*orientalis*			0.2	<2
MC37	*Solanum*	*nigrum*			0.2	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC37	*Sonchus*	*oleraceus*			0.3	<2
MC37	*Sorghum*	*plumosum*			1.6	<2
MC37	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	1	2 to 10
MC37	*Themeda*	*triandra*			0.5	<2
MC37	*Trichodesma*	*zeylanicum*			0.3	<2
MC37	*Triodia*	*pungens*			0.5	<2
MC37	*Vachellia*	*farnesiana*			1.4	<2
MC37	*Wahlenbergia*	*tumidifructa*			0.2	<2
MC38	*Abutilon*	*fraseri*			0.6	<2
MC38	*Abutilon*	*macrum*			1	<2
MC38	*Acacia*	*ancistrocarpa*			2	<2
MC38	*Acacia*	*dictyophleba*			2	<2
MC38	*Acacia*	*pachyacra*			2	<2
MC38	*Acacia*	*pyrifolia*			1	<2
MC38	*Acacia*	*tetragonophylla*			1	<2
MC38	*Acacia*	*tumida*	var.	*pilbarensis*	2	<2
MC38	*Acrachne*	*racemosa*			0.4	<2
MC38	*Alternanthera*	*nana*			0.15	<2
MC38	*Alysicarpus*	*muelleri*			0.4	<2
MC38	*Amaranthus*	*centralis*			0.4	<2
MC38	*Amaranthus*	*undulatus*			0.4	<2
MC38	*Argemone*	*ochroleuca*	subsp.	*ochroleuca*	0.05	<2
MC38	*Aristida*	*contorta*			0.3	<2
MC38	*Aristida*	*holathera*	var.	*holathera*	0.5	<2
MC38	*Aristida*	*inaequiglumis*			1	<2
MC38	*Atalaya*	*hemiglauca*			3	2 to 10
MC38	*Bidens*	*bipinnata*			0.5	<2
MC38	*Boerhavia*	*coccinea*			0.2	<2
MC38	*Calotis*	*hispidula*			0.15	<2
MC38	*Calotis*	*plumulifera*			0.3	<2
MC38	*Cenchrus*	*ciliaris*			0.6	2 to 10
MC38	*Centipeda*	*minima*	subsp.	*macrocephala*	0.1	<2
MC38	*Chrysocephalum*	*apiculatum*			0.3	<2
MC38	*Chrysopogon*	*fallax*			1	<2
MC38	*Convolvulus*	*clementii*			0.1	<2
MC38	*Corchorus*	*tridens*			0.15	<2
MC38	*Corymbia*	*aspera*			15	2 to 10
MC38	*Crotalaria*	*medicaginea*	var.	*neglecta*	0.3	<2
MC38	*Cymbopogon*	*ambiguus*			1	<2
MC38	*Cyperus*	*bulbosus*			0.2	<2
MC38	*Digitaria*	*ctenantha*			0.4	<2
MC38	*Dysphania*	*melanocarpa*			0.2	<2
MC38	*Enneapogon*	*lindleyanus*			0.45	<2
MC38	*Enneapogon*	*robustissimus*			1	<2
MC38	*Enteropogon*	*ramosus*			1	<2
MC38	*Eragrostis*	*cumingii*			0.1	<2
MC38	*Eragrostis*	*eriopoda*			0.5	<2
MC38	*Eragrostis*	*tenellula*			0.2	<2
MC38	*Eremophila*	*longifolia*			2	2 to 10

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC38	*Eriachne*	*tenuiculmis*			0.6	2 to 10
MC38	*Eucalyptus*	*victrix*			20	2 to 10
MC38	*Eulalia*	*aurea*			1.5	11 to 30
MC38	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC38	*Euphorbia*	*australis*	var.	*subtomentosa*	0.1	<2
MC38	*Euphorbia*	*biconvexa*			0.3	<2
MC38	*Euphorbia*	*tannensis*	subsp.	*eremophila*	0.4	<2
MC38	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.15	<2
MC38	*Flaveria*	*trinervia*			0.4	<2
MC38	*Glycine*	*canescens*			0.3	<2
MC38	*Goodenia*	*microptera*			0.4	<2
MC38	*Goodenia*	*stellata*			0.2	<2
MC38	*Gossypium*	*australe*			1	<2
MC38	*Gossypium*	*robinsonii*			3	2 to 10
MC38	*Hakea*	*lorea*	subsp.	*lorea*	5	<2
MC38	*Heliotropium*	*pachyphyllum*			0.5	<2
MC38	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.6	<2
MC38	*Indigofera*	*colutea*			0.1	<2
MC38	*Indigofera*	*linnaei*			0.1	<2
MC38	*Indigofera*	*monophylla*			0.4	<2
MC38	*Iseilema*	*membranaceum*			0.2	<2
MC38	*Jasminum*	*didymum*	subsp.	*lineare*	1	<2
MC38	*Lepidium*	*muelleri-ferdinandii*			0.2	<2
MC38	*Malvastrum*	*americanum*			0.5	2 to 10
MC38	*Melhania*	*oblongifolia*			0.4	<2
MC38	*Nicotiana*	*occidentalis*			0.1	<2
MC38	*Paraneurachne*	*muelleri*			0.4	<2
MC38	*Paspalidium*	*basicladum*			0.7	<2
MC38	*Perotis*	*rara*			0.1	<2
MC38	*Phyllanthus*	*erwinii*			0.2	<2
MC38	*Phyllanthus*	*maderaspatensis*			0.4	<2
MC38	*Phyllanthus*	*virgatus*			0.2	<2
MC38	*Pluchea*	*tetranthera*			0.55	<2
MC38	*Polycarpaea*	*corymbosa*			0.2	<2
MC38	*Polymeria*	*ambigua*			0.1	<2
MC38	*Portulaca*	*oleracea*			0.05	<2
MC38	*Pterocaulon*	*sphacelatum*			0.5	<2
MC38	*Ptilotus*	*obovatus*	var.	*obovatus*	0.5	<2
MC38	*Rhynchosia*	*minima*			0.2	<2
MC38	*Sclerolaena*	*cornishiana*			0.3	<2
MC38	*Setaria*	*verticillata*			0.5	<2
MC38	*Sida*	*fibulifera*			0.25	<2
MC38	*Sida*	*fibulifera*			0.3	<2
MC38	*Sida*		sp.	Spiciform panicles (E. Leyland s.n. 14/8/90)	2	<2
MC38	*Sigesbeckia*	*orientalis*			1	<2
MC38	*Tephrosia*	*rosea*	var.	Fortescue creeks (M.I.H. Brooker 2186)	0.4	<2
MC38	*Themeda*	*triandra*			1	11 to 30
MC38	*Tragus*	*australiensis*			0.1	<2

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC38	*Triodia*	*pungens*			1	2 to 10
MC38	*Triraphis*	*mollis*			0.3	<2
MC38	*Vachellia*	*farnesiana*			3	<2
MC38	*Wahlenbergia*	*tumidifructa*			0.4	<2
MC38	*Waltheria*	*indica*			1	<2
MC39	*Acacia*	*adoxa*	var.	*adoxa*	0.5	<2
MC39	*Acacia*	*ancistrocarpa*			2	<2
MC39	*Acacia*	*dictyophleba*			2	<2
MC39	*Acacia*	*monticola*			2	11 to 30
MC39	*Aristida*	*holathera*	var.	*holathera*	0.2	<2
MC39	*Corchorus*	*lasiocarpus*	subsp.	*lasiocarpus*	0.5	2 to 10
MC39	*Dysphania*	*rhadinostachya*			0.2	<2
MC39	*Enneapogon*	*polyphyllus*			0.4	<2
MC39	*Eremophila*	*fraseri*	subsp.	*fraseri*	1	2 to 10
MC39	*Eremophila*	*latrobei*	subsp.	*filiformis*	0.5	<2
MC39	*Eriachne*	*aristidea*			0.1	<2
MC39	*Eriachne*	*lanata*			0.5	<2
MC39	*Eriachne*	*mucronata*			0.5	<2
MC39	*Eriachne*	*pulchella*	subsp.	*dominii*	0.1	<2
MC39	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC39	*Goodenia*	*microptera*			0.2	<2
MC39	*Goodenia*	*stobbsiana*			0.3	<2
MC39	*Gossypium*	*robinsonii*			2	<2
MC39	*Grevillea*	*wickhamii*	subsp.	*hispidula*	3	2 to 10
MC39	*Hibiscus*	*sturtii*	var.	*campylochlamys*	0.3	<2
MC39	*Mollugo*	*molluginea*			0.1	<2
MC39	*Ptilotus*	*astrolasius*			0.4	<2
MC39	*Ptilotus*	*calostachyus*			0.4	<2
MC39	*Ptilotus*	*nobilis*			0.3	<2
MC39	*Ptilotus*	*obovatus*	var.	*obovatus*	0.7	<2
MC39	*Senna*	*glutinosa*	subsp.	*glutinosa*	2	<2
MC39	*Senna*	*glutinosa*	subsp.	*x luerssenii*	1	<2
MC39	*Sida*	*echinocarpa*			0.5	<2
MC39	*Solanum*	*phlomoides*			0.5	<2
MC39	*Synaptantha*	*tilliaeacea*	var.	*tilliaceae*	0.01	<2
MC39	*Triodia*	*pungens*			1	<2
MC39	*Triodia*	*wiseana*			1.5	31 to 70
MC40	*Abutilon*	*otocarpum*			0.25	<2
MC40	*Acacia*	*dictyophleba*			2.5	2 to 10
MC40	*Acacia*	*pachyacra*			2	<2
MC40	*Acacia*	*pruinocarpa*			6	<2
MC40	*Acacia*	*sericophylla*			2	<2
MC40	*Aristida*	*holathera*	var.	*holathera*	0.4	2 to 10
MC40	*Atalaya*	*hemiglauca*			2	<2
MC40	*Bonamia*	*erecta*			0.4	<2
MC40	*Cenchrus*	*ciliaris*			0.4	<2
MC40	*Chrysopogon*	*fallax*			1	<2
MC40	*Corymbia*	*aspera*			6	<2
MC40	*Corymbia*	*hamersleyana*			7	<2
MC40	*Duperreya*	*commixta*			1	<2
MC40	*Eragrostis*	*eriopoda*			0.5	11 to 30

Site	*Genus*	*Species*	Ifra-Rank	Infra-Name	Ht (m)	% Cover
MC40	*Eulalia*	*aurea*			0.35	<2
MC40	*Evolvulus*	*alsinoides*	var.	*decumbens*	0.2	<2
MC40	*Gossypium*	*australe*			1	<2
MC40	*Gossypium*	*robinsonii*			1	<2
MC40	*Hakea*	*lorea*	subsp.	*lorea*	6	2 to 10
MC40	*Hibiscus*	*sturtii*	var.	*platychlamys*	0.5	<2
MC40	*Indigofera*	*linifolia*			0.2	<2
MC40	*Indigofera*	*linnaei*			0.2	<2
MC40	*Keraudrenia*	*velutina*	subsp.	*ellliptica*	0.4	<2
MC40	*Paraneurachne*	*muelleri*			0.6	2 to 10
MC40	*Ptilotus*	*nobilis*			0.4	<2
MC40	*Ptilotus*	*obovatus*	var.	*obovatus*	0.4	<2
MC40	*Rhyncharrhena*	*linearis*			1	<2
MC40	*Salsola*	*australis*			0.3	<2
MC40	*Scaevola*	*parvifolia*	subsp.	*pilbarae*	0.3	<2
MC40	*Sclerolaena*	*cornishiana*			0.35	<2
MC40	*Senna*	*artemisioides*	subsp.	*filifolia*	1.5	<2
MC40	*Senna*	*artemisioides*	subsp.	*helmsii*	0.4	<2
MC40	*Senna*	*artemisioides*	subsp.	*oligophylla*	0.5	<2
MC40	*Sida*	*fibulifera*			0.25	<2
MC40	*Solanum*	*lasiophyllum*			0.5	<2
MC40	*Trianthema*	*pilosum*			0.1	<2
MC40	*Triodia*	*pungens*			1	<2
MC40	*Triodia*	*schinzii*			1.5	31 to 70
MC40	*Waltheria*	*indica*			0.5	<2