

HANCOCK PROSPECTING PTY LTD

**ROY HILL 1
INFRASTRUCTURE FLORA
ASSESSMENT**



*Providing sustainable environmental strategies,
management and monitoring solutions
to industry and government.*



ROY HILL 1

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ASSESSMENT**

HANCOCK PROSPECTING PTY LTD

September 2009

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Executive Summary

Background

The proposed Roy Hill 1 Iron Ore Project (the Project) is situated approximately 120 km north east of Newman (Figure 1-1). The project area is located within existing Hancock Prospecting Pty Ltd (HPPL) exploration tenements E46/334, 335, 586 and 592 and E47/). It is situated in the hills and foot slopes of the Chichester Range and the plains of the Fortescue Valley and covers approximately 4,160 hectares of open rangelands.

The current iron ore resource for the project has been estimated at approximately 600 million tonnes with expected extensions currently under exploration. It is proposed to utilise conventional open-cut strip mining methods. Due to the location of proposed pits, it will be necessary to realign a portion of the road from Newman to Marble Bar to the east of the east of the existing road.

A three phase survey of the flora and vegetation of the project area was conducted between 2005 and 2008 (ecologia 2009) and submitted to the DEC as a supporting document to the PER (SMEC, 2009).

This report details the outcomes of assessments undertaken by *ecologia* during October 2008 and April and June 2009 to examine the flora present with the areas proposed to be cleared to provide infrastructure. Whilst a general inventory of the plants present in these areas was collated, the focus of the surveys was to assess the distribution and abundance of Priority Flora using more intensive ground searches than were feasible in the more broadly focussed flora and vegetation survey.

In addition the vegetation communities present in the corridor in which the proposed realignment of the Marble Bar Road and the accommodation village would be located were mapped, as these areas lay outside the boundaries of the previous mapping.

Flora

A total of 264 species from 41 families and 115 genera was recorded during the current survey of proposed infrastructure locations. An additional 73 taxa were recorded for the project area, bringing the total number of taxa recorded in the Roy Hill 1 project area to 547. However some of these additional taxa are the result of taxonomic revision since the previous survey, resulting in subdivision of species previously recorded into varieties or subspecies.

Four taxa, were recorded within the areas of proposed infrastructure which are categorised Priority species. Details of their regional and local distribution and the impact to known populations of the proposed infrastructure is summarised in Table 4.2 of this report. Two additional Priority 3 taxa, *Acacia glaucocaesia* and *Goodenia nuda*, have previously been recorded within the Roy Hill 1 project area, however no new populations were recorded during the current survey.

The proportion of all plants of *Rhagodia* sp. Hamersley currently recorded within the Roy Hill Stage 1 project area that lie within the areas of proposed clearing at Roy Hill is high. However this proportion is a reflection of the much greater intensity of searching within areas of infrastructure relative to surrounding areas. The vegetation types in which this taxon occurs (primarily Mulga woodlands and shrublands) are broadly distributed both within and immediately surrounding the project area and the populations surveyed were observed to extend beyond the boundaries of the infrastructure polygons into areas of similar habitat not subject to clearing. It is considered highly likely that a large number of plants are present outside the areas of impact. The local impact to the taxon is therefore considered low.

Similarly whilst the proportion of all locations recorded of *Rostellularia adscendens* var. *latifolia* within the area of impact is high, it is considered that proportion is likely to reflect both the greater intensity of survey in these areas and an underestimate of the numbers estimated in previous surveys using quadrat based methodology. It is considered highly likely that this taxon occurs more extensively than is currently known in the tributaries and floodbanks of Kulkinbah Creek to the south of the area of impact.

Based on a preliminary appraisal of aerial photography, the vegetation types present within the Roy Hill 1 project area, particularly Mulga woodlands and shrublands, appear to be well represented in the surrounding mining leases. It is therefore probable that the populations of these taxa also occur in these surrounding areas.

In summary, whilst the proposed clearing will result in the removal of relatively large numbers of *Rhagodia* sp. Hamersley and some plants of *Rostellularia adscendens* var. *latifolia*, *Eremophila youngii* subsp. *lepidota* and *Polymeria* sp. Hamersley, it is considered unlikely that this will jeopardise the regional viability of these taxa given their distribution both locally and regionally.

Vegetation

The vegetation within a proposed realignment of the Marble Bar Road and the accommodation village, both of which lie outside the boundaries of the area previously mapped, was surveyed using both quadrat based methodology and transect based opportunistic collection. Thirteen vegetation types, eleven of which were recorded during the previous survey, are described.

At a national level there are no floristic community types present within the newly mapped areas of the proposed road realignment or accommodation village, or the areas of infrastructure previously mapped, which are identified under the EPBC Act.

At a state level there are no vegetation complexes present which are identified as Threatened Ecological Communities. The Fortescue Marshes, which lie directly south of the western portion of Lease E46/592 and 2 kilometres south of the proposed evaporations ponds, are listed as a wetland of national significance (DEWHA Directory of Important Wetlands, 2006). Whilst not within the footprint of clearing, this area is dependent upon inflow from, amongst others, Kulkinbah Creek, Kulbee Creek and other

minor creek lines which drain through the footprint of disturbance and thus has the potential to be disturbed by changes to the timing, volume or quality of surface inflow unless adequate controls are implemented.

1.0 INTRODUCTION

1.1 Project Background

The proposed Roy Hill 1 Iron Ore Project (the Project) is situated approximately 120 km north east of Newman (Figure 1-1). The project area is located within existing Hancock Prospecting Pty Ltd (HPPL) exploration tenements E46/334, 335, 586 and 592 and E47/). It is situated in the hills and foot slopes of the Chichester Range and the plains of the Fortescue Valley and covers approximately 4,160 hectares of open rangelands.

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This report details the outcomes of assessments undertaken by *ecologia* during October 2008 and April and June 2009 to examine the flora present with the areas proposed to be cleared to provide infrastructure. Whilst a general inventory of the plants present in these areas was collated, the focus of the surveys was to assess the distribution and abundance of Priority Flora using more intensive ground searches than were feasible in the more broadly focussed flora and vegetation survey.

In addition the vegetation communities present in the corridor in which the proposed realignment of the Marble Bar Road and the accommodation village would be located were mapped, as these areas lay outside the boundaries of the previous mapping.

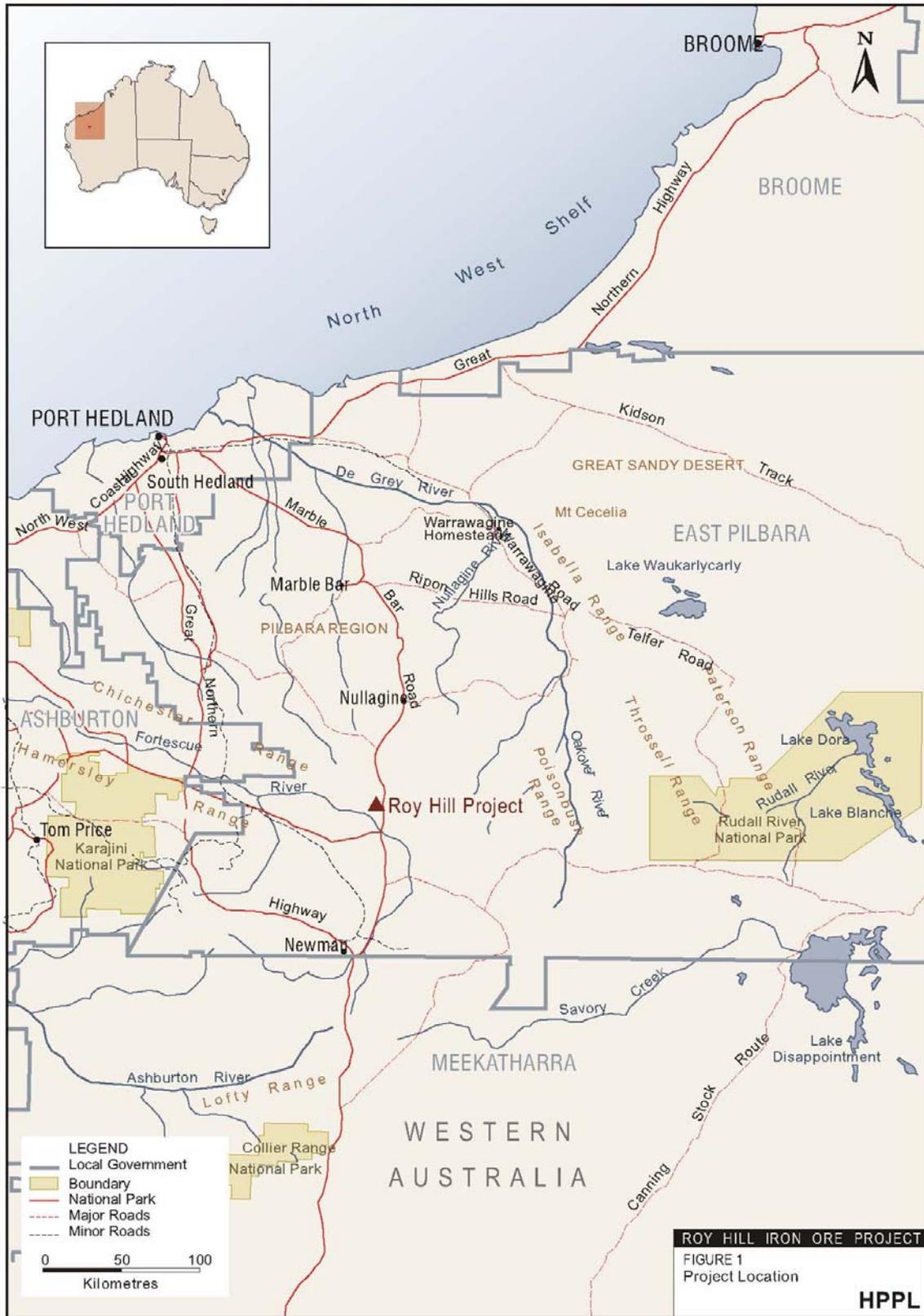
1.2 Survey Objectives

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

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

Hence, the primary objectives of this study were:

- i. To provide sufficient information to the EPA to assess the impact of the project on the vegetation and flora of the previously unsurveyed areas in which the proposed realignment of the Marble Bar Road and accommodation village are located; and
- ii. To provide more detailed data on the abundance and distribution of taxa of particular conservation significance (Priority Flora or Declared Rare Flora) within areas proposed to be cleared.



AMC-05-01 Task 3_002B

Figure 1-1: Regional Location of the Roy Hill project area.

2.0 SURVEY METHODS

2.1 Guiding Principles

The survey methods adopted by *ecologia* were formulated in consideration of the EPA's Guidance Statement No. 51 (EPA, 2004), and Position Statement No. 3 (EPA, 2002).

The surveys combined the two methodological approaches:

- Detailed site/association vegetation assessments to provide sufficient data to enable mapping of the proposed road realignment and accommodation village at a scale consistent with the mapping of the Roy Hill Stage 1 project area (*ecologia* 2009);and
- Higher intensity ground searching of the areas proposed to be cleared to accommodate infrastructure to assess the distribution and abundance of taxa of conservation significance.

2.2 Field Methods

2.2.1 Site based assessments October 2008

A total of 111 quadrates were sampled from 14th to 26th October 2008 to compile a comprehensive list of flora species. Locations of sites within the infrastructure proposed at that date are detailed in Figure 2-1.

The quadrates sampled were approximately 50 by 50 metres, or an equivalent area of 2500 m² where vegetation types were restricted to linear dimensions e.g. creek lines and gullies.

The following parameters were recorded at each quadrate:

- Location details, including GPS co-ordinates (using datum WGS84);
- Site parameters such as topography, soils, and surface lithology;
- Structural information describing the vegetation unit, including the height, cover, form and dominant species within each layer using a vegetation classification system adapted from Executive Steering Committee for Australian Vegetation Information (ESCAVI) (2003) (Appendix A).
- Maximum height and foliage projective cover for each species within the site, including introduced species;
- Vegetation condition based on criteria described by Keighery (1994), Connell (1995) after Trudgen (1991) (Appendix A);
- The estimated time since the last fire at the site.

2.2.2 Grid based foot traverses April and June 2009

Subsequent to the October 2008 survey the areas in which proposed infrastructure were to be located were considerably revised, as detailed in Figure 2-2. The area surveyed for the airstrip is considerably larger than will be required, to provide some scope for optimising the airstrip position in the future.

These revised polygons were uploaded into handheld GPS and transects, distanced 100 metres apart were traversed, noting the locations and abundance of all flora of taxonomic significance. Two traverses of the proposed road realignment (unchanged since October 2008) were also walked, each distanced approximately 15-25 metres from the centreline such that a total area of approximately 50-60 metres surrounding the centreline was surveyed.

As the location of the accommodation village had also been revised, two quadrates were positioned in the vegetation types present and the area was also traversed with transects distanced 100 metres.

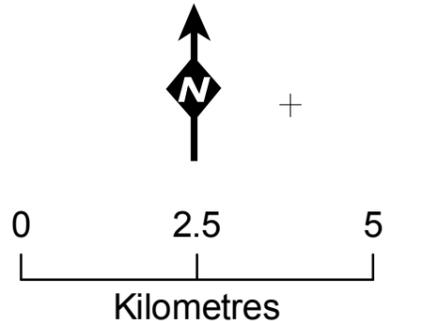
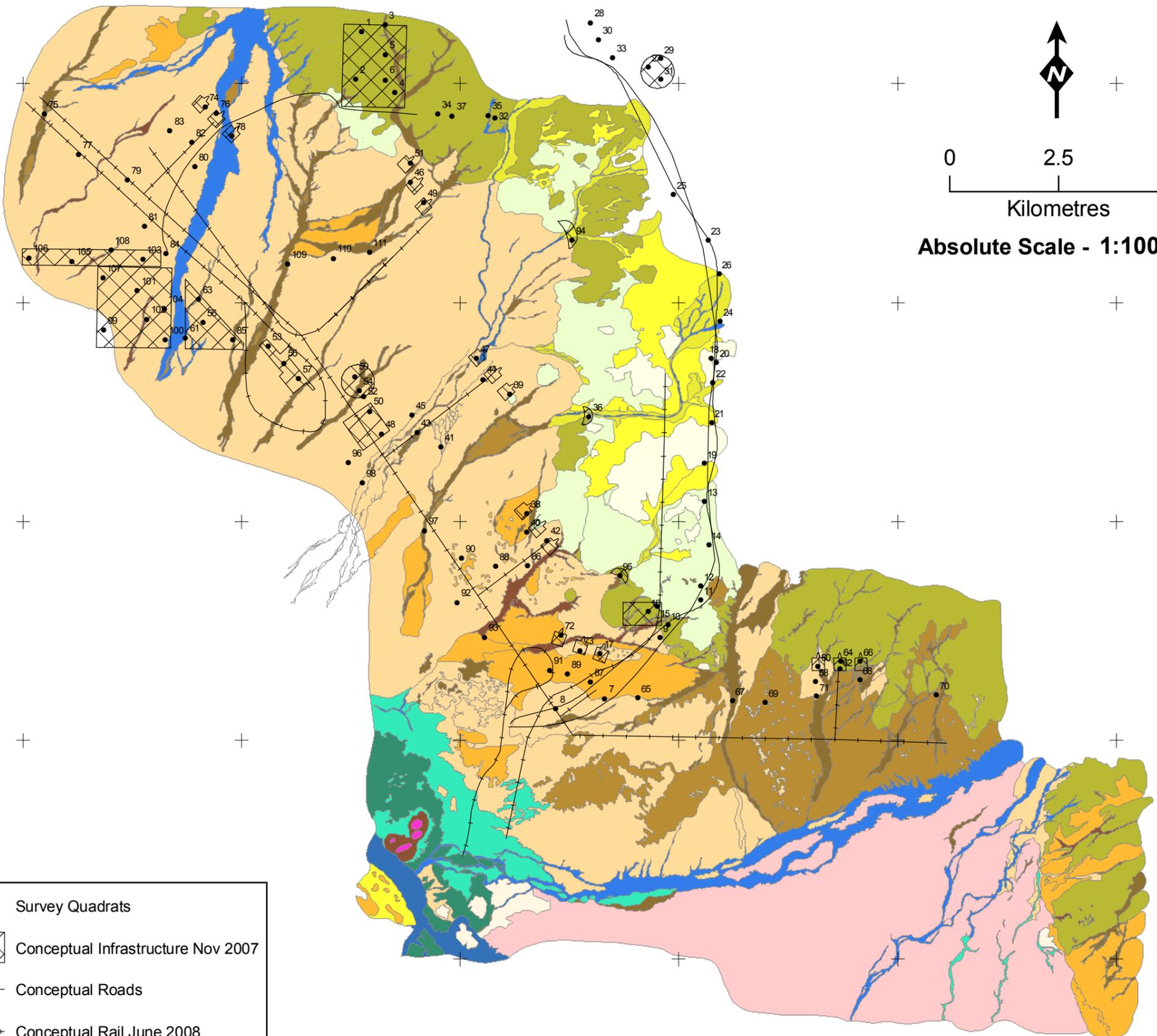
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785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyrifolia* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and herbland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

- Survey Quadrats
- ▨ Conceptual Infrastructure Nov 2007
- Conceptual Roads
- Conceptual Rail June 2008



Absolute Scale - 1:100,000



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Locations of flora quadrats within the Roy Hill 1 proposed infrastructure (as at October 2008)

Figure: 2-1
Project ID: 1129
Coordinate System Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

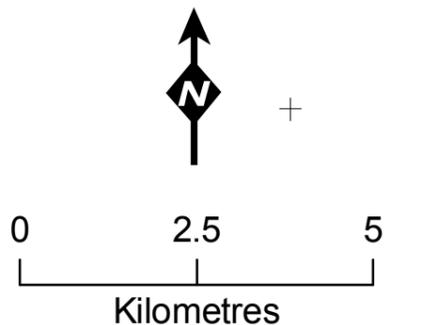
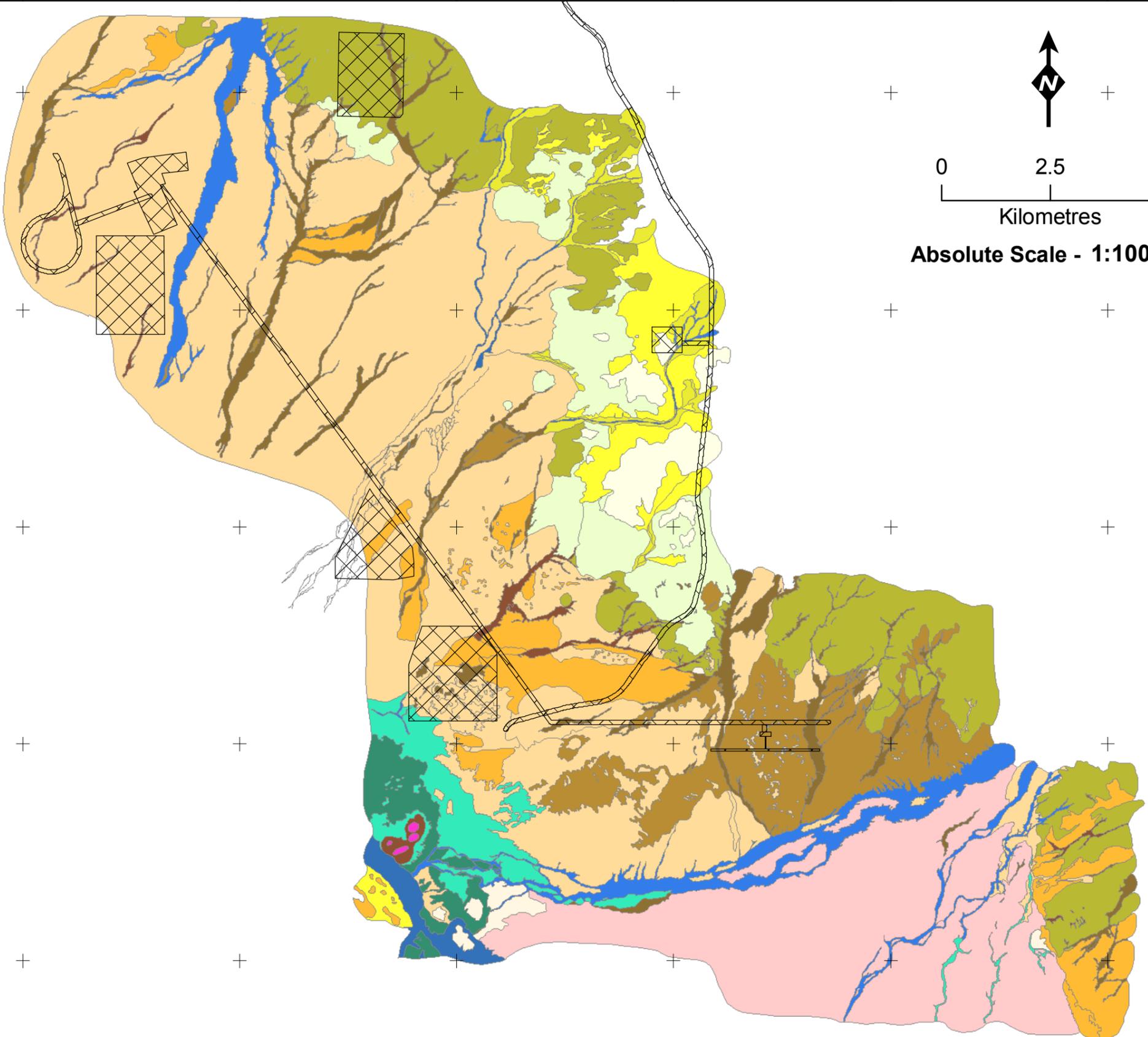
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Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
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- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
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- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerksenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated clumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses



Absolute Scale - 1:100,000



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**Revised infrastructure plan
used for detailed grid
searching April and June 2009**

**Figure: 2-2
Project ID: 1129**

**Drawn: SG
Date: 02/09/09**

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S012

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3.0 VEGETATION OF THE ROY HILL 1 PROJECT AREA

3.1 Project Area Vegetation Units

The Roy Hill 1 Project area is located in the Fortescue Botanical District of Beard (1975). Beard (1975) has mapped the vegetation of the Pilbara region at a scale of 1:1,000,000. The area encompassed by the Project area contains four vegetation units (Figure 4-1):

1. Mulga in grooved patterns: comprising *Acacia aneura* occurring in groves or patches;
2. Tree steppe with Mulga in valleys: comprising *Eucalyptus leucophloia* (previously *Eucalyptus brevifolia*), *Triodia wiseana* and *Acacia aneura*;
3. Shrub steppe on basalt/ Kanji, soft and buck spinifex: comprising *Acacia pyrifolia*; *Triodia wiseana* and *T. pungens*; and
4. *Acacia aneura* low woodland (from Beard 1975).

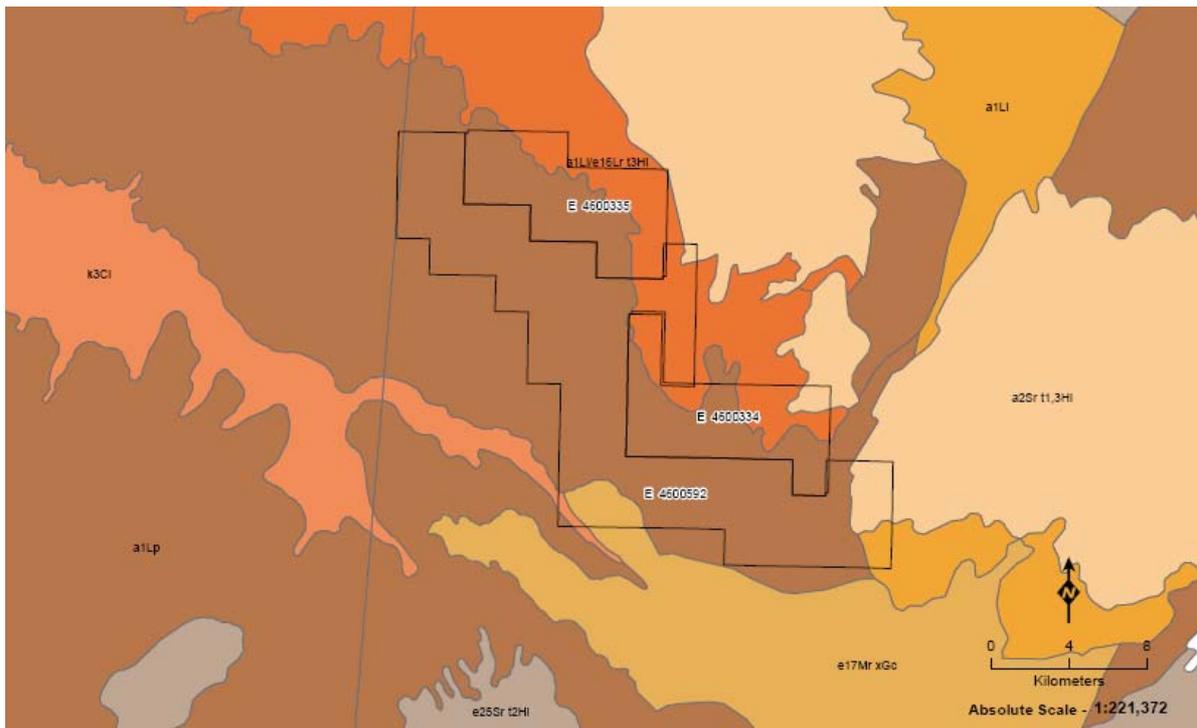


Figure 3-1 Roy Hill 1 Project within Beard Vegetation Mapping units (Beard, 1975).

During the three phase survey of the above area (ecologia 2009) the vegetation was categorized into four major vegetation associations, which were classified into a further eighteen sub associations, eleven of which were observed to be present within the proposed road alignment and accommodation village.

1. *Triodia* sp. Hummock Grassland Steppes

- A. Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests.
- B. Isolated to open low trees and mixed shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains.
- C. Isolated low trees and isolated to sparse mixed shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits.
- D. Isolated low trees over sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands.
- E. Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands.

2. Riparian associations

- A. Open low forest to woodland of *Eucalyptus camaldulensis* and/or *E. victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*Acacia pyrifolia* over open low shrubs over dense **Cenchrus ciliaris*.
- B. Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense **Cenchrus ciliaris* grassland.
- C. Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland.
- D. Floodplains adjacent to major creek lines: open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. sclerosperma*, **Vachellia farnesiana* over sparse mixed tussock grasses and herbs.
- E. Floodplains: isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs over open to closed mixed tussock grasses.

3. *Acacia aneura* Low woodlands and Tall Shrublands

- A. *Acacia aneura*, *A. rhodophloia* open forest and woodland over sparse low shrubs and closed tussock grassland and hermland ± *Triodia longiceps*.
- B. Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses.
- C. Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*.
- D. Groves of *Acacia aneura*, *A. rhodophloia* woodland over sparse shrubland of *Eremophila forrestii* subsp. *forrestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses.
- E. Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Eremophila cuneifolia* over sparse grasses.
- F. Isolated clumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*.

4. Miscellaneous Shrublands

- A. Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses.
- B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses.

The area in which it is proposed to locate the road alignment and accommodation village were mapped at a scale of 1:20,000, using the eleven of the above units and two additional units not previously described. The units relevant to the current survey are described in detail below. Numbering of units is consistent with the numbering used in the mapping of the Roy Hill 1 project area.

1. *Triodia* species Hummock Grassland Steppes

Hummock grasslands encompass a significant proportion of the Roy Hill 1 Project Area, largely occurring to the east of the Nullagine road and at the northern boundary of Lease 46/00335. The dominant species within the low tree and shrub strata are widespread throughout each of the subtypes.

A. Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests (No photo representation available)

This vegetation type is largely restricted to the slopes and crests of steeper hills within the eastern portion of E46/00335, E46/00592 and the northern portion of E46/334. Although widespread in these areas, it constitutes a relatively small proportion of the total survey area. It is distinguished by the dominance of the hummock grass *Triodia brizoides* at ground level, usually at open to closed coverage. An isolated to open overstorey of *Grevillea wickhamii* subsp. *hispidula*, *Acacia pruinocarpa* with isolated *Eucalyptus leucophloia* subsp. *leucophloia* is present above an open shrubland dominated by *Senna glutinosa* subsp. *glutinosa* above *Corchorus lasiocarpus* subsp. *lasiocarpus*. The tussock grass *Eriachne mucronata* is consistently present at sparse to open density. The diversity and cover of the shrub and herb strata increase on the foot slopes and in areas where pockets of deeper soil occur between boulders.

B. Isolated to open low trees and mixed shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains



Slopes dominated by the hummock grass *Triodia* sp. Shovelanna Hill were recorded at scattered locations on plains and hill slopes in the northern and north-eastern portions of the Roy Hill Stage 1 project area, including portions of the proposed road realignment. This taxon also occurs in a number of locations in combination with *T. basedowii*, *T. longiceps* and *T. brizoides*. The boundaries between these steppes are often difficult to distinguish using aerial photography and the mapped distribution of this association may underestimate its extent.

Emergents are typically isolated to open and of variable height. The species composition is typical of most hummock grass steppes, with *Grevillea wickhamii* subsp. *hispidula* the most consistently present shrub. At some locations scattered low trees of *Acacia aneura* and *A. pruinocarpa* trees are present, but elsewhere *Eucalyptus leucophloia* subsp. *leucophloia* or *Hakea lorea* subsp. *lorea* are more common. Other species frequently recorded within the scattered to open shrub stratum include *Senna glutinosa* subsp. *glutinosa*, *Solanum lasiophyllum*, *Corchorus lasiocarpus* subsp. *parvus*, *Acacia acradenia*, *Dampiera candicans*, *Eremophila forrestii* subsp. *forrestii* and *Tribulus suberosus*.

C. Isolated low trees and isolated to sparse mixed shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits



This vegetation type is restricted to the eastern and north eastern portions of leases E46/335 and E46/592, in the swales between rocky slopes and in the bases and lower slopes of broad gullies where there is colluvial deposition of soil. It is moderately widespread in the northern portion of the road realignment.

It is characterised by isolated low trees and sparse shrubs over an open to moderately dense cover of the tall hummock grass *Triodia longiceps*. The species composition of the tree and shrub strata area is typical of all hummock grass steppes in the area rather than specific to the *T. longiceps* community type. The low tree *Eucalyptus leucophloia* subsp. *leucophloia* and the tall to mid-height shrubs, *Senna glutinosa* subsp. *glutinosa* and *S. glutinosa* subsp. *pruinosa* are widespread above the low shrubs *Tribulus suberosus*, *Indigofera monophylla*, *Corchorus lasiocarpus* subsp. *parvus*, *Solanum horridum*, *S. lasiophyllum*, *S. phlomoides*, *Sida* sp. *Excedentifolia* (J.L. Egan 1925) and *Sida pilbarensis* ms. The tussock grasses *Eriachne mucronata* and *E. lanata* are widespread at sparse density. Sparse herbs such as *Pterocaulon sphaeranthoides*, *Trianthema glossostigma*, *Streptoglossa bubakii*, *Bonamia media* var. *villosa* and *Pluchea dunlopii* are present, particularly at the bases of gullies.

D. Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands



This vegetation type is widely distributed in the Roy Hill Stage 1 project area, particularly within leases E46/335, E46/592 and E46/334 on low undulating plains and minor hill slopes, but is restricted to small portions of the southern section of the proposed road realignment. It is characterised by an open to moderately dense cover of the hummock grass *Triodia basedowii*, sometimes in combination with *T. epactia* or *T. sp.* Shovelanna Hill. Isolated low trees of *E. leucophloia* occur above isolated to open *Grevillea wickhamii* subsp. *hispidula*, above a sparse to open mid to low shrubland in which *Solanum lasiophyllum*, *Senna glutinosa* subsp. *glutinosa*, *Tribulus suberosus*, *Corchorus lasiocarpus* subsp. *parvus*, *Indigofera monophylla* and *Ptilotus calostachyus* var. *calostachyus* are common. The density of shrubs, particularly *Grevillea wickhamii* subsp. *hispidula*, is greater in areas which have been recently burnt.

E. **Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands**



Triodia epactia is less widespread than in many other locations in the Eastern Pilbara, where it is often the dominant understorey in creek lines and swales. In many such locations within the Roy Hill Stage 1 project area the dominant grass is **Cenchrus ciliaris* and *T. epactia*, if present, is a minority species. However it was recorded along sections of Kulbee Creek and more extensively along the proposed realignment on lower slopes and surrounding some drainage channels. In these locations it typically extends up the slopes some distance. The sparse or isolated tall shrub stratum may contain *Acacia marramamba*, *A. aneura*, *A. pruinocarpa* and *Grevillea wickhamii* subsp. *hispidula* above an open lower shrub stratum of *Senna glutinosa* subsp. *glutinosa*, *Goodenia stobbsiana*, *Ptilotus calostachyus* subsp. *calostachyus*, *Solanum phlomoides*, *Corchorus lasiocarpus* subsp. *parvus* and *Tribulus suberosus*. The tussock grasses *Eriachne mucronata* and *Cymbopogon ambiguous* are typically present at sparse coverage.

F. Isolated low trees over sparse to open mid to low shrubland over *Triodia wiseana* hummock grasslands



This vegetation type was not mapped as a distinct unit within the Roy Hill Stage 1 leases, although *T. wiseana* was recorded at some locations, usually in combination with other hummock grass species. However *T. wiseana* is relatively common on hill slopes within northern portion of the proposed realignment and the accommodation village site, either as the sole or dominant species in the ground cover. Emergent species are typically very sparse, with isolated trees of *Eucalyptus leucophloia* subsp. *leucophloia* or *Corymbia hamersleyana* above a very sparse shrub stratum, in which *Acacia inaequilatera* is widespread. *Grevillea wickhamii* subsp. *hispidula*, *Senna glutinosa* subsp. *glutinosa* and *Senna glutinosa* subsp. *pruinosa* are also widespread as isolated emergents. Other lower shrub species such as *Corchorus lasiocarpus* subsp. *parvus*, *Heliotropium chrysocarpum*, *Indigofera monophylla*, *Ptilotus schwartzii* var. *schwartzii*, *Senna hamersleyensis*, *Senna notabilis*, *Solanum lasiophyllum*, *Solanum phlomoides* and, *Tribulus suberosus* occur sporadically, more commonly in the lower slopes and swales of the hill slopes. At ground level the cover of *T. wiseana* ranges from sparse to moderately dense, depending on the time since burning has occurred. Herbs are typically very sparse.

G. Isolated low trees over sparse to open mid to low shrubland over *Triodia lanigera* hummock grasslands



Triodia lanigera was not recorded during the previous surveys but was recorded at a number of locations throughout the project area and in particular along the road alignment and its surrounds, usually on the foot slopes of hills. Much of the area in which it was recorded has been recently burnt and the emergent species reflect this recent fire history rather than typifying the vegetation type. As with most of the other hummock grasslands, the shrub and In areas which are unburnt the emergent species are widespread rather than unique to this type, with a sparse overstorey of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* above a sparse shrub stratum including *Senna* species, *Corchorus lasiocarpus* subsp. *parvus*, *Dampiera candidans*, *Indigofera monophylla*, *Ptilotus calostachyus* var. *calostachyus*, *Solanum ellipticum* and *S. lasiophyllum*

2. Riparian associations

One named creekline traverses the northern portion of the proposed realignment, Kulbee Creek, which flows south to south west from the northern boundary through the northern half of the survey area, eventually draining into the Fortescue Marsh system which lies to the south of the survey area;

The majority of this creek line is dry for most of the year, with isolated pools of water in some section further to the south east of the realignment.

In addition to this named creekline, several narrower drainage channels are present along the alignment, some of which have defined banks and scoured beds, and others with only minor definition.

The vegetation on the banks of Kulbee Creek has been severely affected by pastoral activities, with **Cenchrus ciliaris* (buffel grass) largely replacing the native grasses.

- A. **Open low forest to woodland of *Eucalyptus camaldulensis* and/or *E. victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*Acacia pyrifolia* over open low shrubs over dense **Cenchrus ciliaris***



This vegetation type is widely distributed along the banks of the creek lines in the Roy Hill Stage 1 project area, particularly Kulbee Creek. Whilst not present at the point at which the road realignment currently intersects with Kulbee Creek, it is present immediately downstream and would therefore be affected by any alterations to flow by the construction. Whilst *Eucalyptus camaldulensis* subsp. *obtusata* was recorded at some locations in this type, *E. victrix* is usually dominant in the overstorey, with *Corymbia hamersleyana* also present in shallow portions and tributaries. Below a scattered to open tall shrub stratum of *Atalaya hemiglauca*, *Gossypium robinsonii*, *Petalostylis labicheoides*, *Hakea lorea* subsp. *lorea* and *Acacia pyrifolia*, an open lower shrub stratum of *Tephrosia rosea* var. *glabrior*, *Corchorus parviflorus*, *Solanum phlomoides*, *Hybanthus aurantiacus* and *Sida fibulifera* is present. Small areas of the creek bed have dense stands of the tall rush *Typha domingensis*. In most location the banks of the creek line are dominated by a dense to moderately dense cover of **Cenchrus ciliaris* with the perennial herb **Malvastrum americanum* widespread but less abundant.

B. Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over dense to open shrubs



Also widely distributed, this vegetation tends to be associated with slightly shallower, narrower channels and floodplains immediately adjacent to creek lines. Scattered trees of *Corymbia hamersleyana* or *Eucalyptus victrix* may be present, however the low tree/tall shrub stratum is dominated by *Acacia aneura* (mixed varieties), *Atalaya hemiglauca* and *Acacia coriacea* subsp. *pendens*. Along the alignment the tall to mid-height stratum is dominated *Petalostylis labicheoides*. The twining species or prostrate species *Glycine canescens*, *Duperreya commixta*, *Ipomoea muelleri* and *Rhynchosia minima* var. *australis* are widespread at low densities.

C. Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland.

This association occurs along minor drainage channels and in minor tributaries of more substantial creeklines. At some locations isolated to open trees of *Corymbia candida* subsp. *candida* or less commonly *C. ferriticola* are present above the open to moderately dense tall shrubland dominated by *A. aneura*, *A. tumida* var. *pilbarensis* and *Grevillea wickhamii* subsp. *hispidula* and at some locations *Dodonaea petiolaris*. The open to moderately dense low shrub stratum commonly contains *Corchorus parviflorus*, *Ptilotus obovatus* var. *obovatus*, *Indigofera monophylla*, *Isotropis forrestii*, *Hybanthus aurantiacus* and *Dicladantha forrestii*. The tussock grassland is more complex than in other more degraded areas, with the native grasses *Digitaria brownii*, *Eriachne mucronata*, *Themeda triandra*, *Enneapogon polyphyllus* and *Perotis rara* widespread and common, in addition to the introduced species **Cenchrus ciliaris*. The introduced herbs **Bidens bipinnata* and **Malvastrum americanum* are also abundant and common.

F: Open woodland of *Acacia pruinocarpa*, *Acacia aneura* var. *intermedia* over a dense mid-stratum of *Petalostylis labicheoides* over sparse low shrubs over sparse tussock grasses and *Triodia epactia*

This association is very similar to unit 2B above, but is distinguished by the prevalence of *Acacia aneura* var. *intermedia* in the canopy and the density of the tall shrub stratum, dominated by *Petalostylis labicheoides*, which excludes most of the ground cover observed in many other creeklines. A sparse cover of low shrubs, herbs and tussock grasses is present

3. *Acacia aneura* Low Woodlands and Tall Shrublands

Vegetation associations characterised by the presence of *Acacia aneura* are widespread within the Roy Hill 1 project area. :

B. Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses



This broadly distributed association occurs on slopes and plains and in some instances very minor drainage channels. It is present in the within both the proposed road realignment and accommodation village. An open to sparse low tree stratum of *Acacia aneura* with lesser numbers of *A. pruinocarpa* occurs an open shrub stratum of mixed height typically containing *Dodonaea petiolaris*, *Eremophila latrobei* subsp. *filiformis* and *Eremophila forrestii* subsp. *forrestii*, with *Acacia rhodophloia* also common at some locations. The lower shrubs are more variable in composition, but commonly include *Hybanthus aurantiacus*, *Hibiscus burtonii*, *Tribulus suberosus*, *Sida ectogama*, *Corchorus lasiocarpus* subsp. *parvus*, *Solanum lasiophyllum* and *Ptilotus obovatus* var. *obovatus*. The ground cover typically contains a open mixture of isolated clumps of hummock grass and other grasses such as *Cymbopogon ambiguous*, *Eriachne mucronata*, *Enneapogon polyphyllus*

Aristida contorta and **Cenchrus ciliaris*. Hummock grass species are also variable, with *Triodia epactia*, *T. longiceps* and *T. basedowii* all recorded.

C. Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*

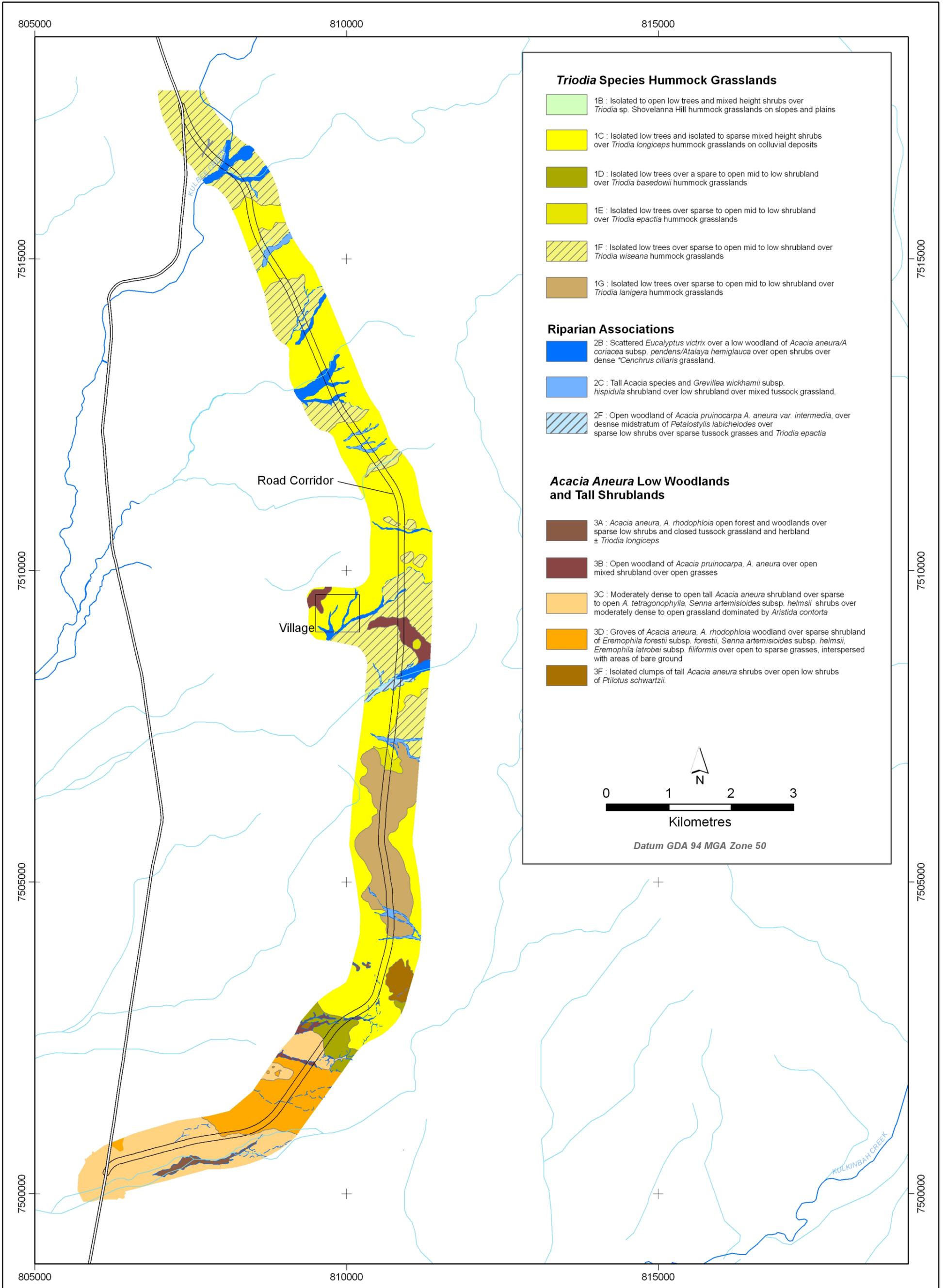


This broadly distributed association occurs on plains throughout the Roy Hill Stage 1 project area particularly in the southern portion of the road realignment. Although isolated clumps of *Acacia aneura* trees may be present, it is characterised by a tall moderately dense to open shrubland of *Acacia aneura*, which in some areas occurs in a weakly banded formation. The middle to lower shrub stratum is generally open or sparse with *Acacia tetragonophylla*, *Senna artemisioides* subsp. *helmsii*, *Solanum lasiophyllum* and *Eremophila latrobei* subsp. *filiformis* common throughout. At some locations, particularly in areas where pastoral activity has been more intense, the dominant species within the shrub stratum is *Acacia synchronica*. *Senna artemisioides* subsp. *oligophylla* and *Eremophila lanceolata* are also more common, whilst *Eremophila latrobei* subsp. *filiformis*, a palatable species, is less abundant. However these distinctions in the shrub stratum can not be distinguished in aerial photography and have hence not been mapped. The ground cover typically consists of an open to moderately dense cover of grasses, both perennial and annual. Hummock grasses are absent. The dominant species are a mixture of annual and perennial species, with *Aristida contorta* most common and abundant. Other widespread species are *Chloris pumilio*, *Enneapogon polyphyllus*, *Chrysopogon fallax*, *Perotis rara* and *Iseilema eremaum*. **Cenchrus ciliaris*, although not uncommon, is not dominant as it is elsewhere in the *Acacia aneura* associations. Herbs, although less abundant than grasses, are widespread. *Sida fibulifera*, *Cleome viscosa*, **Bidens bipinnata*, *Euphorbia biconvexa*, *Ptilotus gomphrenoides* var. *gomphrenoides*, *Evolvulus alsinoides* var. *villosicalyx*, *Gomphrena kanisii*, *Boerhavia coccinea*, **Cucumis melo* subsp. *agrestis* and **Portulaca oleracea* are all widespread.

D. Groves of *Acacia aneura*, *A. rhodophloia* woodland over sparse shrubland of *Eremophila forrestii* subsp. *forrestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses



This association is widespread within the Roy Hill1 project area and is common in the southern portion of the proposed road realignment. It often occurs in combination with areas that are virtually devoid of all vegetation other than very sparse annual herbs. The major species within the open woodland/tall shrubland overstorey is *Acacia aneura*, with *Acacia rhodophloia* often present but usually less abundant. The sparse shrub mid-stratum is low in diversity, with *Eremophila forrestii* subsp. *forrestii*, *E. latrobei* subsp. *filiformis*, *Acacia tetragonophylla*, *Dodonaea petiolaris*, *Senna artemisioides* subsp. *helmsii* typically present above a sparse to open grassland in which *Aristida contorta*, *A. ingrata*, *Paraneurachne muelleri* and *Eulalia aurea* are typical and *Perotis rara*, *Enneapogon polyphyllus* and *Eriachne mucronata* are also widespread. Isolated clumps of *Triodia basedowii* may also be present, particularly near the outer edges of the groves. Isolated clumps of herbs may be present, typically *Sida fibulifera*, *Maireana villosa*, *Mollugo forrestii* and the ubiquitous **Bidens bipinnata* and *Cleome viscosa*.



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3.2 Flora of the Roy Hill Project Area

A total of 264 species from 41 families and 115 genera was recorded during the current survey of proposed infrastructure locations. An additional 73 taxa were recorded for the project area, bringing the total number of taxa recorded in the Roy Hill 1 project area to 547. However some of these additional taxa are the result of taxonomic revision since the previous survey, resulting in subdivision of species previously recorded into varieties or subspecies.

The most commonly recorded families were Poaceae (38 taxa), Mimosaceae (30 taxa), Malvaceae (27 taxa), Amaranthaceae (16 taxa), Caesalpiniaceae (16 taxa) and Amaranthaceae (14 taxa).

The most commonly recorded genera were *Acacia* (28 taxa), *Senna* (15 taxa), *Sida* (12 taxa) *Ptilotus* (9 taxa), *Eremophila* (7 taxa), and *Hibiscus* (7 taxa). Thirteen families and 86 genera were represented by a single taxon.

This pattern of dominant families and genera is typical of flora of the Eastern Pilbara. A list of species recorded during all phases of the survey is included in Appendix C

3.3 Flora of Conservation Significance

3.3.1 *Environmental Protection and Biodiversity Conservation Act, 1999* (Commonwealth of Australia)

At a National level, flora is protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). This lists species that are considered Critically Endangered, Endangered, Conservation Dependant, Extinct, or Extinct in the Wild (Appendix D1).

No nationally listed species have been recorded within the Project area.

3.3.2 *Wildlife Conservation Act, 1950* (Western Australia)

Declared Rare Flora (DRF) are protected under the Western Australian Wildlife Conservation (Rare Flora) Notice 2008(2) of the *Wildlife Conservation Act 1950*. The notice lists flora taxa that are extant and considered likely to become extinct or rare. These taxa are legally protected and removal or impact to their surroundings cannot be conducted without ministerial approval, obtained on each occasion for each population.

The DEC also maintains a list of flora taxa which are considered to be poorly known, uncommon, or under threat, but for which there is insufficient justification on the basis of known distribution and population sizes to be included on the DRF schedule. These are classified as Priority Flora. The Declared Rare Flora and the four ranks of Priority Flora are defined by specific criteria (Appendix D2).

3.3.3 Recorded Flora of Conservation Significance

Four flora species of conservation significance were recorded during the survey: *Rostellularia adscendens* var. *latifolia* (P3), *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3), *Polymeria* sp. Hamersley (M.E. Trudgen 11353) (P3) and *Eremophila youngii* subsp. *lepidota* (P4). Coordinates for the locations of all Priority Flora recorded during the current survey are detailed in Appendix E

***Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3)**

Rhagodia sp. Hamersley is a perennial shrub growing up to 60cm high with ovate leaves and a striate stem (Plate 4-1). It superficially resembles in form the widespread species *Rhagodia eremaea* and can be mistaken for this taxon if seasonal conditions are not conducive to the collection of reproductive material.

R. sp. Hamersley has to date been lodged with the Western Australian Herbarium from eight locations as follows:

- i) Two records at Mining Area C;
- ii) One record at East Angelas;
- iii) One record 7 km NW of Mount Hilditch
- iv) 75 km WNW of Newman at Spearhole Creek
- v) 104 km N of Newman at Christmas Creek
- vi) 16 km ENE of Mount Brockman
- vii) 20 km NW of Roy Hill Station

Two additional locations have recently been recorded by ecologia but have yet to be lodged:

- (i) Along the access tract to the West Angelas Mine site and
- (ii) Within the Chichester Ranges approximately 200 km south east of Port Hedland.

The Priority status of this taxon has recently been revised from Priority 1 to Priority 3 given the recent expansion of population records.

Within the Roy Hill Stage 1 project area, this taxon was recorded at four locations during Phase 2 and a further twenty locations during Phase 3. These point-based records were further extended in 2008 during grid-pattern traverses of areas of exploration drilling, in which individual plants are counted.

The current survey recorded approximately 1600 additional plants distributed widely within the areas of proposed infrastructure, particularly in open to moderately dense Mulga woodlands and shrublands. Typically *R.* sp. Hamersley occurs under the canopy of Mulga trees, close to the base of the trunk where it probably takes advantage of the canopy and the water harvesting characteristics of mulga bark. The known distribution

within the project area from both the current and previous surveys is detailed in Figure 3-3.

Given the abundance of Mulga woodlands and shrublands within the vicinity of the Roy Hill Stage 1 project it is anticipated that this taxon is considerably more abundant in the locality than current records suggest. Recent surveys have focused on areas of proposed clearing, however the distribution was observed to extend beyond the boundaries of the polygons searched into areas of similar habitat not subject to clearing.



Plate 3-1: Rhagodia sp. Hamersley (M. Trudgen 17794)

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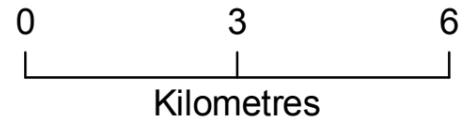
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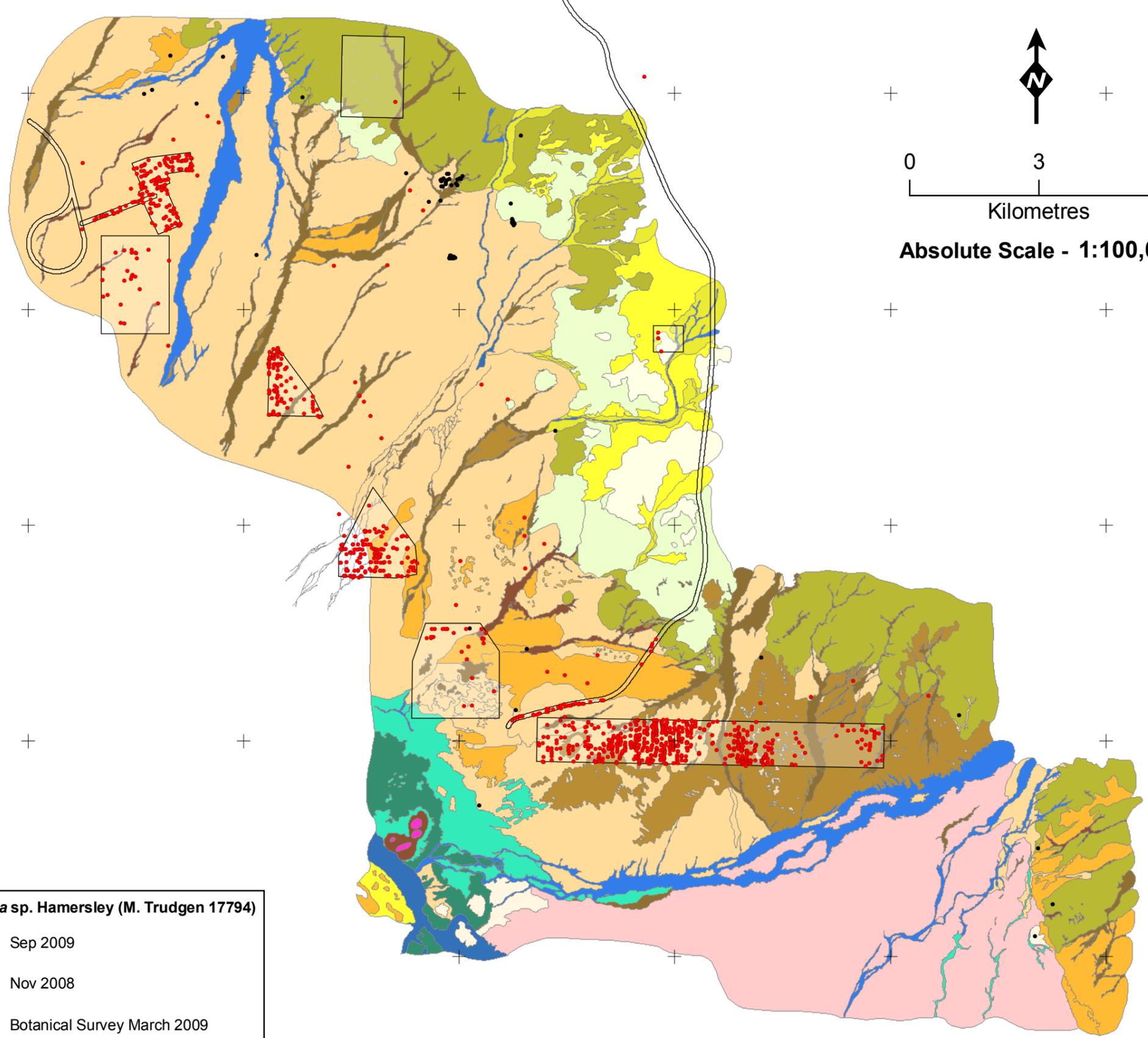
- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyrifolia* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and herbland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerksenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

Rhagodia sp. Hamersley (M. Trudgen 17794)

- Sep 2009
- Nov 2008
- Botanical Survey March 2009



Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Rhagodia* sp. Hamersley (M. Trudgen 17794) within the Roy Hill Stage 1 project area

Figure: 3-3
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S013

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***Polymeria* sp. Hamersley (M.E. Trudgen 11353) (Convolvulaceae) (Priority3)**

Polymeria sp. Hamersley (M.E. Trudgen 11353) is a rhizomatous perennial with erect annual stems and silvery/hairy leaves, growing to approximately 15 cm in height (Plate 4-4)

Three previous collections of *Polymeria* sp. Hamersley (M.E. Trudgen 11353) have been lodged at the Western Australian Herbarium, as follows;

- i) Two collections near Balbina Bore, Hamersley Station;
- ii) One collection from Hamersley (more precise locality details not available).

This taxon has also been collected very recently in the exploration lease immediately south of the Roy Hill 1 project area.

Given the limited number of collections to date, the current records at Roy Hill represent an eastern extension to the recorded range of this taxon. However given it is a relatively new and as yet undescribed taxon, the current paucity of records may be a consequence of collections from earlier surveys within the region not being assigned to this taxon and hence not being lodged with the Herbarium, rather than a genuinely restricted distribution.

Four populations within the Roy Hill 1 project area were recorded during previous surveys and one additional location recorded during the current survey. This taxon appears to be present at low cover (i.e. less than 2%) at most of the locations at which it was previously recorded (plant numbers were not estimated). Approximately 50 individual plants were observed during the current survey.



Plate 3-2: *Polymeria* sp. Hamersley (M.E. Trudgen 11353)

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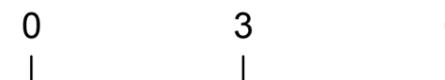
785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyriformis* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and herbland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

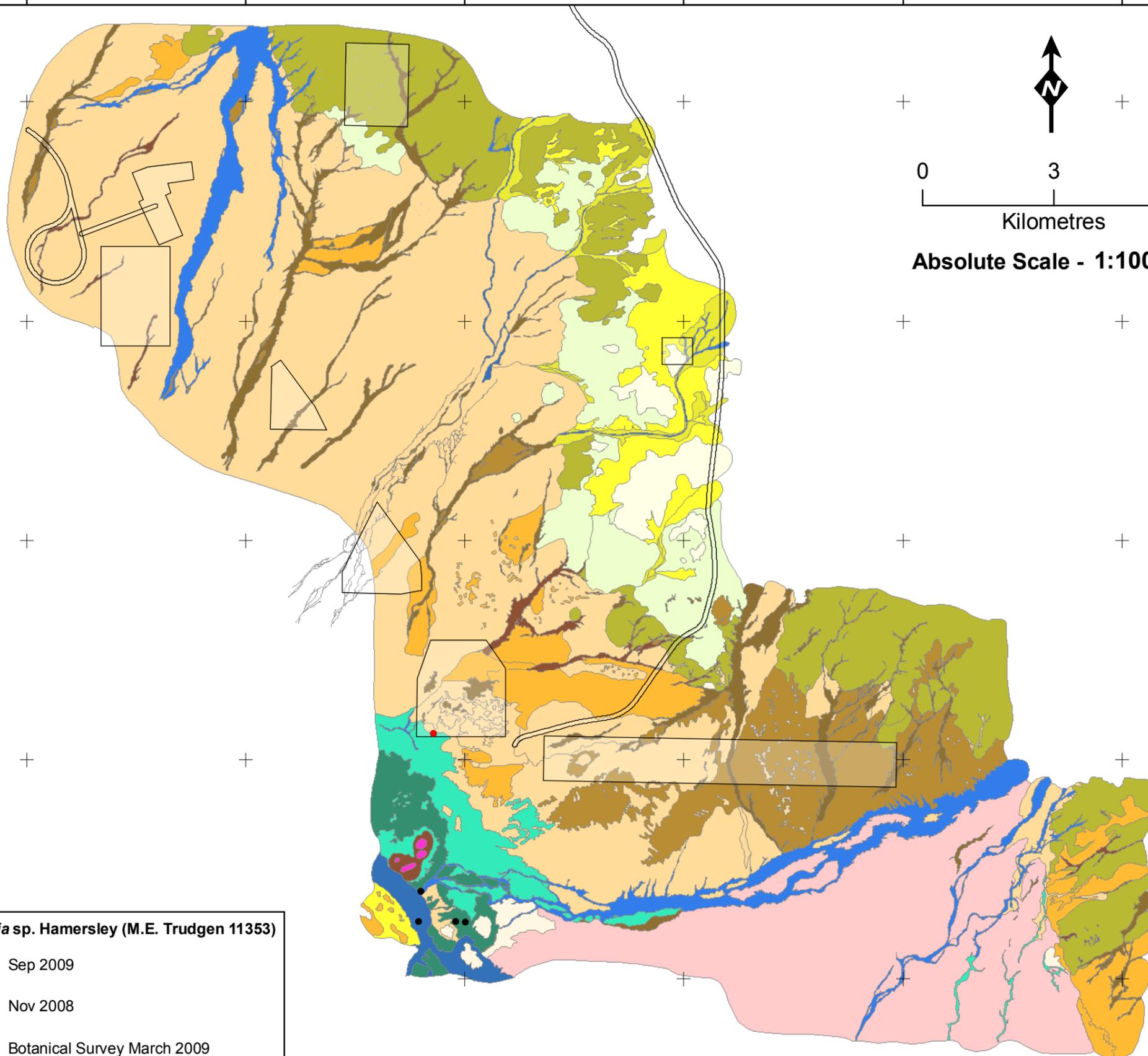
Polymeria sp. Hamersley (M.E. Trudgen 11353)

- Sep 2009
- Nov 2008
- Botanical Survey March 2009



Kilometres

Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Polymeria* sp. Hamersley (M.E. Trudgen 11353) within the Roy Hill Stage 1 project area

Figure: 3-4
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S016

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***Rostellularia adscendens* var. *latifolia* (Acanthaceae) (P3)**

Rostellularia adscendens var. *latifolia* (Acanthaceae) is a low herb between 0.1 and 0.3 m in height, with blue to purple flowers usually between April and May (Plate 3-3). It most commonly occurs on ironstone soils near creeks and rocky hills (FloraBase, 2008).

Ten previous collections of *R. adscendens* var. *latifolia* have been lodged at the Western Australian Herbarium, as follows;

- i. three collections within Karijini National Park, approximately 100 km to the west of Roy Hill;
- ii. three collections near Wittenoom, approximately 70 km to the north-north west of Roy Hill;
- iii. one collection in the Hamersley Range National Park on a ridge S/W of Juna Downs;
- iv. one collection alongside the Tom Price to Paraburdoo rail line;
- v. one collection on Warrawagine Station;
- vi. one collection on the Flumen Oakover, Oakover River, approximately 200 km to the north east of Roy Hill;

The current collection at Roy Hill lies well within the previously distribution range of the taxon.

Only one small population of *R. adscendens* var. *latifolia* was recorded during Phase 1, however a further thirteen and fifteen locations were recorded during Phases 2 and 3 respectively. The significant expansion of collections during the second and third phase is due to the more favourable seasonal conditions.

During the current survey a large number of additional locations were recorded (Figure 3-5). Due to the localised abundance and small stature of this herb the numbers of plants as been estimated rather than counted. However the total number within the Roy Hill 1 project area is now estimated to exceed 30,000 plants.



Plate 3-3: *Rostellularia adscendens* var. *latifolia*

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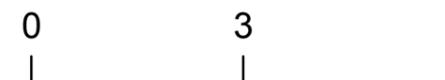
785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyrifolia* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and herbland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

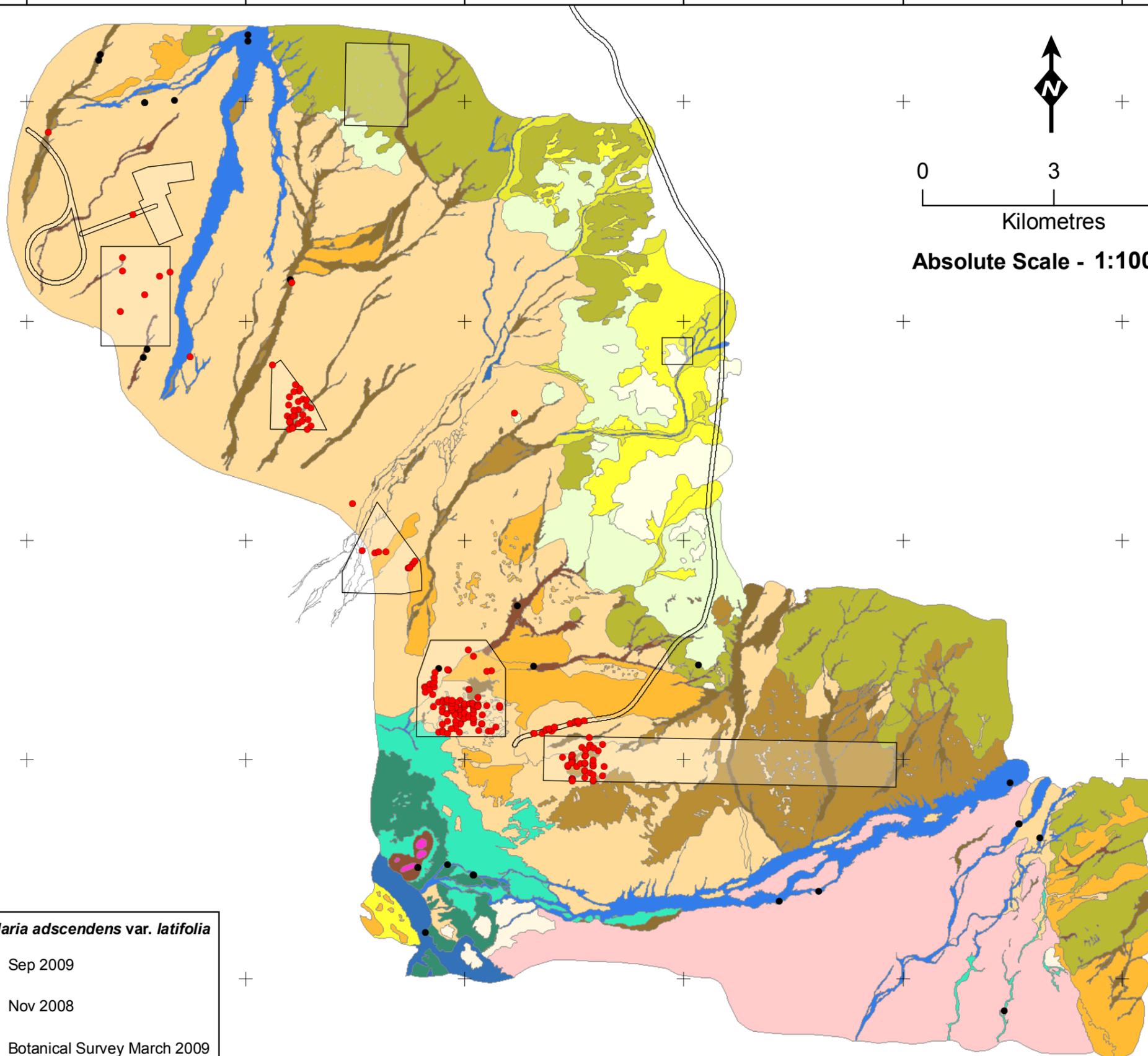
Rostellularia adscendens var. *latifolia*

- Sep 2009
- Nov 2008
- Botanical Survey March 2009



Kilometres

Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Rostellularia adscendens* var. *latifolia* within the Roy Hill Stage 1 project area

Figure: 3-5
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S014

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***Eremophila youngii* subsp. *lepidota* (Myoporaceae) (Priority4)**

Eremophila youngii subsp. *lepidota* is a dense, spreading shrub growing from 0.2 to 3 m high that produces purple to red- pink flowers from January to March and June to September (Plate 3-4). It occurs on stony, red sandy loam soils and is found on flats, plains, floodplains and sometimes semi-saline clay flats.

This taxon is relatively broadly distributed and collections have been lodged at the Herbarium from 17 other locations within the Pilbara, Carnarvon, Gascoyne and western boundary of the Little Sandy Desert IBRA regions. It has also been recently collected from locations immediately to the south of the Roy Hill 1 Project area and near Shovelanna Creek. The current project location lies near the eastern boundary of this distribution.

Within the Roy Hill 1 leases, it was recorded during previous surveys from a number of locations in close proximity to each other in the south eastern boundary of the survey area at cover rankings ranging from less than 2% to 10-30%.

During the current survey and additional 3 plants were recorded from one location within the proposed Evaporation Pond 1



Plate 3-4: *Eremophila youngii* subsp. *lepidota*

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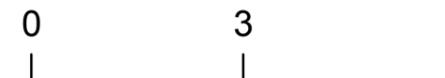
785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyriformis* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and hermland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

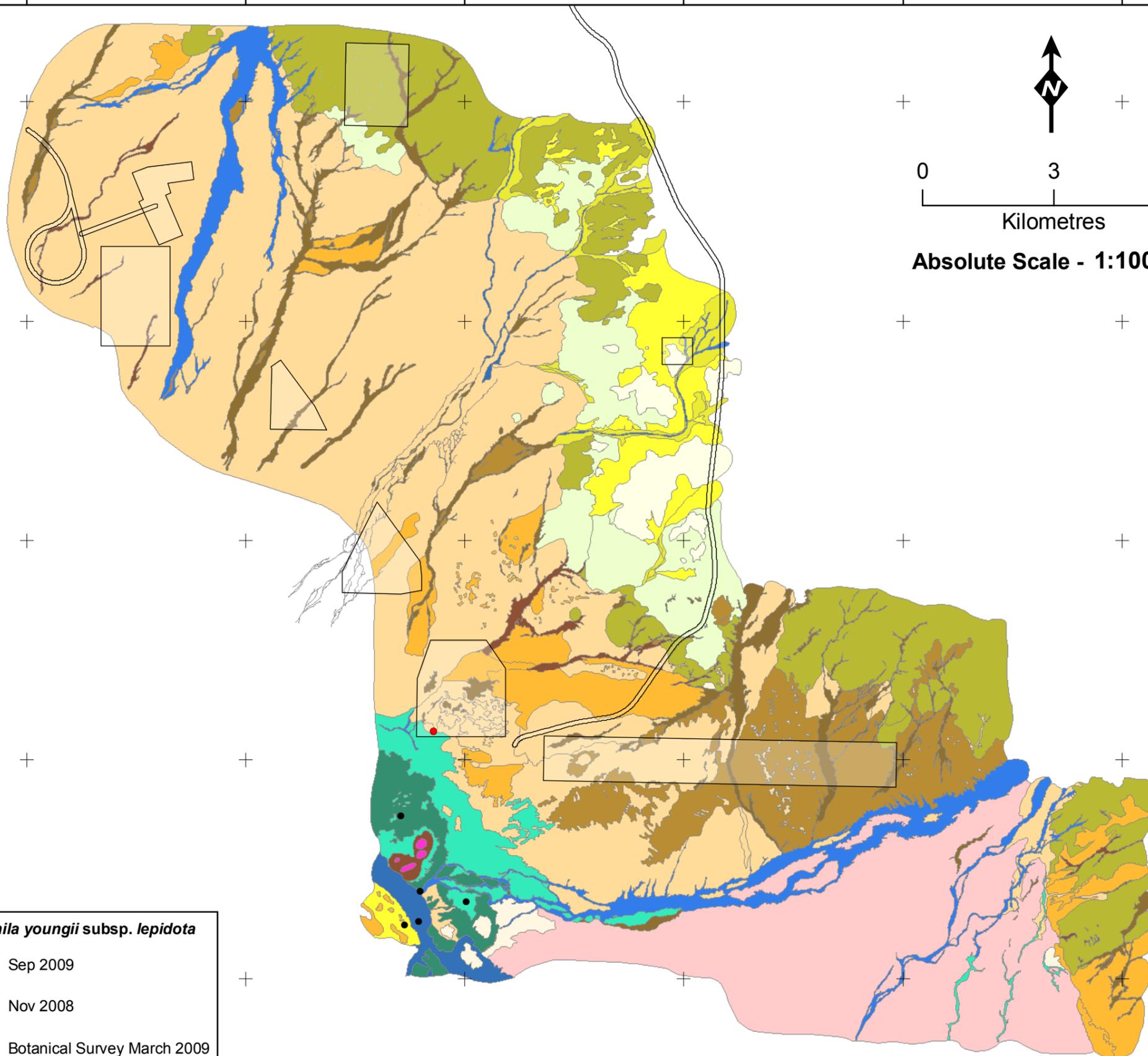
Eremophila youngii subsp. *lepidota*

- Sep 2009
- Nov 2008
- Botanical Survey March 2009



Kilometres

Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Eremophila youngii* subsp. *lepidota* within the Roy Hill Stage 1 project area

Figure: 3-6
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S015

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***Acacia glaucocaesia* (Mimosaceae) (Priority3)**

Acacia glaucocaesia is a small erect tree to 4 m tall with grey, finely fissured bark on the main trunk and smooth, pruinose (whitish) upper branches and branchlets. The phyllodes are thin, more or less glaucous (blue-green) and pruinose, without a prominent midrib. No stipular spines are present. The inflorescences are predominantly racemose with some simple heads and light golden flowers.

This taxon has been recorded from more than twenty locations within the Pilbara, most of which are closer to the coast near Port Hedland, Roebourne, Whim Creek, Dampier and Karratha and one near Mardie Homestead between Onslow and Dampier. A single population has been recorded further north near Anna Plains Homestead within the south Kimberley. However there are also three locations further inland; one approximately 100 km south east of Port Hedland, one between the Ashburton and DeGrey Rivers, and one at Woodie Woodie near the boundary of the Pilbara region with the Great Sandy Desert.

The record within the Roy Hill 1 tenements therefore represents a minor south eastern extension of the known range of the taxon. To date only one location has been recorded during Phase 3 of the vegetation and flora survey, near the eastern boundary of Lease E46/00334 within a sparse, predominantly low shrubland over sparse tussock grasses (Figure 4-4). As no broader searching has been conducted in the vicinity, it is possible the taxon is scattered at low density more widely. No additional populations were recorded within areas of infrastructure during the current survey.



Plate 3-5: *Acacia glaucocaesia* (photo courtesy of FloraBase 2008)

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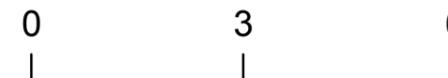
785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
- 2A Low forest to woodland of *Eucalyptus victrix*/*Corymbia hamersleyana* over open high *Atalaya hemiglauca*/*A. pyriformis* over open low shrubs over dense *Cenchrus ciliaris*
- 2B Scattered *Eucalyptus victrix* over a low woodland of *Acacia aneura*/*A. coriacea* subsp. *pendens*/*Atalaya hemiglauca* over open shrubs over dense *Cenchrus ciliaris* grassland
- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and hermland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerksenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

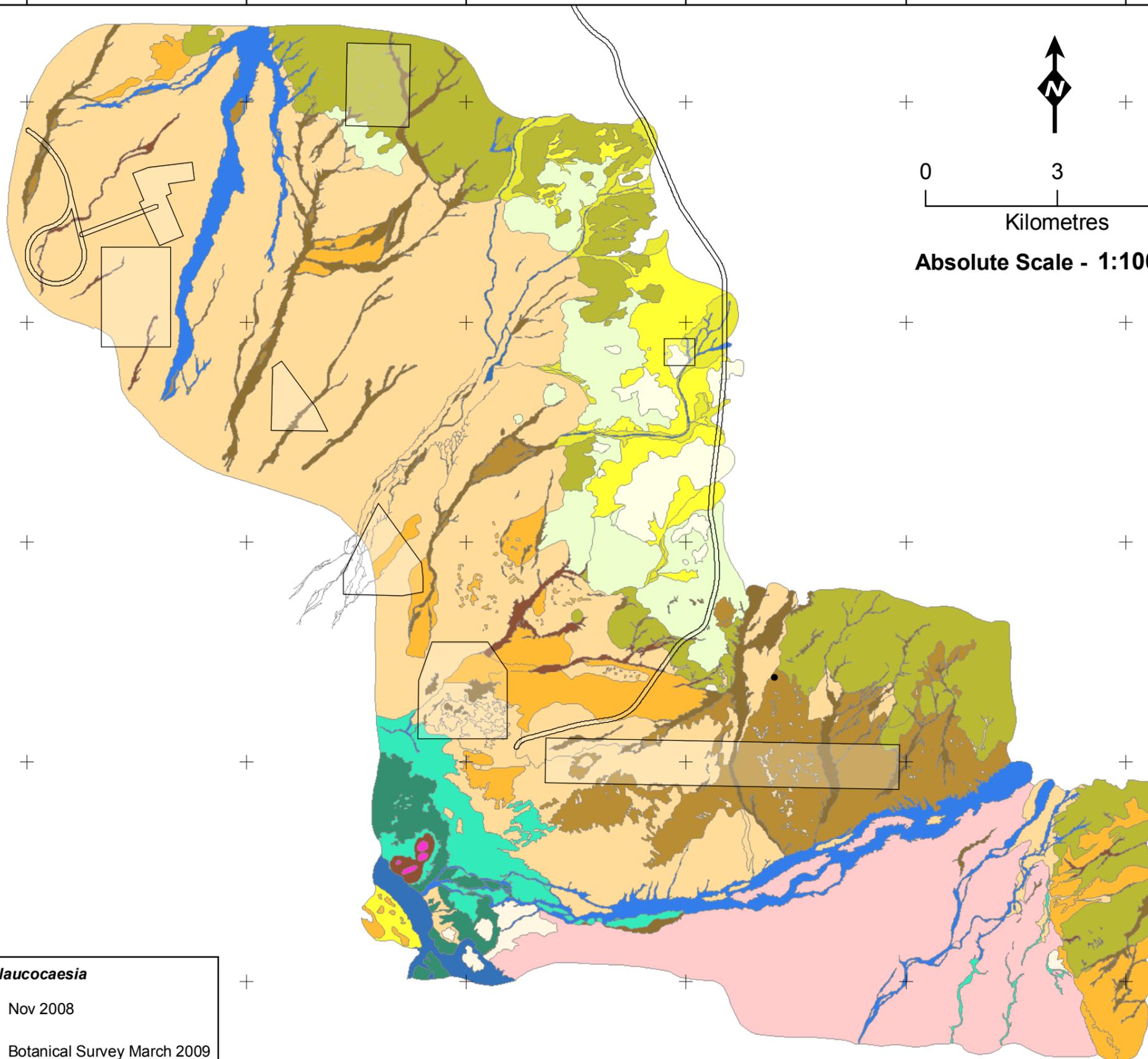
Acacia glaucocaesia

- Nov 2008
- Botanical Survey March 2009



Kilometres

Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Acacia glaucocaesia* within the Roy Hill Stage 1 project area

Figure: 3-7
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S018

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***Goodenia nuda* (Goodeniaceae) (Priority 3)**

Goodenia nuda is an annual erect to ascending herb to 0.5 m in height. Flowers are yellow, occurring between April and August (Plate 3-6). *G. nuda* is found in a variety of habitats such as dry scoured river beds, spinifex grassland or Mulga scrub (FloraBase, 2008).

Records of *Goodenia nuda* have been lodged with the Western Australian Herbarium from fifteen other locations as follows:

- i) Two records within the Cloudbreak Mining Tenement
- ii) Four records along the FMG Stage A Rail Corridor;
- iii) One record on the Canning Stock Route;
- iv) One record at Yandi Iron Ore Mine
- v) One record in Marillana Creek, south of the Yandi Iron Ore Mine
- vi) One record at Marillana Creek, 90 km N/W of Newman;
- vii) One record at Mardie Station;
- viii) One record near Lake Auld
- ix) One record 96 miles from Onslow on Mount Stuart Road;
- x) One record near Roy Hill, on Wittenoom Road;
- xi) One record at Weeli Wolli Creek.

This taxon has also been recently recorded within the West Angelas Mining Lease, approximately 100 km north of Newman.

The current collections at Roy Hill lie within the previously known range. *G. nuda* was recorded at four and six locations during Phases 2 and 3 respectively, with three additional collections subsequently made during ground searches of areas of proposed infrastructure and exploration drilling (Figure 4-4). To date this taxon appears to be present in relatively low numbers at these locations.



Plate 3-6: *Goodenia nuda*

785000 790000 795000 800000 805000 810000 815000 820000

Legend

- 1A Isolated to open low trees and shrubs over *Triodia brizoides* hummock grasslands on slopes and crests
- 1B Isolated to open low trees and mixed height shrubs over *Triodia* sp. Shovelanna Hill hummock grasslands on slopes and plains
- 1C Isolated low trees and isolated to sparse mixed height shrubs over *Triodia longiceps* hummock grasslands on colluvial deposits
- 1D Isolated low trees over a sparse to open mid to low shrubland over *Triodia basedowii* hummock grasslands
- 1E Isolated low trees over sparse to open mid to low shrubland over *Triodia epactia* hummock grasslands
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- 2C Tall *Acacia* spp. and *Grevillea wickhamii* subsp. *hispidula* shrubland over low shrubland over mixed tussock grassland
- 2D Floodplains adjacent to major creeklines: Open forest to woodland of *Eucalyptus victrix* over open mid-height shrubland dominated by *Acacia tetragonophylla*, *A. schlerosperma*, *Vachellia farnsiana* over sparse mixed tussock
- 2E Floodplains: Isolated trees to open woodland of *Eucalyptus victrix* over open *Acacia synchronicia* over mixed low shrubs to low shrubs over open to closed mixed tussock grasses
- 3A *Acacia aneura*, *A. rhodophloia* open forest and woodlands over sparse low shrubs and closed tussock grassland and hermland ± *Triodia longiceps*
- 3B Open woodland of *Acacia pruinocarpa*, *A. aneura* over open mixed shrubland over open grasses
- 3C Moderately dense to open tall *Acacia aneura* shrubland over sparse to open *A. tetragonophylla*, *Senna artemisioides* subsp. *helmsii* shrubs over moderately dense to open grassland dominated by *Aristida contorta*
- 3D Groves of *Acacia aneura*, *Acacia rhodophloia* woodland over sparse shrubland of *Eremophila forestii* subsp. *forestii*, *Senna artemisioides* subsp. *helmsii*, *Eremophila latrobei* subsp. *filiformis* over open to sparse grasses
- 3E Isolated trees or shrubs of *Acacia aneura* over open shrubland of *Senna glutinosa* subsp. *luerksenii* and *Eremophila cuneifolia* over sparse grasses
- 3F Isolated dumps of tall *Acacia aneura* shrubs over open low shrubs of *Ptilotus schwartzii*
- 4A Rocky crests of hills: *Acacia rhodophloia* shrubland over sparse mixed shrubs and isolated herbs, and grasses
- 4B B. Isolated shrubs of *Acacia synchronicia* over open and diverse herbs and grasses

Goodenia nuda

• Nov 2008

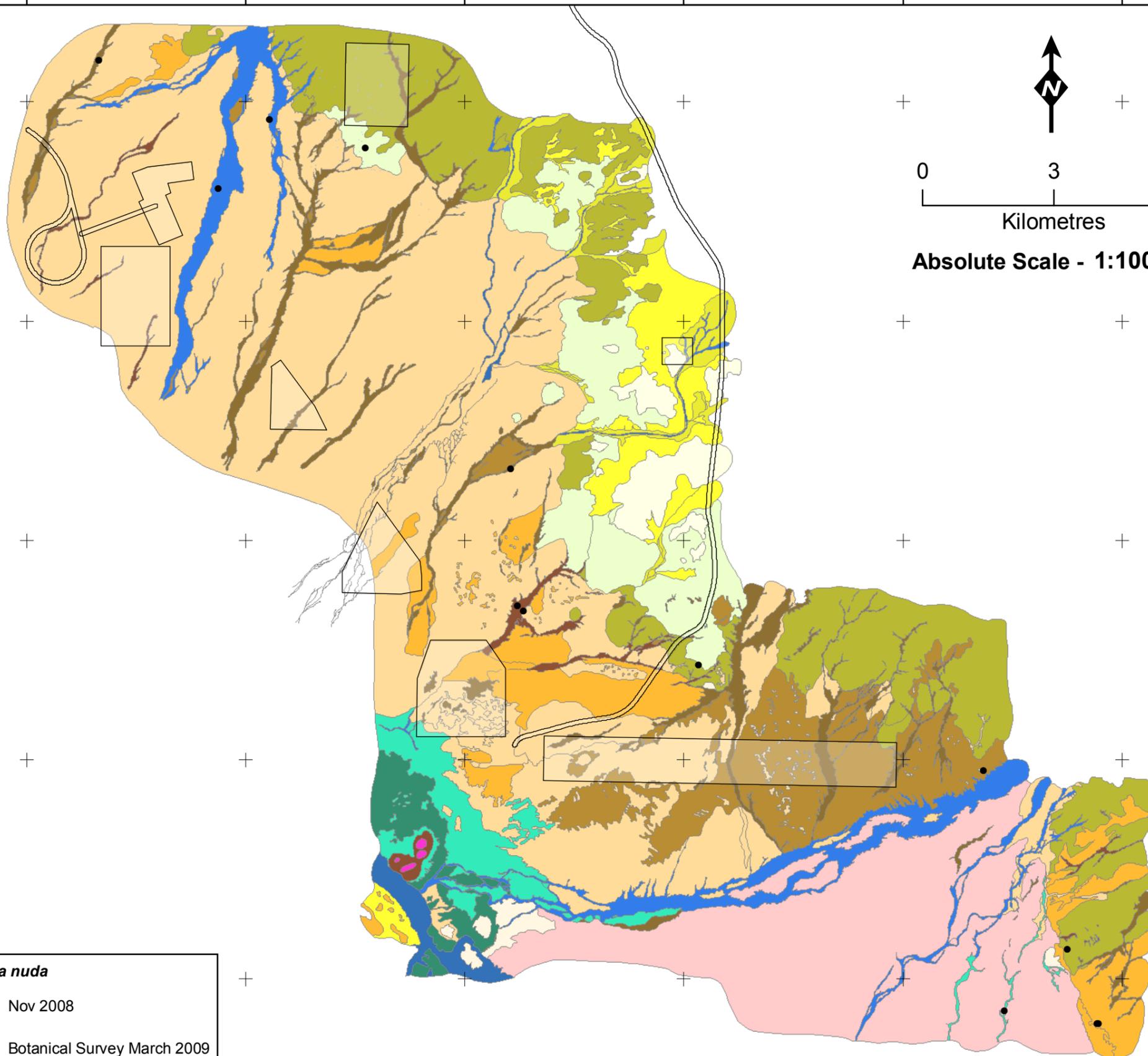
□ Botanical Survey March 2009



0 3 6

Kilometres

Absolute Scale - 1:100,000



HANCOCK PROSPECTING PTY LTD

Distribution of *Goodenia nuda* within the Roy Hill Stage 1 project area

Figure: 3-8
Project ID: 1127

Drawn: SG
Date: 03/09/09

Coordinate System
Name: GDA 1994 MGA Zone 50/51
Projection: Transverse Mercator
Datum: GDA 1994

Unique Map ID: S018

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4.0 DISCUSSION

4.1 Conservation significance of the vegetation within the proposed infrastructure of the Stage 1 project area

The vegetation and flora within the Roy Hill Stage 1 infrastructure areas was assessed within a national, state, regional and local context.

At a national level there are no floristic community types present along the newly mapped areas within the proposed road realignment or accommodation village, or within the areas of infrastructure previously mapped, which are identified under the EPBC Act. These areas are therefore assessed as not significant at a national level.

At a state level there are no vegetation complexes present which are identified as Threatened Ecological Communities. The Fortescue Marshes, which lie directly south of the western portion of Lease E46/592 and 2 kilometres south of the proposed evaporations ponds, are listed as a wetland of national significance (DEWHA Directory of Important Wetlands, 2006). Whilst not within the footprint of clearing, this area is dependent upon inflow from, amongst others, Kulkinbah Creek, Kulbee Creek and other minor creek lines which drain through the footprint of disturbance and thus has the potential to be disturbed by changes to the timing, volume or quality of surface inflow unless adequate controls are implemented. The hydrological and hydro geological aspects of the Roy Hill project have been assessed by specialist surface water and groundwater consultants (MWH, 2007, 2009, Gilbert and Associates, 2009).

4.2 Conservation significance of the flora within the proposed infrastructure of the Stage 1 project area

Four taxa were recorded within the areas of proposed infrastructure which are categorised Priority species, the details of which are summarised below. Two additional Priority 3 taxa, *Acacia glaucocaesia* and *Goodenia nuda*, have previously been recorded within the Roy Hill 1 project area, however no new populations were recorded during the current survey.

The high proportion of *Rhagodia* sp. Hamersley that lies within the areas of proposed clearing at Roy Hill is a reflection of the much greater intensity of searching within areas of infrastructure. It can be seen from Figure 3-3 that this taxon occurs predominantly in Vegetation Types 3A to 3D, which are widely distributed both within and immediately surrounding the project area. The populations surveyed were observed to extend beyond the boundaries of the infrastructure polygons into areas of similar habitat not subject to clearing. Table 4-1 below shows the proportion of these vegetation types to be impacted by the development within the Roy Hill1 project area. It is considered highly likely that a large number of plants are also present outside the areas of impact, both within the project area and further to the south, where these vegetation types are likely to be present based on a preliminary examination of aerial photography. The impact to the population within the 8 km² area surveyed for the proposed airstrip is also likely to be

minor, as only a small proportion of this area will be cleared once the location of the airstrip is finalised.

Table 4-1: Proportion of Vegetation Types 3A to 3D within Pits and infrastructure

Vegetation type	Area outside impact	Area within impact	Total	% Impacted
3A	1048.977	194.834	1243.811	15.7
3B	203.4594	23.53842	226.9978	10.4
3C	9387.706	3104.968	12492.67	24.8
3D	1436.926	253.2779	1690.204	15.0

It is also noteworthy that this is a relatively new and as yet undescribed taxon which has probably been identified as other *Rhagodia* species in earlier surveys in the Pilbara. Consequently the number of locations currently known is likely to significantly underestimate the total distribution and abundance of the taxon regionally. The number of populations of this taxon recorded elsewhere has more than doubled in the last 12 months. It is reasonable to assume that the proportion of all plants represented by the populations at Roy Hill, and hence the regional significance of the Roy Hill Population will continue to decline as additional records are lodged.

Similarly, very high proportions of the estimated total number of plants of *Rostellularia adscendens* var. *latifolia* and *Polymeria* sp. Hamersley (M.E. Trudgen 11353) appear to lie within the areas of impact. However a greater proportion of all records of these two taxa are from earlier surveys, in which the plant numbers recorded are likely to be severely underestimated because:

- The majority of these records were obtained from quadrat based survey rather than grid-based transects, hence the full extent of a local population may not have been included if it extended beyond the 50 x 50 m quadrat boundaries and;
- Only percentage cover, rather than actual plant numbers were recorded, hence the numbers of plants present from these data points has been interpolated, using the following conversions:

“N or <10 plants” interpreted to be 1 plant;

<2% cover or “present” interpreted to be 5 plants

2-10% cover interpreted to be 10 plants

10-30 % cover interpreted to be 20 plants

These differences in methodology probably result in an underestimate of the total number of plants present at these locations. As quadrat derived data points are more broadly distributed within the project area, a higher number of these locations lie outside the areas of impact.

This is particularly relevant for the taxon *Polymeria* sp. Hamersley, in which only one population of approximately 50 plants was recorded within the infrastructure. Four other

records have been obtained outside the zone of impact from earlier surveys, but their full extent is likely to have been underestimated.

The data on the distribution of *Rostellularia adscendens* var. *latifolia* is also influenced by the fact that this is an annual or semi-annual species which proliferates extensively at ground level in moist conditions and dies back during drier periods. It was observed to be prolific at some several locations during the current survey, however the full extent of its distribution at locations surveyed in earlier surveys is likely to have been significantly underestimated, either due to the above factors, or because it may have been temporarily absent or in much lower numbers at some locations, particularly during Phase 1 of the Roy Hill 1 survey.

Both *Rostellularia adscendens* var. *latifolia* and *Polymeria* sp. Hamersley (M.E. Trudgen 11353) were predominantly recorded in drainage lines or the associated alluvial soils on floodplains. A large area of this vegetation type, in which the majority of earlier records of these taxa were made, is distributed further to the south along the banks of Kulkinbah Creek. It is anticipated that both these species would be shown to be abundant in this location, which is outside the zone of impact, if searching at a similar intensity to the current survey was conducted.

The local impact on the taxon *Eremophila youngii* subsp. *lepidota* is considered insignificant. Only three plants were recorded at the boundary of the most southern of the proposed evaporation ponds. However this species was observed to be common within the shrub stratum at the locations recorded further south and is likely to occur extensively in this area, beyond the zone of impact.

No populations of *Goodenia nuda* or *Acacia glaucocaesia* are currently known from within the areas of proposed impact.

In summary, whilst the proposed clearing will result in the removal of relatively large numbers of *Rhagodia* sp. Hamersley and smaller numbers of *Rostellularia adscendens* var. *latifolia*, *Eremophila youngii* subsp. *lepidota* and *Polymeria* sp. Hamersley, it is considered unlikely that this will jeopardize the regional viability of these taxa given their distribution both locally and regionally.

Table 4-2: Summary of status of Priority Taxa recorded during the Roy Hill 1 Infrastructure

Taxon	Priority Status	Number of locations and plants recorded at Roy Hill	Abundance & Distribution Within Roy Hill 1	% Known locations impacted at Roy Hill	⊛ % plants all plants impacted at Roy Hill	⌘ Number of other locations regionally	Location of Roy Hill relative to other lodged populations
<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)	3	1217	Broadly distributed, moderate abundance	88%	84%	10	Within previously known range
<i>Polymeria</i> sp. <i>Hamersley</i>	3	6	Low to moderate abundance, localized distribution	17%	70%	4	Range extension
<i>Rostellularia adscendens</i> var. <i>latifolia</i>	3	205	High local abundance moderately widespread	85%	99%	12	Within previously known range
<i>Eremophila youngii</i> subsp. <i>lepidota</i>	4	10	Low to moderate abundance, localized distribution	30	<5%	21	Within previously known range
<i>Goodenia nuda</i>	3	13	Low to moderate abundance, scattered distribution	0	0	15	Within previously known range
<i>Acacia glaucocaesia</i>	3	1	Low abundance, localized distribution	0	0	>20	minor south eastern extension of the known range

⊛ Estimated only as earlier records provide coverage based data only, which has been converted into estimates of number of plants

⌘ Based on lodgements at the Western Australian Herbarium

4.3 Conservation significance of the flora within the all areas of impact of the Stage 1 project area

Calculations contained within Table 4-2 consider impact to Priority flora on the basis of areas proposed to be cleared for infrastructure alone. However, in considering impact to each taxon it is relevant to also consider impact from all areas of clearing, including that required for construction of the Stage 1 pits. Note that the calculations of the proportions of flora impacted by all clearing are based on the areas outlined in Figure 4-1 rather than Figure 2.2 of the report. Figure 4-1 offers a conservative boundary to calculate the area required to be cleared and the actual pits will not completely encompass the areas shown. In addition to including the areas proposed to be cleared for pits, the area of proposed clearing for the airstrip has been reduced to a much smaller proportion of the total area surveyed in the vicinity of the airstrip, and formerly used in the calculations in Table 4-2.

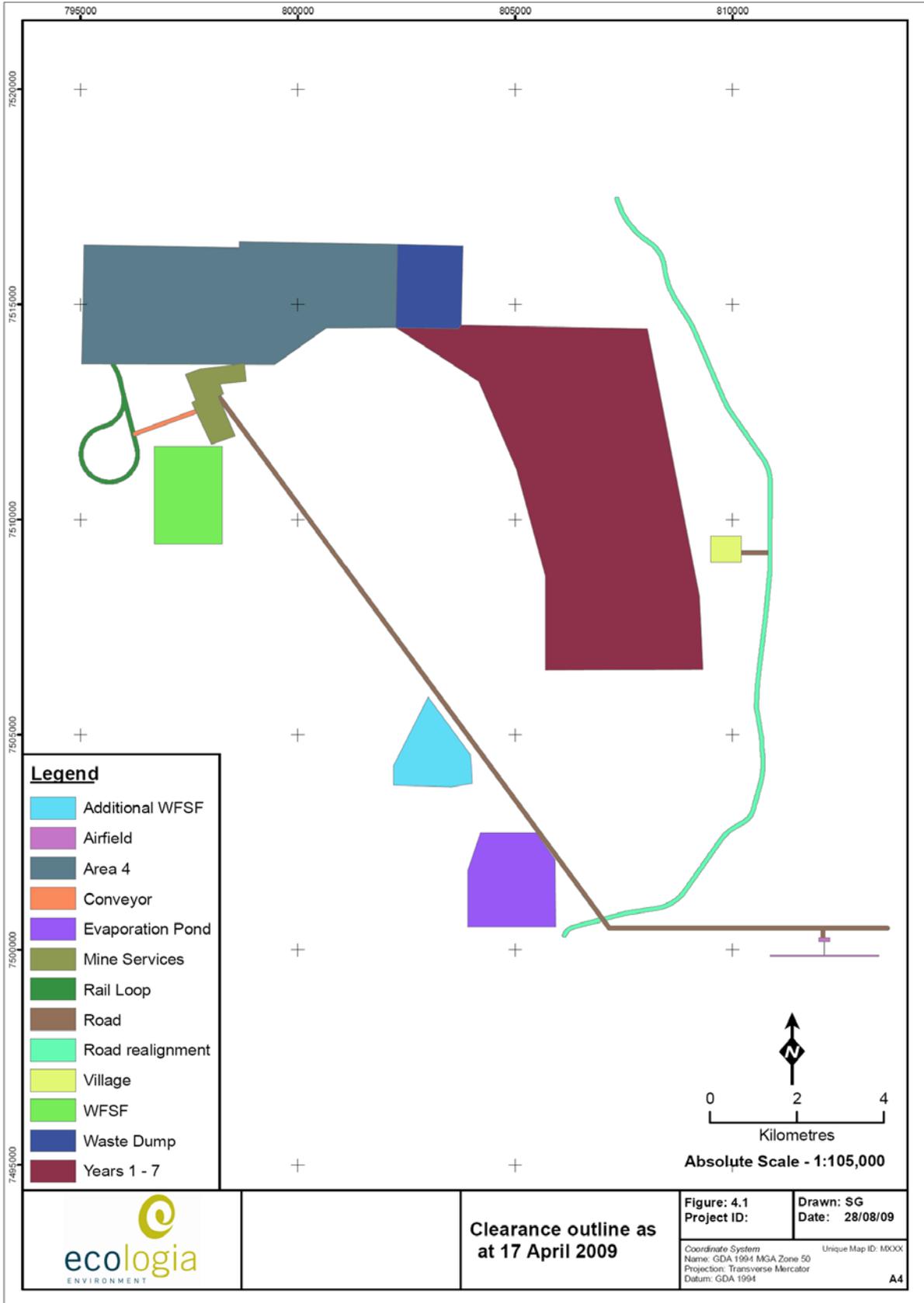
Table 4-3 below indicates the proportion of plants recorded within the impact areas proposed in Figure 4-1, in terms of the number of point locations and the absolute number of plants. It can be seen that the estimate of all plants of *Rhagodia* sp. Hamersley (M Trudgen 1774) impacted by the Stage 1 project has decreased substantially due to the reduced area of the airstrip in Figure 4-1. However there has been relatively little change to the proportions of *Polymeria* sp. Hamersley, *Eremophila youngii* subsp. *lepidota* or *Rostellularia adscendens* var. *latifolia* within the Stage 1 area of impact. The proportion of *Goodenia nuda* impacted has increased from no impact to 23% and 24% (locations and plant numbers respectively) due to the location of some plants within the Stage 1 pit areas. There remains no impact to the single population of *Acacia glaucocaesia*.

Table 4-3: Percentage impact from proposed clearing of pits and infrastructure to Priority Taxa within the Roy Hill 1 project area

Taxon	Priority Status	Number of locations recorded at Roy Hill	Numbers of plants recorded within Roy Hill 1	% Known locations impacted at Roy Hill 1	*% plants all plants impacted at Roy Hill 1	☞ Number of other locations regionally	Location of Roy Hill 1 relative to other lodged populations
<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)	3	1217	1966	38%	35%	10	Within previously known range
<i>Polymeria</i> sp. <i>Hamersley</i>	3	6	75	17%	67%	4	Range extension
<i>Rostellularia adscendens</i> var. <i>latifolia</i>	3	205	32101	61%	90%	12	Within previously known range
<i>Eremophila youngii</i> subsp. <i>lepidota</i>	4	10	74	30%	4%	21	Within previously known range
<i>Goodenia nuda</i>	3	13	46	23%	24%	15	Within previously known range
<i>Acacia glaucocaesia</i>	3	1	5	0%	0%	>20	minor south eastern extension of the known range

*Estimated only as earlier records provide coverage based data only, which has been converted into estimates of number of plants

☞ Based on lodgements at the Western Australian Herbarium



5.0 STUDY TEAM

The Roy Hill Vegetation and Flora Survey described in this document was planned, coordinated and executed by:



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WEST PERTH
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Project Staff		
Carol Macpherson	BSc. (Hons.)	Principal Botanist, Project Manager
Carmel Winton	BSc.	Botanist
Conrad Slee	B. Sc. (Hons)	Botanist and taxonomist

6.0 PERMITS

Licences – “Licence to take flora for scientific purposes”

The Roy Hill Vegetation and Flora Survey was conducted under the authorisation of the following licences issued by the Department of Environment and Conservation:

Licences	Permit Number	Valid Until
Carol Macpherson	SL008534	April 30 th 2010
Conrad Slee	SL008535	April 30 th 2010
Carmel Winton	SL008536	April 30 th 2010

7.0 ACKNOWLEDGEMENTS

The assistance of HPPL staff at Perth and Roy Hill while undertaking these surveys is greatly appreciated.

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Appendix A: Vegetation Structural and Condition Classifications

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Appendix A1: Vegetation Structural Formation Nomenclature

Growth form	Height ranges (m)	Structural Formation Classes					
		70-100	30-70	10-30	<10	0-5	approximately 0
Tree	<10, 10-30, >30	closed forest	open forest	woodland	open woodland	isolated clumps of trees	isolated trees
Tree, mallee	<3, <10, 10-30	closed mallee forest	open mallee forest	mallee woodland	open mallee woodland	isolated clumps of mallee trees	isolated trees
Shrub	<1, 1-2, >2	closed shrubland	shrubland	open shrubland	sparse shrubland	isolated clumps of shrubs	isolated shrubs
Heath shrub	<1, 1-2, >2	closed heathland	heathland	open heathland	sparse heathland	isolated clumps of heath shrubs	isolated heath shrubs
Chenopod shrub	<1, 1-2, >2	closed samphire shrubland	chenopod shrubland	open chenopod shrubland	sparse chenopod shrubland	isolated clumps of chenopod shrubs	isolated chenopod shrubs
Samphire shrub	<1, 1-2, >2	closed samphire shrubland	samphire shrubland	open samphire shrubland	sparse samphire shrubland	isolated clumps of samphire shrubs	isolated samphire shrubs
Hummock Grass	<2, >2	closed hummock grassland	hummock grassland	open hummock grassland	sparse hummock grassland	isolated clumps of hummock grasses	isolated hummock grasses
Tussock Grass	<0.5, >0.5	closed tussock grassland	tussock grassland	open tussock grassland	sparse tussock grassland	isolated clumps of tussock grasses	isolated tussock grasses
Other Grass	<0.5, >0.5	closed grassland	grassland	open grassland	sparse grassland	isolated clumps of grasses	isolated grasses
Sedge	<0.5, >0.5	closed sedgeland	sedgeland	open sedgeland	sparse sedgeland	isolated clumps of sedges	isolated sedges
Herbs	<0.5, >0.5	closed herbland	herbland	open herbland	sparse herbland	isolated clumps of herbs	isolated herbs
Vine	<10, 10-30, >30	closed vineland	vineland	open vineland	sparse vineland	isolated clumps of vines	isolated vines

Citation: Executive Steering Committee for Australian Vegetation Information (ESCAVI) (2003) Australian Vegetation Attribute Manual: National Vegetation Information System, Version 6.0, Dept. of the Environment and Heritage, Canberra

Appendix A2: Vegetation Height Class Nomenclature

Height		Growth Form				
Height class	Height range (m)	tree, vine (M & U)	Shrub, heath shrub, chenopod shrub, ferns, samphire shrub, cycad, tree-fern, grass-tree, palm (multi-stemmed)	tree mallee, mallee shrub	tussock grass, hummock grass, other grass, sedge, rush, herbs, vine (G)	bryophyte, lichen, seagrass, aquatic
8	>30	tall	N/A	N/A	N/A	N/A
7	10-30	mid	N/A	tall	N/A	N/A
6	<10	low	N/A	mid	N/A	N/A
5	<3	N/A	N/A	low	N/A	N/A
4	>2	N/A	tall	N/A	tall	N/A
3	1-2	N/A	mid	N/A	tall	N/A
2	0.5-1	N/A	low	N/A	mid	tall
1	<0.5	N/A	low	N/A	low	low

Height classes defined by NVIS (2003) Source: (Based on Walker and Hopkins 1990).

Citation: Executive Steering Committee for Australian Vegetation Information (ESCAVI) (2003) Australian Vegetation Attribute Manual: National Vegetation Information System, Version 6.0, Dept. of the Environment and Heritage, Canberra

Appendix A3: Vegetation condition scale from Keighery BJ (1994) and Connell (1995) after Trudgen (1991)

Excellent (E)	Pristine or nearly so, no obvious signs of damage caused by the activities of European man.
Very Good (VG)	Some relatively slight signs of damage caused by the activities of European man. For example, some signs of damage to tree trunks caused by repeated fires and the presence of some relatively non-aggressive weeds such as <i>Ursinia anthemoides</i> or <i>Briza</i> species, or occasional vehicle tracks
Good (G)	More obvious signs of damage caused by the activities of European man including some obvious impact on the vegetation structure such as caused by low levels of grazing or by selective logging. Weeds as above, possibly some more aggressive ones.
Poor (P)	Still retains basic vegetation structure or ability to regenerate to it after very obvious impacts of activities of European man such as grazing or partial clearing (chaining) or very frequent fires. Weeds as above, probably plus some more aggressive ones such as <i>Ehrharta</i> species
Very Poor (VP)	Severely impacted by grazing, fire, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species, including aggressive species.
Completely Degraded (6)	Areas that are completely or almost completely without native species in the structure of their vegetation i.e. areas that are cleared or “parkland cleared” with their flora comprising weed or crop species with isolated native trees or shrubs.

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

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Appendix B: Locations of Flora Sites (October 2008)

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Site	Zone	Easting	Northing
001	50	802750	7516198
002	50	802616	7515113
003	50	803281	7516358
004	50	803516	7514803
005	50	803292	7515677
006	50	803292	7515102
007	50	808306	7500958
008	50	807185	7500733
009	51	192501	7502392
010	51	192667	7502693
011	51	193401	7503304
012	51	193388	7503625
013	51	193390	7505554
014	51	193526	7504558
015	51	192407	7503107
016	51	192200	7502979
017	50	808208	7501986
018	51	193405	7508828
019	51	193345	7506421
020	51	193533	7508724
021	51	193478	7507353
022	51	193471	7508275
023	51	193231	7511514
024	51	193585	7509682
025	51	192396	7512535
026	51	193516	7510762
027	51	191705	7515418
028	50	807978	7516406
029	51	191991	7515622
030	50	808164	7516009
031	51	192007	7515152
032	50	805788	7514227
033	50	808494	7515606
034	50	804496	7514319
035	50	805637	7514288
036	50	807950	7507402
037	50	804821	7514271
038	50	806523	7505189
039	50	806135	7507905
040	50	806519	7504763
041	50	804554	7506703
042	50	806982	7504579
043	50	804023	7507044
044	50	805518	7508260

Site	Zone	Easting	Northing
045	50	803900	7507435
046	50	803868	7512764
047	50	805368	7508747
048	50	803207	7507007
049	50	804165	7512296
050	50	802940	7507531
051	50	803864	7513205
052	50	802802	7507864
053	50	800613	7509016
054	50	802690	7508002
055	50	800965	7508631
056	50	799123	7509549
057	50	801307	7508272
058	51	196097	7501541
059	50	802598	7508325
060	51	196135	7501888
061	50	798724	7509205
062	51	196635	7501862
063	50	799025	7510079
064	51	196648	7502017
065	51	192047	7501014
066	51	197093	7502037
067	51	194212	7501025
068	51	197105	7501621
069	51	194967	7501027
070	51	198866	7501345
071	51	196128	7501201
072	50	807298	7502403
073	50	807742	7502060
074	50	799176	7514488
075	50	795503	7514319
076	50	799430	7514336
077	50	796279	7513399
078	50	799783	7513819
079	50	797395	7512806
080	50	798935	7513113
081	50	797776	7511756
082	50	798864	7513666
083	50	798368	7513939
084	50	798280	7511127
085	50	799792	7509160
086	50	806545	7503994
087	50	807973	7501333
088	50	805812	7503984
089	50	807458	7501531
090	50	805030	7504173
091	50	807042	7501608

Site	Zone	Easting	Northing
092	50	804931	7503158
093	50	805552	7502364
094	50	807562	7511439
095	51	191525	7503785
096	50	802437	7506357
097	50	804179	7504804
098	50	802756	7505898
099	50	796854	7509383
100	50	798251	7509161
101	50	797622	7510287
102	50	797835	7509632
103	50	797747	7510993
104	50	798239	7509869
105	50	796130	7510952
106	50	795146	7511035
107	50	796829	7510568
108	50	797016	7511218
109	50	801053	7510895
110	50	802101	7511019
111	50	802927	7511158

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Appendix C: Flora Species Recorded during the Roy Hill 1 Infrastructure Vegetation and Flora Assessment

Classification and nomenclature according to the Western Australian Herbarium and R.J. Hnatiuk (1990), Census of Australian Vascular Plants. Australian Government Publishing Service.

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Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
Acanthaceae	<i>Dicladantha forrestii</i>	✓	✓	✓
	<i>Rostellularia adscendens</i> var. <i>latifolia</i>	✓		
Adiantaceae	<i>Cheilanthes austrotenuifolia</i>	✓		
	<i>Cheilanthes brownii</i>	✓		
	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	✓		✓
Aizoaceae	<i>Trianthema glossostigma</i>	✓		
	<i>Trianthema oxycalyptra</i> var. <i>oxycalyptra</i>	✓		
	<i>Trianthema pilosa</i>			✓
	<i>Trianthema portulacastrum</i>	✓		
	<i>Trianthema triquetra</i>	✓		
Amaranthaceae	<i>Achyranthes aspera</i>	✓		
	<i>Aerva javanica</i>	✓	✓	✓
	<i>Alternanthera angustifolia</i>	✓		
	<i>Alternanthera denticulata</i>		✓	
	<i>Alternanthera nodiflora</i>	✓	✓	✓
	<i>Amaranthus interruptus</i>	✓		
	<i>Amaranthus mitchellii</i>		✓	✓
	<i>Amaranthus undulatus</i>	✓		
	<i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>	✓		
	<i>Gomphrena canescens</i> subsp. <i>canescens</i>	✓	✓	✓
	<i>Gomphrena cunninghamii</i>	✓	✓	✓
	<i>Gomphrena kanisii</i>	✓	✓	
	<i>Ptilotus aevoides</i>	✓		
	<i>Ptilotus astrolasius</i> var. <i>astrolasius</i>	✓		
	<i>Ptilotus auriculifolius</i>	✓		
	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i>	✓		
	<i>Ptilotus carinatus</i>	✓		
	<i>Ptilotus clementii</i>	✓		
	<i>Ptilotus drummondii</i>	✓		
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>	✓		
	<i>Ptilotus fusiformis</i> var. <i>fusiformis</i>	✓		
	<i>Ptilotus gaudichaudii</i> var. <i>gaudichaudii</i>	✓		
	<i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i>	✓	✓	
	<i>Ptilotus helipteroides</i> var. <i>helipteroides</i>	✓		
	<i>Ptilotus incanus</i> var. <i>incanus</i>	✓		
	<i>Ptilotus macrocephalus</i>	✓		
	<i>Ptilotus obovatus</i>	✓	✓	

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>	✓	✓	
Amaranthaceae	<i>Ptilotus roei</i>	✓		
	<i>Ptilotus rotundifolius</i>		✓	
	<i>Ptilotus schwartzii</i> var. <i>schwartzii</i>	✓		
Apiaceae	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	✓		
Asclepiadaceae	<i>Cynanchum floribundum</i>	✓		
	<i>Marsdenia australis</i>			✓
	<i>Rhyncharrhena linearis</i>	✓		
Asteraceae	<i>Bidens bipinnata</i>	✓	✓	✓
	<i>Blumea tenella</i>	✓		
	<i>Calocephalus francisii</i>	✓		
	<i>Calocephalus knappii</i>	✓		
	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454)			✓
	<i>Calocephalus</i> sp. Wittenoom (A.S. George 1082)			✓
	<i>Calotis plumulifera</i>	✓		
	<i>Calotis porphyroglossa</i>	✓		
	<i>Centipeda minima</i> subsp. <i>macrocephala</i>	✓	✓	✓
	<i>Centipeda thespidioides</i>	✓		
	<i>Chrysocephalum apiculatum</i>	✓		
	<i>Chrysocephalum eremaeum</i>	✓		
	<i>Chrysocephalum gilesii</i>	✓		
	<i>Flaveria australasica</i>	✓		✓
	<i>Minuria integerrima</i>	✓		
	<i>Peripleura virgata</i>			✓
	<i>Pluchea dentex</i>		✓	✓
	<i>Pluchea dunlopia</i>	✓		
	<i>Pluchea ferdinandi-muelleri</i>	✓		
	<i>Pluchea rubelliflora</i>	✓		
	<i>Pluchea tetranthera</i>	✓		
	<i>Pterocaulon serrulatum</i>	✓		
	<i>Pterocaulon sphacelatum</i>	✓		
	<i>Pterocaulon sphaeranthoides</i>	✓		
	<i>Rhodanthe floribunda</i>	✓		
	<i>Rhodanthe margarethae</i>	✓		
	<i>Rutidosis helichrysoides</i> subsp. <i>helichrysoides</i>	✓		
	<i>Sonchus oleraceus</i>	✓		
	<i>Stenopetalum velutinum</i>			✓
	<i>Streptoglossa ?bubakii</i>		✓	
	<i>Streptoglossa bubakii</i>	✓		

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Streptoglossa cylindriceps</i>	✓		
	<i>Streptoglossa decurrens</i>	✓		
	<i>Streptoglossa liatroides</i>	✓		
	<i>Streptoglossa odora</i>			✓
Boraginaceae	<i>Ehretia saligna</i> var. <i>saligna</i>	✓		✓
	<i>Heliotropium chrysocarpum</i>	✓	✓	✓
	<i>Heliotropium cunninghamii</i>	✓		✓
	<i>Heliotropium europaeum</i>	✓		
	<i>Heliotropium heteranthum</i>	✓	✓	✓
	<i>Heliotropium inexplicitum</i>	✓		
	<i>Heliotropium pachyphyllum</i>	✓		
	<i>Heliotropium tanythrix</i>	✓	✓	
	<i>Heliotropium tenuifolium</i>			✓
	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	✓		
Brassicaceae	<i>Arabidella nasturtium</i>	✓		
	<i>Lepidium echinatum</i>	✓		✓
	<i>Lepidium pedicellosum</i>	✓		
	<i>Lepidium phlebopetalum</i>	✓	✓	✓
	<i>Lepidium pholidogynum</i>	✓		✓
	<i>Stenopetalum anfractum</i>			✓
	<i>Stenopetalum decipiens</i>	✓		
	<i>Stenopetalum nutans</i>	✓		
Caesalpiniaceae	<i>Parkinsonia aculeata</i>	✓		
	<i>Petalostylis labicheoides</i>	✓		
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	✓		
	<i>Senna artemisioides</i> subsp. <i>helmsii</i>	✓		
	<i>Senna artemisioides</i> subsp. <i>helmsii</i> x <i>oligophylla</i>		✓	
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	✓		
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>			✓
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>Senna sericea</i>		✓	
	<i>Senna artemisioides</i> subsp. x <i>artemisioides</i>			✓
	<i>Senna artemisioides</i> subsp. x <i>sturtii</i>	✓		
	<i>Senna ferraria</i>	✓		
	<i>Senna glaucifolia</i>	✓		
	<i>Senna glutinosa</i> subsp. <i>chatelainiana</i>	✓		
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	✓		
	<i>Senna glutinosa</i> subsp. <i>luerssenii</i>			✓
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	✓		

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Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>	✓		
	<i>Senna hamersleyensis</i>	✓		
Caesalpinaceae	<i>Senna notabilis</i>	✓		
	<i>Senna sericea</i>	✓		
	<i>Senna stricta</i>	✓		
	<i>Senna symonii</i>	✓		
	<i>Senna venusta</i>	✓		
Campanulaceae	<i>Wahlenbergia tumidifructa</i>	✓		
Capparaceae	<i>Capparis lasiantha</i>	✓		
	<i>Capparis spinosa</i> var. <i>nummularia</i>	✓		
	<i>Capparis umbonata</i>	✓	✓	✓
	<i>Cleome oxalidea</i>	✓	✓	
	<i>Cleome viscosa</i>	✓	✓	✓
Caryophyllaceae	<i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>	✓		
	<i>Polycarpaea holtzei</i>	✓		
	<i>Polycarpaea longiflora</i>	✓		
Chenopodiaceae	<i>Atriplex bunburyana</i>	✓	✓	
	<i>Dissocarpus paradoxus</i>	✓		
	<i>Dysphania kalpari</i>	✓	✓	
	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>		✓	✓
	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	✓	✓	✓
	<i>Maireana carnosa</i>	✓		
	<i>Maireana georgei</i>		✓	
	<i>Maireana luehmannii</i>	✓		
	<i>Maireana planifolia</i>	✓		
	<i>Maireana pyramidata</i>	✓		
	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	✓		
	<i>Maireana villosa</i>	✓		
	<i>Rhagodia eremaea</i>	✓		
	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)	✓		
	<i>Salsola australis</i>		✓	✓
	<i>Salsola tragus</i> subsp. <i>tragus</i>	✓	✓	✓
	<i>Sclerolaena bicornis</i> var. <i>bicornis</i>	✓	✓	
	<i>Sclerolaena convexula</i>	✓		
	<i>Sclerolaena cornishiana</i>	✓		
	<i>Sclerolaena costata</i>	✓		
	<i>Sclerolaena cuneata</i>	✓		
	<i>Sclerolaena densiflora</i>	✓		
	<i>Sclerolaena deserticola</i>	✓		

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Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Sclerolaena eriacantha</i>	✓		
	<i>Sclerolaena tetragona</i>	✓		
Commelinaceae	<i>Commelina ciliata</i>	✓		
	<i>Commelina ensifolia</i>	✓	✓	
Convolvulaceae	<i>Bonamia media</i> var. <i>media</i>			✓
	<i>Bonamia media</i> var. <i>villosa</i>	✓	✓	✓
	<i>Bonamia pannosa</i>	✓		
	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>	✓	✓	
	<i>Duperreya commixta</i>	✓	✓	✓
	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	✓	✓	✓
	<i>Ipomoea calobra</i>		✓	
	<i>Ipomoea coptica</i>	✓	✓	
	<i>Ipomoea diamantinensis</i>	✓		
	<i>Ipomoea lonchophylla</i>	✓	✓	
	<i>Ipomoea muelleri</i>	✓	✓	✓
	<i>Ipomoea plebeia</i>	✓		
	<i>Ipomoea polymorpha</i>	✓	✓	
	<i>Operculina aequisejala</i>	✓		
	<i>Polymeria ambigua</i>	✓	✓	
	<i>Polymeria calycina</i>			✓
	<i>Polymeria distigma</i>			✓
	<i>Polymeria</i> sp. Hamersley (M.E. Trudgen 11353)	✓		
Cucurbitaceae	<i>Austrobryonia pilbarensis</i>	✓	✓	
	<i>Citrullus colocynthis</i>	✓	✓	✓
	<i>Citrullus lanatus</i>	✓	✓	
	<i>Cucumis maderaspatanus</i>	✓	✓	✓
	<i>Cucumis melo</i> subsp. <i>agrestis</i>	✓		
Cyperaceae	<i>Bulbostylis barbata</i>	✓	✓	✓
	<i>Cyperus bifax</i>	✓		
	<i>Cyperus iria</i>	✓	✓	
	<i>Cyperus ixiocarpus</i>		✓	
	<i>Cyperus vaginatus</i>		✓	✓
	<i>Fimbristylis dichotoma</i>	✓	✓	✓
	<i>Fimbristylis microcarya</i>	✓		
	<i>Fimbristylis simulans</i>	✓		
Elatinaceae	<i>Bergia perennis</i> subsp. <i>obtusifolia</i>		✓	
Euphorbiaceae	<i>Adriana urticoides</i> var. <i>urticoides</i>	✓	✓	✓
	<i>Euphorbia australis</i>	✓	✓	✓

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Euphorbia biconvexa</i>	✓	✓	✓
	<i>Euphorbia boophthona</i>	✓	✓	✓
	<i>Euphorbia coghlanii</i>	✓	✓	
Euphorbiaceae	<i>Euphorbia drummondii</i>	✓	✓	
	<i>Euphorbia schultzei</i>	✓		
	<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	✓		
	<i>Leptopus decaisnei</i>	✓		
	<i>Leptopus decaisnei</i> var. <i>orbicularis</i>		✓	
	<i>Phyllanthus erwinii</i>	✓		
	<i>Phyllanthus maderaspatensis</i>	✓		
Goodeniaceae	<i>Dampiera candidans</i>	✓	✓	✓
	<i>Goodenia cusackiana</i>		✓	
	<i>Goodenia forrestii</i>	✓		
	<i>Goodenia lamprosperma</i>	✓		
	<i>Goodenia microptera</i>	✓	✓	✓
	<i>Goodenia muelleriana</i>	✓	✓	
	<i>Goodenia nuda</i>	✓		
	<i>Goodenia pascua</i>	✓		
	<i>Goodenia pinnatifida</i>			✓
	<i>Goodenia prostrata</i>	✓	✓	✓
	<i>Goodenia stobbsiana</i>	✓	✓	✓
	<i>Goodenia triodiophila</i>	✓	✓	✓
	<i>Goodenia vilmoriniae</i>	✓		
	<i>Scaevola acacioides</i>	✓		
	<i>Scaevola spinescens</i>		✓	
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>	✓		
Haloragaceae	<i>Haloragis gossei</i> var. <i>gossei</i>			✓
Lamiaceae	<i>Basilicum polystachyon</i>	✓		
	<i>Newcastelia</i> sp. Hamersley Range (S. van Leeuwen 4264)		✓	
	<i>Teucrium racemosum</i>	✓		
Lauraceae	<i>Cassytha capillaries</i>	✓		
Loranthaceae	<i>Amyema</i> aff. <i>bifurcata</i>	✓		
	<i>Amyema fitzgeraldii</i>	✓	✓	✓
	<i>Amyema gibberula</i> var. <i>gibberula</i>	✓		
	<i>Amyema miquelii</i>	✓		
	<i>Lysiana casuarinae</i>	✓	✓	
Lythraceae	<i>Ammannia auriculata</i>	✓		
	<i>Ammannia baccifera</i>	✓		
Malvaceae	<i>Abutilon ?dioicum</i> R.M.Barker ms.	✓		

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Abutilon amplum</i>	✓	✓	
	<i>Abutilon cryptopetalum</i>	✓	✓	✓
	<i>Abutilon cunninghamii</i>	✓	✓	✓
	<i>Abutilon fraseri</i>	✓	✓	
Malvaceae	<i>Abutilon lepidum</i>	✓	✓	✓
	<i>Abutilon leucopetalum</i>	✓		
	<i>Abutilon macrum</i>	✓	✓	✓
	<i>Abutilon malvifolium</i>	✓	✓	
	<i>Abutilon otocarpum</i>	✓	✓	✓
	<i>Abutilon oxycarpum</i> subsp. <i>prostratum</i> R.M.Barker ms		✓	
	<i>Gossypium australe</i>	✓		✓
	<i>Gossypium robinsonii</i>	✓	✓	✓
	<i>Hibiscus brachysiphonius</i>		✓	
	<i>Hibiscus burtonii</i>	✓	✓	✓
	<i>Hibiscus coatesii</i>	✓	✓	✓
	<i>Hibiscus gardneri</i>	✓		
	<i>Hibiscus haynaldii</i>	✓		
	<i>Hibiscus leptocladus</i>	✓		✓
	<i>Hibiscus sturtii</i> var. <i>aff. grandiflorus</i>	✓		✓
	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	✓	✓	✓
	<i>Hibiscus sturtii</i> var. <i>grandiflorus</i>		✓	
	<i>Hibiscus sturtii</i> var. <i>platyklamys</i>	✓	✓	✓
	<i>Hibiscus sturtii</i> var. <i>truncatus</i>	✓		✓
	<i>Hibiscus trionum</i> var. <i>vesicarius</i>	✓		
	<i>Malvastrum americanum</i>	✓		
	<i>Sida arenicola</i>	✓		
	<i>Sida arsiniata</i>			✓
	<i>Sida calyxhymenia</i>	✓		
	<i>Sida cardiophylla</i>			✓
	<i>Sida echinocarpa</i>	✓		
	<i>Sida ectogama</i>	✓		
	<i>Sida fibulifera</i>	✓		
	<i>Sida platycalyx</i>	✓		
	<i>Sida rohlenae</i> subsp. <i>rohlenae</i>	✓		
	<i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260)	✓		
	<i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925)	✓	✓	✓
	<i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543))	✓	✓	✓
	<i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)	✓		✓

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Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Sida</i> sp. Supplejack Station (T.S. Henshall 2345)	✓		
	<i>Sida</i> sp. verrucose glands (F.H. Mollemans 2423)		✓	✓
	<i>Sida spinosa</i>	✓		
Marsileaceae	<i>Marsilea exarata</i>	✓		
	<i>Marsilea hirsuta</i>		✓	
	<i>Marsilea hirsute</i>	✓		
Mimosaceae	<i>Acacia ?sericophylla</i>			✓
	<i>Acacia acradenia</i>	✓	✓	✓
	<i>Acacia adsurgens</i>	✓	✓	
	<i>Acacia ampliceps</i>	✓		
	<i>Acacia ancistrocarpa</i>	✓	✓	✓
	<i>Acacia aneura</i> var. <i>aneura</i>	✓	✓	✓
	<i>Acacia aneura</i> var. <i>confifera</i>	✓	✓	✓
	<i>Acacia aneura</i> var. <i>intermedia</i>	✓	✓	✓
	<i>Acacia aneura</i> var. <i>macrocarpa</i>	✓		
	<i>Acacia aneura</i> var. <i>major</i>	✓		
	<i>Acacia aneura</i> var. <i>pilbarana</i>	✓	✓	✓
	<i>Acacia aneura</i> var. <i>tenuis</i>	✓	✓	
	<i>Acacia arida</i>	✓		
	<i>Acacia atkinsiana</i>	✓		✓
	<i>Acacia ayersiana</i>	✓	✓	✓
	<i>Acacia bivenosa</i>	✓	✓	✓
	<i>Acacia catenulata</i> subsp. <i>occidentalis</i>	✓	✓	✓
	<i>Acacia coriacea</i> subsp. <i>pendens</i>	✓	✓	✓
	<i>Acacia dictyophleba</i>			✓
	<i>Acacia distans</i>	✓		
	<i>Acacia glaucocaesia</i>	✓		
	<i>Acacia hamersleyensis</i>	✓		
	<i>Acacia inaequilatera</i>	✓	✓	✓
	<i>Acacia kempeana</i>	✓		
	<i>Acacia maitlandii</i>	✓	✓	✓
	<i>Acacia marramamba</i>	✓	✓	✓
	<i>Acacia monticola</i>	✓	✓	✓
	<i>Acacia oswaldii</i>	✓		
	<i>Acacia paraneura</i>	✓	✓	✓
	<i>Acacia pruinocarpa</i>	✓	✓	✓
	<i>Acacia pyrifolia</i> var. <i>morrisonii</i>	✓	✓	✓
	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	✓	✓	✓
	<i>Acacia rhodophloia</i>	✓	✓	✓
	<i>Acacia robeorum</i>	✓		

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Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Acacia sabulosa</i>		✓	
	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	✓	✓	✓
	<i>Acacia sibirica</i>	✓		✓
Mimosaceae	<i>Acacia synchronicia</i>	✓	✓	✓
	<i>Acacia tetragonophylla</i>	✓	✓	✓
	<i>Acacia trachycarpa</i>	✓		
	<i>Acacia trudgeniana</i>			✓
	<i>Acacia tumida</i> var. <i>pilbarensis</i>	✓	✓	✓
	<i>Acacia victoriae</i>	✓		
	<i>Acacia xiphophylla</i>	✓		
	<i>Neptunia dimorphantha</i>	✓		
	<i>Vachellia farnesiana</i>	✓		
Molluginaceae	<i>Glinus lotoides</i>	✓		
	<i>Mollugo molluginea</i>	✓		
Moraceae	<i>Ficus brachypoda</i>		✓	
Myoporaceae	<i>Eremophila cuneifolia</i>	✓	✓	✓
	<i>Eremophila enata</i>	✓		
	<i>Eremophila exilifolia</i>	✓		
	<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	✓	✓	✓
	<i>Eremophila lanceolata</i>	✓	✓	✓
	<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	✓	✓	✓
	<i>Eremophila latrobei</i> subsp. <i>glabra</i>	✓	✓	
	<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	✓	✓	✓
	<i>Eremophila longifolia</i>	✓	✓	✓
	<i>Eremophila margarethae</i>	✓		
	<i>Eremophila pilosa</i>			✓
	<i>Eremophila platycalyx</i>	✓		
	<i>Eremophila youngii</i> subsp. <i>lepidota</i>	✓	✓	
Myrtaceae	<i>Calytrix carinata</i>	✓	✓	✓
	<i>Corymbia aspera</i>		✓	✓
	<i>Corymbia candida</i> subsp. <i>candida</i>	✓		✓
	<i>Corymbia candida</i> subsp. <i>dipsodes</i>		✓	
	<i>Corymbia deserticola</i>	✓		
	<i>Corymbia ferriticola</i>	✓	✓	✓
	<i>Corymbia hamersleyana</i>	✓	✓	✓
	<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i>	✓	✓	✓
	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	✓	✓	✓
	<i>Eucalyptus lucasii</i>	✓		
	<i>Eucalyptus pilbarensis</i>	✓		

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Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Eucalyptus socialis</i>	✓		
	<i>Eucalyptus victrix</i>	✓	✓	✓
	<i>Melaleuca glomerata</i>	✓		
	<i>Melaleuca linophylla</i>	✓		
Nyctaginaceae	<i>Boerhavia burbidgeana</i>	✓	✓	
	<i>Boerhavia coccinea</i>	✓	✓	✓
	<i>Boerhavia gardneri</i>	✓		
	<i>Boerhavia paludosa</i>	✓	✓	
	<i>Boerhavia repleta</i>	✓	✓	✓
	<i>Boerhavia schomburgkiana</i>	✓		
Oleaceae	<i>Jasminum didymum</i> subsp. <i>lineare</i>	✓	✓	✓
Papaveraceae	<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	✓		
Papilionaceae	<i>Aeschynomene indica</i>	✓		
	<i>Alysicarpus muelleri</i>	✓	✓	
	<i>Crotalaria dissitiflora</i> subsp. <i>benthamiana</i>	✓	✓	
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	✓	✓	✓
	<i>Cullen cinereum</i>	✓	✓	
	<i>Cullen graveolens</i>	✓		
	<i>Cullen lachnostachys</i>	✓		✓
	<i>Cullen leucochaites</i>		✓	
	<i>Cullen pogonocarpum</i>	✓		
	<i>Desmodium campylocaulon</i>	✓		
	<i>Desmodium filiforme</i>	✓		
	<i>Erythrina vespertilio</i>	✓		
	<i>Glycine canescens</i>	✓		✓
	<i>Gompholobium karjini</i>	✓	✓	✓
	<i>Indigofera colutea</i>	✓	✓	
	<i>Indigofera georgei</i>		✓	✓
	<i>Indigofera linifolia</i>	✓	✓	
	<i>Indigofera linnaei</i>	✓	✓	
	<i>Indigofera monophylla</i>	✓	✓	✓
	<i>Isotropis forrestii</i>	✓	✓	✓
	<i>Lotus cruentus</i>	✓		
	<i>Rhynchosia minima</i>	✓	✓	
	<i>Sesbania cannabina</i>		✓	
	<i>Swainsona canescens</i>	✓		
	<i>Swainsona kingii</i>	✓		
	<i>Tephrosia clementii</i>	✓		
	<i>Tephrosia rosea</i> var. <i>clementii</i>		✓	✓
	<i>Tephrosia rosea</i> var. <i>glabrior</i>		✓	✓

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Tephrosia rosea</i> var. <i>glabrior</i> Pedley ms	✓		
	<i>Tephrosia supina</i>	✓	✓	✓
	<i>Vigna lanceolata</i> var. <i>lanceolata</i>	✓		
Pedaliaceae	<i>Josephinia eugeniae</i>	✓	✓	
Poaceae	<i>Amphipogon sericeus</i>			✓
	<i>Aristida contorta</i>	✓	✓	✓
	<i>Aristida holathera</i> var. <i>latifolia</i>	✓		
	<i>Aristida inaequiglumis</i>	✓		✓
	<i>Aristida ingrata</i>	✓		
	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>	✓		
	<i>Aristida latifolia</i>	✓	✓	✓
	<i>Bothriochloa bladhii</i>	✓		
	<i>Bothriochloa ewartiana</i>	✓		
	<i>Brachyachne prostrata</i>	✓	✓	
	<i>Cenchrus ciliaris</i>	✓	✓	✓
	<i>Chloris pectinata</i>	✓	✓	✓
	<i>Chloris pumilio</i>	✓		
	<i>Chloris virgata</i>	✓		
	<i>Chrysopogon fallax</i>	✓	✓	✓
	<i>Cymbopogon ambiguus</i>	✓	✓	✓
	<i>Cymbopogon bombycinus</i>	✓		
	<i>Cymbopogon obtectus</i>	✓	✓	✓
	<i>Cymbopogon procerus</i>	✓		
	<i>Dactyloctenium radulans</i>	✓	✓	
	<i>Dichanthium fecundum</i>	✓		
	<i>Dichanthium sericeum</i> subsp. <i>humilius</i>	✓	✓	
	<i>Digitaria brownii</i>	✓		
	<i>Digitaria ctenantha</i>	✓	✓	✓
	<i>Echinochloa colona</i>	✓	✓	
	<i>Elytrophorus spicatus</i>		✓	
	<i>Enneapogon avenaceus</i>	✓		
	<i>Enneapogon caeruleus</i>	✓	✓	✓
	<i>Enneapogon cylindricus</i>	✓	✓	✓
	<i>Enneapogon intermedius</i>	✓		
	<i>Enneapogon lindleyanus</i>	✓		
	<i>Enneapogon polyphyllus</i>	✓	✓	✓
	<i>Enteropogon ramosus</i>	✓	✓	
	<i>Eragrostis cilianensis</i>	✓		
	<i>Eragrostis cumingii</i>	✓		✓
	<i>Eragrostis desertorum</i>	✓	✓	✓

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Eragrostis dielsii</i>	✓		
	<i>Eragrostis eriopoda</i>	✓	✓	✓
	<i>Eragrostis falcata</i>	✓	✓	
	<i>Eragrostis leptocarpha</i>	✓		
Poaceae	<i>Eragrostis pergracilis</i>	✓		
	<i>Eragrostis setifolia</i>	✓		✓
	<i>Eragrostis tenellula</i>	✓	✓	✓
	<i>Eragrostis xerophila</i>	✓	✓	✓
	<i>Eriachne aristidea</i>	✓		
	<i>Eriachne benthamii</i>	✓	✓	
	<i>Eriachne ciliata</i>	✓		
	<i>Eriachne flaccida</i>	✓	✓	
	<i>Eriachne helmsii</i>	✓		✓
	<i>Eriachne lanata</i>	✓	✓	✓
	<i>Eriachne mucronata</i>	✓	✓	✓
	<i>Eriachne pulchella</i> subsp. <i>dominii</i>	✓	✓	
	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	✓		✓
	<i>Eriachne semiciliata</i>	✓		
	<i>Eriachne tenuiculmis</i>	✓		
	<i>Eriochloa pseudoacrotricha</i>	✓		
	<i>Eulalia aurea</i>	✓	✓	✓
	<i>Heteropogon contortus</i>	✓		
	<i>Iseilema dolichotrichum</i>	✓		
	<i>Iseilema eremaeum</i>	✓		
	<i>Iseilema macratherum</i>	✓		
	<i>Iseilema membranaceum</i>		✓	✓
	<i>Iseilema vaginiflorum</i>	✓		
	<i>Leptochloa digitata</i>			✓
	<i>Panicum decompositum</i>	✓		
	<i>Panicum effusum</i>			✓
	<i>Panicum laevinode</i>	✓		
	<i>Paraneurachne muelleri</i>	✓		
	<i>Paspalidium basicladum</i>			✓
	<i>Paspalidium clementii</i>	✓		
	<i>Paspalidium constrictum</i>	✓		
	<i>Paspalidium rarum</i>	✓		
	<i>Perotis rara</i>	✓		
	<i>Setaria dielsii</i>	✓		
	<i>Setaria verticillata</i>	✓		
	<i>Sporobolus australasicus</i>	✓		

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Sporobolus mitchellii</i>	✓		
	<i>Themeda triandra</i>	✓		
	<i>Tragus australianus</i>		✓	
	<i>Triodia angusta</i>	✓		
Poaceae	<i>Triodia basedowii</i>	✓		
	<i>Triodia brizoides</i>	✓		
	<i>Triodia epactia</i>	✓		
	<i>Triodia lanigera</i>		✓	✓
	<i>Triodia longiceps</i>	✓		
	<i>Triodia melvillei</i>		✓	
	<i>Triodia pungens</i>	✓		
	<i>Triodia sp. Shovelanna Hill (S. van Leeuwen 3835)</i>	✓		
	<i>Triodia wiseana</i>	✓		
	<i>Urochloa occidentalis</i> var. <i>occidentalis</i> ms (C.A.Gardner & C.E.Hubb.) B.K.Simon	✓	✓	
	<i>Urochloa pubigera</i>		✓	
	<i>Whiteochloa ?airoides</i>	✓		
Polygalaceae	<i>Polygala isingii</i>	✓		
	<i>Muehlenbeckia florulenta</i>	✓		
Portulacaceae	<i>Calandrinia polyandra</i>	✓		
	<i>Calandrinia ptychosperma</i>	✓		
	<i>Portulaca conspicua</i>	✓		
	<i>Portulaca intraterranea</i>	✓		
	<i>Portulaca oleracea</i>	✓		
	<i>Portulaca pilosa</i>	✓		
Proteaceae	<i>Grevillea berryana</i>	✓	✓	✓
	<i>Grevillea striata</i>	✓	✓	
	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>	✓	✓	✓
	<i>Hakea chordophylla</i>	✓	✓	✓
	<i>Hakea lorea</i> subsp. <i>lorea</i>	✓	✓	✓
Rhamnaceae	<i>Ventilago viminalis</i>	✓		
Rubiaceae	<i>Oldenlandia crouchiana</i>		✓	✓
	<i>Psydrax latifolia</i>	✓		
	<i>Psydrax suaveolens</i>	✓		
	<i>Spermacoce brachystema</i>	✓		
	<i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>	✓		
Santalaceae	<i>Anthobolus leptomerioides</i>	✓	✓	✓
	<i>Santalum lanceolatum</i>	✓		

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Santalum leptocladum</i>			✓
Sapindaceae	<i>Atalaya hemiglauca</i>	✓	✓	✓
	<i>Dodonaea coriacea</i>	✓	✓	✓
	<i>Dodonaea petiolaris</i>	✓	✓	✓
Scrophulariaceae	<i>Cymbalaria muralis</i>	✓		
Scrophulariaceae	<i>Stemodia grossa</i>	✓		
	<i>Stemodia viscosa</i>			✓
	<i>Striga curviflora</i>	✓		
Solanaceae	<i>Nicotiana benthamiana</i>	✓		
	<i>Nicotiana occidentalis</i>	✓		
	<i>Solanum centrale</i>	✓		
	<i>Solanum dioicum</i>	✓		
	<i>Solanum ellipticum</i>	✓		
	<i>Solanum ferocissimum</i>	✓		
	<i>Solanum horridum</i>	✓		
	<i>Solanum lasiophyllum</i>	✓		
	<i>Solanum phlomoides</i>	✓		
	<i>Solanum sturtianum</i>	✓		
Sterculiaceae	<i>Keraudrenia nephrosperma</i>	✓	✓	✓
	<i>Keraudrenia velutina</i> subsp. <i>elliptica</i>	✓		
	<i>Melhania oblongifolia</i>	✓		
	<i>Rulingia loxophylla</i>			✓
	<i>Rulingia luteiflora</i>	✓		
	<i>Waltheria indica</i>	✓		
Tiliaceae	<i>Corchorus incanus</i> subsp. <i>incanus</i>			✓
	<i>Corchorus laniflorus</i>	✓	✓	
	<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	✓		✓
	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	✓	✓	✓
	<i>Corchorus parviflorus</i>	✓	✓	✓
	<i>Corchorus tridens</i>	✓	✓	
	<i>Triumfetta</i> aff. <i>chaetocarpa</i>	✓		
	<i>Triumfetta maconochieana</i>	✓		
Typhaceae	<i>Typha domingensis</i>	✓		
Verbenaceae	<i>Clerodendrum floribundum</i> var. <i>angustifolium</i>	✓		
	<i>Clerodendrum floribundum</i> var. <i>floribundum</i>			✓
	<i>Clerodendrum floribundum</i> var. <i>ovatum</i>		✓	
Violaceae	<i>Hybanthus aurantiacus</i>	✓	✓	✓
Zygophyllaceae	<i>Tribulus astrocarpus</i>	✓		
	<i>Tribulus cistoides</i>			✓

Appendix C: Taxa recorded within the Roy Hill Stage 1 project area and within infrastructure areas

Family	Taxon	Roy Hill Flora and Vegetation 2005-2008	Infrastructure	
			Transect based Apr-Jun 2009	Quadrat Based October 2008
	<i>Tribulus hirsutus</i>	✓		
	<i>Tribulus occidentalis</i>	✓		
	<i>Tribulus suberosus</i>	✓		
	<i>Zygophyllum iodocarpum</i>	✓		

Appendix D: Definitions of Conservation Codes

Definition of Conservation Codes

Table D1: Definition of categories described under the EPBC Act

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

Table D2: Definition of Declared Rare and Priority categories

Code	Definition
DRF	Declared Rare Flora-Extant Taxa. Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
P1: Priority One	Poorly Known Taxa. Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2: Priority Two	Poorly Known Taxa. Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3: Priority Three	Poorly Known Taxa. Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
P4: Priority Four	Rare Taxa. Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

(From Atkins, K.J., Declared Rare and Priority Flora List Dec. 2008, DEC)

Appendix E: Locations of Priority Flora

Refer to enclosed compact disc

NB: The contents of this appendix must not be disclosed to any member of the general public nor released in any public document

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Appendix F: Flora Site Descriptions

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Roy Hill 1 Infrastructure Site 001

Described CCS **Date** 16/10/2008 **Type:** Q 100m * 25m
Season P **Uniformit**

Location Proposed Waste Dump area

MGA Zone 50 802750 mE 7516198 mN

Habitat Minor channel drainage line, gently sloping

Soil Re-brown coarse sandy loam, with surface cover of fine gravel, coarse gravel, stones/boulders

Rock Type Banded Iron Formation

Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* open low woodland\ *Grevillea wickhamii* subsp. *hispidula* and *Acacia monticola* open tall shrubland\ *Acacia acradenia* moderately dense shrubland\ *Triodia Triodia brizoides*, *Triodia epactia* sparse hummock grassland.

Veg Condition Pristine (no disturbance)

Fire Old (>5 years since fire)

Notes Moderate leaf litter mainly under shrubs and trees, moderate wood litter, Pebble Mouse mounds at WP 003 (inactive), WP004 (?active), WP005 (inactive) photo 4344 Pentax CS

Species List:

Trees <5 metres	<i>Corymbia hamersleyana</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Acacia monticola</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia acradenia</i> , <i>Clerodendrum floribundum</i> var. <i>floribundum</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i>
Shrubs 0.5-1 metres	<i>Dodonaea coriacea</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hibiscus coatesii</i>
Hummock grasses	<i>Triodia brizoides</i> , <i>Triodia epactia</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i>

Roy Hill 1 Infrastructure Site 002

Described CW Date 16/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed waste dump
 MGA Zone 50 802616 mE 7515113 mN
 Habitat Hillcrest on minor undulating plains, moderate slope
 Soil red-orange sand to sandy clay, with continuous fine gravel, stones boulders, rock abundance common
 Rock Type Ferrous
 Vegetation *Grevillea wickhamii* subsp. *hispidula* open tall to low shrubland\other mixed shrubs*Eriachne lanata* sparse low tussock grasses*Triodia basedowii*, *Triodia epactia* mid to low hummock grassland.
 Veg Condition Excellent (minimal disturbance/weeds)
 Fire Old (>5 years since fire)
 Notes sparse leaf litter mainly under shrubs. Negligible wood litter.

Species List:

Shrubs < 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia maitlandii</i>
Shrubs 0.5-1 metres	<i>Acacia acradenia</i> , <i>Dodonaea coriacea</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i>
Shrubs < 0.5 metres	<i>Calytrix carinata</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hakea chordophylla</i> , <i>Indigofera monophylla</i>
Hummock grasses	<i>Triodia basedowii</i> , <i>Triodia epactia</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Eriachne lanata</i>
Herbs	<i>Mollugo molluginea</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i>

Roy Hill 1 Infrastructure Site 003

Described CCS Date 16/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Waste Dump
 MGA Zone 50 803281 mE 7516358 mN
 Habitat Minor creekbed/creekbank, gently sloping
 Soil Red brown sandy loam, with surface layer of crust, fine gravel, coarse gravel, loose soil, stone/boulders. Rock abundance - many
 Rock Type Ferrous, calcrete, other mixed by water flow
 Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* woodland (&mallee)*Acacia tumida* var. *pilbarensis* and *Rulingia luteiflora* open tall to mid shrubland\mixed shrubs, climbers, herbs, and grasses*Triodia longiceps* isolated clumps of hummock grass.
 Veg Condition Pristine (no disturbance)
 Fire Moderate (1-5 years since fire)
 Notes Moderate leaf littler mainly under shrubs, moderate wood litter

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i>
Shrubs 1- 2 metres	<i>Gossypium robinsonii</i> , <i>Rulingia luteiflora</i> , <i>Santalum leptocladum</i>
Shrubs 0.5-1 metres	<i>Acacia bivenosa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Indigofera monophylla</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glaucifolia</i> , <i>Solanum phlomoides</i> , <i>Solanum sturtianum</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dampiera candicans</i> , <i>Hibiscus coatesii</i> , <i>Hibiscus leptocladus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Sida</i> sp. <i>Excedentifolia</i> (J.L. Egan 1925), <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Streptoglossa odora</i> , <i>Tephrosia rosea</i> var. <i>clementii</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Eriachne mucronata</i>
Herbs	<i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia stobbsiana</i> , <i>Hybanthus aurantiacus</i> , <i>Polycarpaea longiflora</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Senna notabilis</i>
Climbers	<i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure

Site

004

Described CW Date 16/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed Waste Dump
 MGA Zone 50 803516 mE 7514803 mN
 Habitat Flat/plain next to minor drainage on the eastern down slope of small hill
 Soil red-orange sandy clay, surface cover of fine gravel (continuous)
 Rock Type Ferrous
 Vegetation *Grevillea wickhamii* subsp. *hispidula*, *Acacia aneura* var. *conifera* open tall shrubland\Keraudrenia *nephrosperma* sparse low shrubland\mixed shrubs and grasses\Triodia *lanigera*, *Triodia longiceps* mid to low hummock grassland.
 Veg Condition Excellent, minimal disturbance/weeds
 Fire Old (>5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Hakea chordophylla</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia marramamba</i> , <i>Acacia pyrifolia</i> var. <i>morrisonii</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Dodonaea petiolaris</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia marramamba</i> , <i>Dodonaea petiolaris</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Acacia acradenia</i> , <i>Dampiera candicans</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Keraudrenia nephrosperma</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs < 0.5 metres	<i>Acacia trudgeniana</i> , <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Indigofera monophylla</i> , <i>Senna notabilis</i> , <i>Sida arsinata</i> , <i>Sida</i> sp. <i>verrucosa glands (F.H. Mollemans 2423)</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia lanigera</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i> , <i>Eriachne lanata</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i>
Herbs	<i>Goodenia triodiophila</i> , <i>Hibiscus burtonii</i> , <i>Mollugo molluginea</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Solanum lasiophyllum</i>

Roy Hill 1 Infrastructure Site 005

Described	CCS	Date	16/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Waste Dump				
MGA Zone	50 803292 mE	7515677 mN			
Habitat	Hillcrest, gently sloping				
Soil	Red-orange clay loam, with a surface layer of fine gravel, coarse gravel, stones/boulders, rock slab outcropping				
Rock Type	Banded Iron Formation				
Vegetation	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Hakea chordophylla</i> open low woodland\ <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> and <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> tall to mid open shrubland\other shrubs, herbs, grasses\ <i>Triodia lanigera</i> isolated clumps of hummock grass.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1-5 years since fire)				
Notes	Sparse leaf litter mainly under shrubs, sparse wood litter. Veg. description using NVIS, Pebble Mouse Mounds (<i>Pseudomys chapmanii</i>) - WP007 - inactive, WP008 - inactive, WP009 – active				

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Hakea chordophylla</i>
Shrubs < 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i>
Shrubs 0.5-1 metres	<i>Dampiera candicans</i> , <i>Keraudrenia nephrosperma</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs < 0.5 metres	<i>Acacia trudgeniana</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Indigofera monophylla</i>
Hummock grasses	<i>Triodia lanigera</i>
Herbs	<i>Goodenia triodiophila</i> , <i>Mollugo molluginea</i>
Tussock and annual grasses	<i>Eriachne lanata</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i>

Roy Hill 1 Infrastructure Site 006

Described CW Date 16/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed waste dump
 MGA Zone 50 803292 mE 7515102 mN
 Habitat Flat Plain, wide/broad crest of low undulating hills
 Soil red-orange sandy clay, with fine gravel, coarse gravel pebbles (continuous cover)
 Rock Type ferrous
 Vegetation Mixed sparse to open tall to low shrubland with species such as *Grevillea wickhamii* subsp. *hispidula*, *Ptilotus calostachyus* var. *calostachyus*, *Corchorus lasiocarpus* subsp. *parvus* \ *Triodia basedowii* open low hummock grassland.
 Veg Condition Excellent (minimal disturbance/weeds)
 Fire Old (>5 years since fire)
 Notes negligible leaf litter, negligible wood litter,

Species List:

Shrubs < 2 metres	<i>Acacia marramamba</i> , <i>Acacia paraneura</i> , <i>Acacia sibirica</i> , <i>Acacia synchronicia</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>
Shrubs 0.5-1 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Dampiera candicans</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Hakea chordophylla</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia basedowii</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Goodenia stobbsiana</i> , <i>Mollugo molluginea</i> , <i>Pterocaulon sphaeranthoides</i>

Roy Hill 1 Infrastructure Site 007

Described CCS Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 MGA Zone 50 808306 mE 7500958 mN
 Habitat Flat/plain with negligible slope
 Soil Red-orange fine sandy clay-loam, with a surface layer of crust, loose soil, fine gravel, coarse gravel.
 Rock Abundance continuous gravel cover
 Rock Type Ferrous gravel only, nil bedrock
 Vegetation *Acacia aneura* var. *pilbarana* open low woodland to tall shrubland*Acacia synchronicia* and other shrubs forming sparse medium shrubland*Sclerolaena cornishiana* open low shrubland*Enneapogon polyphyllus* and *Aristida contorta* open low tussock grassland.
 Veg Condition Poor (heavy cattle grazing)
 Fire No fire history evident
 Notes Sparse leaf litter mainly under trees, sparse wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>aneura</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Abutilon cryptopetalum</i> , <i>Eremophila cuneifolia</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis setifolia</i>
Herbs	<i>Bidens bipinnata</i> , <i>Calocephalus</i> sp. Wittenoom (A.S. George 1082), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Lepidium phlebopetalum</i> , <i>Portulaca pilosa</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola australis</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 008

Described CW Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Road Realignment
 MGA Zone 50 807185 mE 7500733 mN
 Habitat Flat/plain with negligible slope, mulga banding, flat clay
 Soil Red-orange sandy clay to clay, with surface cover of crust, loose soil, and coarse gravel. Rock abundance: common gravel.
 Rock Type Ferrous gravel, nil bedrock
 Vegetation *Acacia aneura* var. *pilbarana* low woodland to tall shrubland*Senna artemisioides* subsp. *helmsii* open mid-shrubland*Enneapogon polyphyllus* open low tussock grassland.
 Veg Condition Poor (heavily grazed by cattle, tracks, and **Vachellia farnesiana* weed)
 Fire Old (>5 years since fire)
 Notes Negligible leaf litter, sparse wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs 0.5-1 metres	<i>Vachellia farnesiana</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Sclerolaena cornishiana</i> , <i>Sida fibulifera</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Lepidium phlebopetalum</i> , <i>Malvastrum americanum</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Rhodanthe floribunda</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 009

Described CCS Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Road Realignment
 MGA Zone 51 192501 mE 7502392 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange clay loam, surface crust, loose soil, fine gravel, coarse gravel (continuous cover)
 Rock Type nil bedrock, ferrous gravel only
 Vegetation *Acacia aneura* var. *pilbarana* low woodland\ *Acacia rhodophloia*, *Acacia tetragonophylla* sparse tall shrubland\ other shrubs, herbs, climbers\ *Aristida contorta*, *Enneapogon polyphyllus* isolated tussock grasses.
 Veg Condition Excellent (minimal disturbance - some vehicle tracks, cattle grazing and **Bidens bipinnata*
 Fire No fire history evident
 Notes moderate leaf litter mainly under shrubs, moderate wood litter,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Grevillea berryana</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Acacia pruinocarpa</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia eremaea</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>luerssenii</i> , <i>Sida ectogama</i>
Shrubs 0.5-1 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Hibiscus burtonii</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Herbs	<i>Bidens bipinnata</i> , <i>Calocephalus</i> sp. <i>Wittenoom</i> (A.S. George 1082), <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Tephrosia supina</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 010

Described CW Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 192667 mE 7502693 mN
 Habitat Foot slope of small hill, negligible slope
 Soil red-orange sandy clay, coarse gravel pebbles, rock (gravel) abundance: continuous
 Rock Type ferrous gravel
 Vegetation Mixed sparse tall to low shrubland with species such as *Acacia pruinocarpa*, *Corchorus lasiocarpus* subsp. *parvus*, *Solanum lasiophyllum*\ *Aristida contorta* sparse low tussock grasses\ *Triodia lanigera* low hummock grassland.
 Veg Condition good (moderate disturbance, tracks)
 Fire Old (>5 years since fire)
 Notes Sparse leaf litter mainly under shrubs, negligible wood litter.

Species List:

Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pruinocarpa</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia rhodophloia</i> , <i>Dodonaea petiolaris</i> , <i>Psydrax latifolia</i>
Shrubs 0.5-1 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Maireana planifolia</i> , <i>Psydrax latifolia</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Tribulus suberosus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Senna notabilis</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Cenchrus ciliaris</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Themeda triandra</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Euphorbia australis</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Hybanthus aurantiacus</i> , <i>Mollugo molluginea</i> , <i>Polycarpaea longiflora</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Stenopetalum anfractum</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 011

Described	CCS	Date	17/10/2008	Type: Q	100m * 25m
	Season	P	Uniformit		
Location					
MGA Zone	51 193401 mE	7503304 mN			
Habitat	Minor gully base, gentle slope				
Soil	red-orange sandy loam, loose soil, fine gravel, coarse gravel, stones, boulders, rock slab outcrop				
Rock Type	Banded Iron Formation (BIF)				
Vegetation	Eucalyptus leucophloia subsp. <i>leucophloia</i> open low woodland\ <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> open tall shrubland\ open mixed shrubs and herbs\ <i>Paraneurachne muelleri</i> open tussock grassland\ <i>Triodia longiceps</i> isolated mid-hummock grass.				
Veg Condition	Pristine (no disturbance)				
Fire	Very recent (<1 year since fire)				
Notes	sparse leaf litter mainly under shrubs, sparse wood litter				

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia bivenosa</i> , <i>Acacia pruinocarpa</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i>
Shrubs 0.5-1 metres	<i>Acacia maitlandii</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Solanum phlomoides</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Dampiera candicans</i> , <i>Hibiscus coatesii</i> , <i>Indigofera monophylla</i> , <i>Keraudrenia nephrosperma</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Solanum sturtianum</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Paraneurachne muelleri</i>
Herbs	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Hybanthus aurantiacus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Senna notabilis</i>

Roy Hill 1 Infrastructure Site 012

Described CW Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 193388 mE 7503625 mN
 Habitat Undulating plain, moderate to gentle slope,
 Soil red-orange sand to sandy clay, coarse gravel pebbles (continuous)
 Rock Type ferrous gravels
 Vegetation *Ptilotus calostachyus* var. *calostachyus*, *Corchorus lasiocarpus* subsp. *parvus* low
 shrubland\ *Triodia* sp. 2 (inadequate material) open low hummock grassland.
 Veg Condition Excellent (minimal disturbance, vehicle tracks- passed once or twice)
 Fire Moderate (1 to 5 years since fire)
 Notes sparse leaf litter, widespread, negligible wood litter

Species List:

Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dampiera candicans</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Indigofera monophylla</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Solanum lasiophyllum</i> , <i>Solanum sturtianum</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia</i> sp. 2 (Inadequate - Roy Hill Ph2)
Tussock and annual grasses	<i>Eriachne mucronata</i>
Herbs	<i>Bonamia media</i> var. <i>villosa</i> , <i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Sida arenicola</i> , <i>Trianthema glossostigma</i>

Roy Hill 1 Infrastructure Site 013

Described CCS Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 MGA Zone 51 193390 mE 7505554 mN
 Habitat Foot slope, moderate to gentle
 Soil red-orange clayey loam, fine gravel, coarse gravel, stones (continuous)
 Rock Type Ferrous stones and gravel, nil bedrock
 Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* open low woodland*Ptilotus calostachyus* var. *calostachyus* and *Indigofera monophylla* open mid to low shrubland\other shrubs and herbs*Triodia lanigera* open low hummock grassland.
 Veg Condition Pristine (no disturbance)
 Fire (<1 year since fire)
 Notes negligible leaf litter, sparse wood litter

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs 0.5-1 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna sericea</i> , <i>Sida arenicola</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Indigofera monophylla</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543))
Hummock grasses	<i>Triodia lanigera</i>
Herbs	<i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Senna notabilis</i> , <i>Trianthema glossostigma</i>

Roy Hill 1 Infrastructure Site 014

Described	CW	Date	17/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed road realignment				
MGA Zone	51 193526 mE	7504558 mN			
Habitat	Major Drainage channel, flanked by shallow hills, broad vegetation either side of small channel				
Soil	red-orange sandy clay, surface crust (20% cover), fine gravel (80% cover), and rock (gravel) abundance: many				
Rock Type	ferrous gravel				
Vegetation	<i>Corymbia aspera</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> sparse low woodland\ <i>Acacia pruinocarpa</i> , <i>Acacia tumida</i> var. <i>pilbarensis</i> and other species as tall to low shrubland\ <i>Eriachne helmsii</i> open tussock grassland\ <i>Triodia lanigera</i> open low hummock grassland.				
Veg Condition	good (moderate disturbance)				
Fire	Old (>5 years since fire)				
Notes	Plentiful leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees 5-15 metres	<i>Corymbia aspera</i>
Mallee trees	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Acacia pruinocarpa</i> , <i>Acacia rhodophloia</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia acradenia</i> , <i>Acacia ancistrocarpa</i> , <i>Acacia atkinsiana</i> , <i>Acacia maitlandii</i> , <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Dodonaea petiolaris</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Indigofera monophylla</i> , <i>Psydrax latifolia</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia marramamba</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Eriachne helmsii</i> , <i>Eulalia aurea</i>
Herbs	<i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Hibiscus burtonii</i> , <i>Hybanthus aurantiacus</i> , <i>Isotropis forrestii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Tephrosia supina</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 015

Described	CCS	Date	17/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	51 192407 mE	7503107 mN			
Habitat	Foot slope, very gentle				
Soil	red-orange clay loam, surface crust, fine gravel (continuous)				
Rock Type	nil bedrock, ferrous gravel only				
Vegetation	<i>Hakea lorea</i> subsp. <i>lorea</i> isolated trees\ <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> sparse tall shrubland\other shrubs\ <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> open low shrubland\ <i>Paraneurachne muelleri</i> sparse tussock grass and <i>Triodia basedowii</i> open low hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Very recent (<1 year since fire)				
Notes	moderate leaf litter mainly under shrubs, sparse wood litter				

Species List:

Trees <5 metres	<i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia ancistrocarpa</i> , <i>Acacia pruinocarpa</i>
Shrubs 0.5-1 metres	<i>Dodonaea petiolaris</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Sida arenicola</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Indigofera monophylla</i> , <i>Senna notabilis</i> , <i>Solanum phlomoides</i> , <i>Solanum sturtianum</i> , <i>Tephrosia rosea</i> var. <i>clementii</i>
Hummock grasses	<i>Triodia basedowii</i>
Tussock and annual grasses	<i>Cymbopogon obtectus</i>
Herbs	<i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus polystachyus</i> var. <i>polystachyus</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trianthema glossostigma</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 016

Described CW Date 17/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed lined evaporation pond - south
 MGA Zone 51 192200 mE 7502979 mN
 Habitat Flat/plain, with mulga banding, negligible slope
 Soil red-orange sandy clay, loose soil, fine gravel, coarse gravel, rock abundance (gravel): many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana*, *Acacia aneura* var. *intermedia* open tall shrubland to open low forest*Dodonaea petiolaris* sparse tall shrubs and other mixed mid to low shrubs*Aristida contorta* sparse low tussock grassland.
 Veg Condition Good (moderate disturbance)
 Fire Old (> 5 years since fire)
 Notes sparse leaf litter mainly under trees, sparse wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>intermedia</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i>
Shrubs 1- 2 metres	<i>Acacia pruinocarpa</i> , <i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Psydrax latifolia</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Sida ectogama</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna notabilis</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia brizoides</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Enneapogon polyphyllus</i> , <i>Eulalia aurea</i> , <i>Panicum effusum</i>
Herbs	<i>Abutilon macrum</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Hibiscus burtonii</i> , <i>Psydrax suaveolens</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260), <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260)
Climbers	<i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 017

Described	CCS	Date	17/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Crusher/Loadout				
MGA Zone	50 808208 mE	7501986 mN			
Habitat	Flat/plain				
Soil	Red-orange loamy clay, with a surface cover of crust, fine gravel, coarse gravel. Rock Abundance: many-gravel				
Rock Type	Ferrous gravel only, nil bedrock				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> and <i>Acacia aneura</i> var. <i>conifera</i> low woodland\ <i>Acacia tetragonophylla</i> sparse tall shrubland\other shrubs and climbers\ <i>Enneapogon polyphyllus</i> sparse tussock grassland.				
Veg Condition	Poor (widespread weeds, cattle grazing and geological exploration tracks)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Shrubs < 2 metres	<i>Acacia tetragonophylla</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia rhodophloia</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs 0.5-1 metres	<i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna sericea</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Solanum lasiophyllum</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , * <i>Cenchrus ciliaris</i>
Herbs	* <i>Bidens bipinnata</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> , <i>Salsola tragus</i> , * <i>Malvastrum americanum</i>
Climbers	<i>Citrullus colocynthis</i> , <i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>
s36	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
t3s1	<i>Acacia aneura</i> var. <i>pilbarana</i>

Roy Hill 1 Infrastructure Site 018

Described CW Date 18/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 193405 mE 7508828 mN
 Habitat steep midslope of mesa hill (scree slope)
 Soil red-orange sand to sandy clay (?skeletal), coarse gravel, stones, boulders, rock abundance: continuous
 Rock Type ferrous, some shale/calcareous (+Banded Iron Formation/chert)
 Vegetation *Acacia aneura* (mixed varieties) and *Grevillea berryana* open tall to mid shrubland\mixed low shrubs*Eriachne mucronata* sparse low tussock grass*Triodia epactia*, *Triodia longiceps* open mid hummock grassland.
 Veg Condition Excellent (minimal disturbance)
 Fire Moderate (1-5 years) and Old (>5 years since fire)
 Notes not much tree regeneration, but good *Triodia* regeneration. sparse leaf litter mainly under *Triodia*, little wood litter

Species List:

Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia pruinocarpa</i> , <i>Goodenia stobbsiana</i> , <i>Grevillea berryana</i>
Shrubs 0.5-1 metres	<i>Acacia marramamba</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Dodonaea petiolaris</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Sida cardiophylla</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i> , <i>Solanum phlomoides</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia epactia</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cymbopogon ambiguus</i> , <i>Eriachne mucronata</i>
Herbs	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Gomphrena cunninghamii</i> , <i>Polycarpaea longiflora</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> , <i>Peripleura virgata</i>

Roy Hill 1 Infrastructure Site 019

Described	CCS	Date	18/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	51 193345 mE	7506421 mN			
Habitat	Minor channel between low colluvial spurs/hills, gentle slope				
Soil	red-orange sandy loam, fine gravel, coarse gravel, stones, boulders, loose soil				
Rock Type	nil bedrock on surface, ferrous gravel and stones				
Vegetation	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low woodland\ <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Petalostylis labicheoides</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> open tall to low shrubland\ <i>Triodia longiceps</i> sparse hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1 to 5 years since fire)				
Notes	moderate leaf litter mainly under trees, moderate wood litter				

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia monticola</i> , <i>Acacia pruinocarpa</i> , <i>Petalostylis labicheoides</i>
Shrubs 0.5-1 metres	<i>Keraudrenia nephrosperma</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Solanum phlomoides</i> , <i>Solanum sturtianum</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dampiera candicans</i> , <i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Senna notabilis</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543))
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i>
Herbs	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>

Roy Hill 1 Infrastructure Site 020

Described CW Date 18/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 193533 mE 7508724 mN
 Habitat Foot slope between hills, negligible slope
 Soil red-orange sand to sandy clay, coarse gravel (continuous cover)
 Rock Type nil bedrock, ferrous gravel
 Vegetation *Petalostylis labicheoides* sparse tall to mid shrubland\ *Acacia atkinsiana*,
Gompholobium karijini
 sparse low shrubs\ *Triodia epactia*, *Triodia longiceps* mid hummock grassland.
 Veg Condition Excellent (minimal disturbance)
 Fire No fire evident
 Notes Adjacent area to moderately burned (<2years?, but site is untouched), sparse leaf
 litter mainly under
 shrubs, negligible wood litter.

Species List:

Shrubs 1- 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Petalostylis labicheoides</i>
Shrubs 0.5-1 metres	<i>Acacia atkinsiana</i> , <i>Acacia maitlandii</i> , <i>Acacia marramamba</i>
Shrubs < 0.5 metres	<i>Acacia atkinsiana</i> , <i>Gompholobium karijini</i>
Hummock grasses	<i>Triodia epactia</i> , <i>Triodia longiceps</i>
Herbs	<i>Goodenia stobbsiana</i>

Roy Hill 1 Infrastructure Site 021

Described CCS Date 18/10/2008 Type: Q 50m * 50m
Season P Uniformit

Location

MGA Zone 51 193478 mE 7507353 mN

Habitat major drainage channel - floodline, gentle slope

Soil pale to mid brown, fine loamy clay, surface crust,

Rock Type Nil rock

Vegetation *Corymbia candida* subsp. *candida*, *Eucalyptus leucophloia* subsp. *leucophloia* mid-woodland\ *Acacia ayersiana*, *Acacia aneura* var. *aneura* open forest\ *Petalostylis labicheoides*, *Acacia monticola* open tall shrubland\ mixed shrubs, herbs and tussock grassland.

Veg Condition Good (moderate disturbance, cattle grazing and weeds)

Fire Moderate (1 to 5 years since fire)

Notes widespread plentiful leaf litter, plentiful wood litter

Species List:

Trees 5-15 metres	<i>Corymbia candida</i> subsp. <i>candida</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia ayersiana</i>
Shrubs < 2 metres	<i>Acacia monticola</i> , <i>Petalostylis labicheoides</i>
Shrubs 1- 2 metres	<i>Acacia bivenosa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Dodonaea petiolaris</i> , <i>Psydrax suaveolens</i>
Shrubs 0.5-1 metres	<i>Isotropis forrestii</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Indigofera georgei</i> , <i>Rutidosis helichrysoides</i> subsp. <i>helichrysoides</i> , <i>Senna notabilis</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Eragrostis cumingii</i> , <i>Eragrostis tenellula</i> , <i>Eriachne helmsii</i> , <i>Paspalidium basicladum</i>
Herbs	<i>Bidens bipinnata</i> , <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena cunninghamii</i> , <i>Goodenia stobbsiana</i> , <i>Hybanthus aurantiacus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 022

Described	CW	Date	18/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed road realignment				
MGA Zone	51 193471 mE	7508275 mN			
Habitat	Undulating plain/flood plain/drainage channel (very broad), negligible slope				
Soil	red-orange sand to sandy clay, loose soil, coarse gravel, rock (gravel) abundance: common				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	Acacia pruinocarpa, Acacia aneura var. intermedia, Acacia aneura var. aneura open low woodland, Eucalyptus leucophloia sparse medium mallee\Petalostylis labicheoides tall shrubland, other mixed shrubs, herbs, climbers, tussock grasses\Triodia epactia sparse medium hummock grassland.				
Veg Condition	Poor (significant disturbance, cattle tracks, *Malvastrum weed, *Bidens bipinnata, *Cenchrus ciliaris				
Fire	No fire history evident				
Notes	adjacent site affected by fire, widespread and plentiful under trees and shrubs, sparse wood litter,				

Species List:

Trees 5-15 metres	<i>Acacia pruinocarpa</i>
Mallee trees < 5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Santalum leptocladum</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia dictyophleba</i> , <i>Petalostylis labicheoides</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia dictyophleba</i> , <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia bivenosa</i> , <i>Acacia maitlandii</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna stricta</i>
Shrubs 0.5-1 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia dictyophleba</i> , <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia marramamba</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Psyrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>
Shrubs < 0.5 metres	<i>Gompholobium karijini</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Psyrax suaveolens</i> , <i>Senna notabilis</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i> , <i>Solanum phlomoides</i>
Hummock grasses	<i>Triodia epactia</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Eulalia aurea</i>
Herbs	<i>Bidens bipinnata</i> , <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Hibiscus burtonii</i> , <i>Hibiscus coatesii</i> , <i>Hybanthus aurantiacus</i> , <i>Maireana villosa</i> , <i>Malvastrum americanum</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260)
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Glycine canescens</i>

Roy Hill 1 Infrastructure Site 023

Described	CCS	Date	18/10/2008	Type: Q	50m x 50m
	Season	P	Uniformit		
Location	Road Realignment corridor				
MGA Zone	51 193231 mE	7511514 mN			
Habitat	low gravelly hills, gentle to moderate slope				
Soil	red-orange sandy loam, fine gravel, coarse gravel, stones, boulders, rock slab outcropping				
Rock Type	Banded Iron Formation (BIF), Chert etc.				
Vegetation	<i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> sparse mid to low shrubland\ <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> open herbland\ <i>Triodia longiceps</i> , <i>Triodia wiseana</i> mid hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Very recent (<1 year since fire)				
Notes	sparse leaf litter, mainly under shrubs, sparse wood litter				

Species List:

Shrubs 0.5-1 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Tribulus suberosus</i> , <i>Tribulus suberosus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Heliotropium chrysocarpum</i> , <i>Indigofera monophylla</i> , <i>Ptilotus astrolasius</i> var. <i>astrolasius</i> , <i>Senna notabilis</i> , <i>Solanum ellipticum</i> , <i>Solanum phlomoides</i>
Hummock grasses	<i>Triodia longiceps</i> , <i>Triodia wiseana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon caerulescens</i>
Herbs	<i>Bonamia media</i> var. <i>media</i> , <i>Cleome viscosa</i> , <i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Haloragis gossei</i> var. <i>gossei</i> , <i>Heliotropium heteranthum</i> , <i>Oldenlandia crouchiana</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus aervoides</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Streptoglossa odora</i> , <i>Zygophyllum iodocarpum</i>

Roy Hill 1 Infrastructure Site 024

Described CW Date 18/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 193585 mE 7509682 mN
 Habitat Undulating plain between mesa's/hills, gentle slope
 Soil red-orange sandy clay, coarse gravel (continuous cover)
 Rock Type ferrous gravel
 Vegetation *Acacia inaequilatera* sparse to isolated clumps of low trees*Senna artemisioides* subsp. *oligophylla* and *Heliotropium chrysocarpum* sparse mid to low shrubland*Triodia wiseana* open low hummock grassland.
 Veg Condition Excellent (minimal disturbance)
 Fire Moderate (1-5 years since fire)
 Notes negligible leaf litter and wood litter

Species List:

Shrubs < 2 metres	<i>Acacia inaequilatera</i> , <i>Acacia trudgeniana</i>
Shrubs 0.5-1 metres	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs < 0.5 metres	<i>Acacia inaequilatera</i> , <i>Acacia pruinocarpa</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Heliotropium chrysocarpum</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i> , <i>Senna glutinosa</i> subsp. x <i>luerssenii</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia wiseana</i>
Tussock and annual grasses	<i>Enneapogon caerulescens</i>
Herbs	<i>Cleome viscosa</i> , <i>Heliotropium cunninghamii</i> , <i>Hibiscus sturtii</i> var. <i>campylochlamys</i> , <i>Salsola tragus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 025

Described	CCS	Date	18/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Road Realignment Corridor				
MGA Zone	51 192396 mE	7512535 mN			
Habitat	low stony/gravelly hill, moderate slope				
Soil	mid brown loamy clay, fine gravel, coarse gravel, stones (continuous)				
Rock Type	Calcrete and other metamorphic mudstone				
Vegetation	<i>Acacia inaequilatera</i> open low woodland to isolated trees\ <i>Senna artemisioides</i> subsp. <i>oligophylla</i> and <i>Indigofera monophylla</i> sparse low shrubland\ <i>Triodia wiseana</i> open mid hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1 to 5 years since fire)				
Notes	negligible leaf litter, mainly under shrubs, negligible wood litter				

Species List:

Trees <5 metres	<i>Acacia inaequilatera</i>
Shrubs 1- 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Heliotropium chrysocarpum</i> , <i>Hibiscus coatesii</i> , <i>Indigofera monophylla</i> , <i>Ptilotus astrolasius</i> var. <i>astrolasius</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Hummock grasses	<i>Triodia wiseana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon caerulescens</i>
Herbs	<i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Heliotropium cunninghamii</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Tephrosia supina</i> , <i>Zygophyllum iodocarpum</i>

Roy Hill 1 Infrastructure Site 026

Described CW Date 18/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 51 193516 mE 7510762 mN
 Habitat Flat/plain with minor channel, negligible slope
 Soil red-orange sand, loose soil
 Rock Type nil rock
 Vegetation *Corymbia hamersleyana*, *Atalaya hemiglauca* sparse low woodland\ *Acacia pyrifolia* var. *pyrifolia* open mid shrubland\ *Tephrosia rosea* var. *glabrior* open low shrubland\ **Cenchrus ciliaris* open tussock grassland.
 Veg Condition excellent (minimal disturbance),
 Fire Old (>5 years since fire)
 Notes Sparse leaf litter mainly under shrub, negligible wood litter.

Species List:

Trees 5-15 metres	<i>Corymbia hamersleyana</i>
Trees <5 metres	<i>Atalaya hemiglauca</i>
Shrubs 1- 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs < 0.5 metres	<i>Acacia acradenia</i> , <i>Acacia bivenosa</i> , <i>Aerva javanica</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Ehretia saligna</i> var. <i>saligna</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Gossypium australe</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Heliotropium chrysocarpum</i> , <i>Malvastrum americanum</i> , <i>Melhania oblongifolia</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>x artemisioides</i> , <i>Sida fibulifera</i> , <i>Solanum ellipticum</i> , <i>Solanum phlomoides</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i>
Herbs	<i>Abutilon cunninghamii</i> , <i>Cleome viscosa</i> , <i>Euphorbia biconvexa</i> , <i>Goodenia microptera</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Hybanthus aurantiacus</i> , <i>Phyllanthus erwinii</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Marsdenia australis</i> , <i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 027

Described	CCS	Date	19/10/2008	Type: Q	50m x 50m
	Season	P	Uniformit		
Location	Proposed north-east (NE) Camp				
MGA Zone	51 191705 mE	7515418 mN			
Habitat	Low colluvial hill/undulating plain, gentle slope				
Soil	pale to mid brown fine sandy loam, fine gravel, coarse gravel, stones, rock slab outcropping				
Rock Type	Banded Iron Formation (BIF)/Chert				
Vegetation	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Acacia inaequilatera</i> isolated low trees\ <i>Corymbia hamersleyana</i> isolated low mallee shrub\ mixed mid to low shrubs including <i>Senna</i> spp.\ <i>Triodia longiceps</i> and <i>Triodia wiseana</i> open mid hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1 to 5 years since fire)				
Notes	negligible leaf litter, mainly under shrubs, negligible wood litter,				

Species List:

Trees <5 metres	<i>Acacia trudgeniana</i> , <i>Corymbia hamersleyana</i> <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs 1- 2 metres	<i>Acacia pruinocarpa</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs 0.5-1 metres	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Senna notabilis</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hibiscus burtonii</i> , <i>Indigofera monophylla</i> , <i>Indigofera monophylla</i> , <i>Ptilotus astrolasius</i> var. <i>astrolasius</i> , <i>Salsola tragus</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)), <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia longiceps</i> , <i>Triodia wiseana</i> , <i>Triodia wiseana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon caerulescens</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i>
Herbs	<i>Bonamia media</i> var. <i>villosa</i> , <i>Cleome viscosa</i> , <i>Goodenia microptera</i> , <i>Goodenia stobbsiana</i> , <i>Heliotropium heteranthum</i> , <i>Hybanthus aurantiacus</i> , <i>Oldenlandia crouchiana</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus aervoides</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Ptilotus clementii</i> , <i>Solanum phlomoides</i> , <i>Streptoglossa odora</i> , <i>Zygophyllum iodocarpum</i>

Roy Hill 1 Infrastructure Site 028

Described CW Date 19/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 50 807978 mE 7516406 mN
 Habitat Foot slope/creek at foot of hill/mesa (creekbed/creebank)
 Soil red-orange to brown sand/sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Eucalyptus camaldulensis* var. *obtusa* open mid forest\mixed shrubs and herbs*Typha domingensis*, *Cyperus vaginatus* open rushland-sedgeland**Cenchrus ciliaris* open low tussock grassland.
 Veg Condition Poor (significant disturbance, cattle grazing and Buffel grass)
 Fire Old (>5 years since fire)
 Notes creek bed and bank quite well vegetated, widespread plentiful leaf litter, negligible wood litter,

Species List:

Trees <5 metres	<i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Atalaya hemiglauc</i> , <i>Corymbia hamersleyana</i> , <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> , <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> , <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> , <i>Eucalyptus victrix</i>
Shrubs 1- 2 metres	<i>Acacia bivenosa</i> , <i>Acacia bivenosa</i>
Shrubs 0.5-1 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Gossypium robinsonii</i>
Shrubs < 0.5 metres	<i>Adriana urticoides</i> var. <i>urticoides</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Malvastrum americanum</i> , <i>Vachellia farnesiana</i>
Tussock and annual grasses	<i>*Cenchrus ciliaris</i> , <i>Cymbopogon ambiguus</i>
Herbs	<i>Flaveria australasica</i> , <i>Hybanthus aurantiacus</i> , <i>Phyllanthus erwinii</i> , <i>Pluchea rubelliflora</i> , <i>Stemodia viscosa</i>
Sedges	<i>Cyperus vaginatus</i> , <i>Typha domingensis</i>

Roy Hill 1 Infrastructure Site 029

Described	CCS	Date	19/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	51 191991 mE	7515622 mN			
Habitat	Foot slope and low stony gully, gentle slope				
Soil	red-orange clay loam, loose soil, fine gravel, coarse gravel, stones, boulders, rock slab outcropping, rock abundance: continuous				
Rock Type	Banded Iron Formation (BIF)				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> low woodland\ <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> sparse mid shrubland\ <i>Triodia epactia</i> and <i>Triodia lanigera</i> open mid-low hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Very recent (<1 year) and none evident				
Notes	moderate leaf litter, mainly under shrubs, moderate wood litter, , 4 or 5 plant species invading/seeded from surrounding hills in post-fire environment				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Solanum phlomoides</i>
Shrubs < 0.5 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia epactia</i>
Tussock and annual grasses	<i>Amphipogon sericeus</i>
Herbs	<i>Goodenia stobbsiana</i> , <i>Lepidium pholidogynum</i>

Roy Hill 1 Infrastructure Site 030

Described CW Date 19/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 50 808164 mE 7516009 mN
 Habitat Steep mesa midslope/scree slope
 Soil red-orange sand to sandy clay (?skeletal), coarse gravel, stones, boulders, surface level plates, rock abundance: continuous
 Rock Type ferrous, metamorphic sedimentary,
 Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* isolated low trees\mixed sparse low shrubland\mixed herbs and tussock grasses*Triodia wiseana* open low hummock grassland.
 Veg Condition Excellent (minimal disturbance)
 Fire Old (>5 years since fire)
 Notes Adjacent to a burn area, moderate leaf litter mainly under shrubs, negligible wood litter, and vegetation.

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs 0.5-1 metres	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Solanum ellipticum</i> , <i>Solanum phlomoides</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia epactia</i> , <i>Triodia wiseana</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Eriachne mucronata</i>
Herbs	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia microptera</i> , <i>Polycarpaea longiflora</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Streptoglossa decurrens</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 031

Described	CCS	Date	19/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Camp NE area				
MGA Zone	51 192007 mE	7515152 mN			
Habitat	low colluvial hills/plains, moderate slope				
Soil	red-orange fine sandy loam, fine gravel, coarse gravel, stones, boulders, rock slab outcropping, Rock abundance: continuous cover				
Rock Type	Banded Iron Formation (BIF)				
Vegetation	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Corymbia hamersleyana</i> isolated low trees and mallee\mixed open mid-low shrubland including <i>Senna</i> spp., <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Indigofera monophylla</i> \mixed herbs and grasses\ <i>Triodia wiseana</i> open mid hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1-5 years since fire)				
Notes	negligible leaf litter mainly under shrubs, negligible wood litter,				

Species List:

Trees <5 metres	<i>Corymbia hamersleyana</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Mallee trees < 5 metres	<i>Corymbia hamersleyana</i>
Shrubs 1- 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs 0.5-1 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Heliotropium chrysocarpum</i> , <i>Indigofera monophylla</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Senna hamersleyensis</i> , <i>Senna notabilis</i> , <i>Solanum lasiophyllum</i> , <i>Solanum phlomoides</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia wiseana</i>
Herbs	<i>Cleome viscosa</i> , <i>Goodenia stobbsiana</i> , <i>Goodenia triodiophila</i> , <i>Mollugo molluginea</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
Sedges	<i>Bulbostylis barbata</i>

Roy Hill 1 Infrastructure Site 032

Described CW Date 19/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location Proposed haul road (north of camp)
 MGA Zone 50 805788 mE 7514227 mN
 Habitat Flat/Plain, undulating plain, gully sides, small hill side, moderate slope
 Soil red-orange sand to sandy clay, coarse gravel (continuous cover), some bedrock outcropping
 Rock Type ferrous, Banded Iron Formation (BIF)
 Vegetation *Hakea chordophylla* isolated low trees*Grevillea wickhamii* subsp. *hispidula* open mid shrubland*Ptilotus calostachyus* var. *calostachyus* open low shrubland*Triodia epactia* open low hummock grassland.
 Veg Condition Good (moderate disturbance or weeds), bull dozer tracks
 Fire Moderate (1-5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Hakea chordophylla</i>
Shrubs 1- 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 0.5-1 metres	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>
Shrubs < 0.5 metres	<i>Acacia ancistrocarpa</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Corymbia hamersleyana</i> , <i>Dampiera candicans</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Hibiscus coatesii</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Solanum lasiophyllum</i> , <i>Solanum phlomoides</i> , <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia epactia</i>
Tussock and annual grasses	<i>Eriachne helmsii</i> , <i>Eriachne lanata</i>
Herbs	<i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus clementii</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>

Roy Hill 1 Infrastructure Site 033

Described	CCS	Date	19/10/2008	Type: Q	100m * 25m
	Season	P	Uniformit		
Location	Road Realignment corridor				
MGA Zone	50 808494 mE	7515606 mN			
Habitat	minor gully base between low hills (?colluvial spurs), gentle slope				
Soil	mid brown fine sandy loam, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	Banded Iron Formation, gravels and bedrock				
Vegetation	<i>Corymbia hamersleyana</i> open low woodland\ <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> and <i>Acacia acradenia</i> open tall to mid shrubland\other shrubs, herbs\ <i>Triodia wiseana</i> and <i>Triodia longiceps</i> sparse mid hummock grassland.				
Veg Condition	Pristine (no disturbance)				
Fire	Moderate (1-5 years since fire)				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter,				

Species List:

Trees <5 metres	<i>Corymbia hamersleyana</i>
Shrubs 1- 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs 0.5-1 metres	<i>Acacia acradenia</i> , <i>Acacia bivenosa</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Indigofera monophylla</i> , <i>Senna notabilis</i> , <i>Solanum phlomoides</i>
Hummock grasses	<i>Triodia longiceps</i> , <i>Triodia wiseana</i>
Herbs	<i>Haloragis gossei</i> var. <i>gossei</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i>
Climbers	<i>Polymeria distigma</i>

Roy Hill 1 Infrastructure Site 034

Described CW Date 19/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location Proposed haul road
 MGA Zone 50 804496 mE 7514319 mN
 Habitat Mid-slope, undulating plain, gully sides, moderate slope
 Soil red-orange sand to sandy clay, coarse gravel (continuous cover), some bedrock outcropping
 Rock Type ferrous, Banded Iron Formation (BIF)
 Vegetation *Grevillea wickhamii* subsp. *hispidula* open tall shrubland\ *Corchorus lasiocarpus* subsp. *parvus*, *Ptilotus calostachyus* var. *calostachyus* open low shrubland\ *Eriachne lanata* sparse low tussock grass\ *Triodia lanigera* open low hummock grass.
 Veg Condition Good (moderate disturbance or weeds), bull dozer tracks
 Fire Moderate (1-5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter.

Species List:

Shrubs < 2 metres	<i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 0.5-1 metres	<i>Acacia acradenia</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Tephrosia rosea</i> var. <i>clementii</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Corymbia hamersleyana</i> , <i>Dampiera candicans</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia epactia</i>
Tussock and annual grasses	<i>Eriachne lanata</i>
Herbs	<i>Goodenia stobbsiana</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>

Roy Hill 1 Infrastructure Site 035

Described CCS Date 19/10/2008 Type: Q 100m * 25m
 Season P Uniformit
 Location Proposed road realignment
 MGA Zone 50 805637 mE 7514288 mN
 Habitat Gully base, gentle slope
 Soil red-orange fine clayey sand, loose soil, fine gravel, coarse gravel, stones, boulders, rock
 Abundance: many
 Rock Type Banded Iron Formation
 Vegetation *Acacia tumida* var. *pilbarensis* and *Grevillea wickhamii* subsp. *hispidula* tall shrubland\mixed herbs and grasses*Triodia epactia* sparse mid hummock grassland.
 Veg Condition Pristine (no disturbance)
 Fire Moderate (1 to 5 years since fire)
 Notes Widespread plentiful leaf litter and wood litter,

Species List:

Shrubs < 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i> , <i>Gossypium robinsonii</i>
Shrubs 0.5-1 metres	<i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>Stenopetalum velutinum</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum phlomoides</i> , <i>Solanum phlomoides</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia epactia</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Themeda triandra</i> , <i>Themeda triandra</i>
Herbs	<i>Cleome viscosa</i> , <i>Polycarpaea longiflora</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
Climbers	<i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 036

Described CW Date 20/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location Proposed Dam 2 site
 MGA Zone 50 807950 mE 7507402 mN
 Habitat Flat/plain, creek bed/creek bank, drainage/creek, negligible slope
 Soil red orange sand to sandy clay, loose soil, stone boulders, rock abundance: many
 Rock Type ferrous
 Vegetation *Eucalyptus victrix* sparse low woodland\ *Acacia bivenosa* sparse tall to mid
 shrubland\mixed shrubs\ *Themeda triandra*, **Cenchrus ciliaris* open low tussock
 grassland\ *Triodia longiceps* sparse mid hummock grass.
 Veg Condition Poor (significant disturbance) buffel grass **Cenchrus ciliaris* and cattle grazing
 Fire No fire history evident
 Notes not much vegetation on creek bed, widespread plentiful leaf litter sparse wood litter

Species List:

Trees 5-15 metres	<i>Eucalyptus victrix</i>
Trees <5 metres	<i>Atalaya hemiglauca</i> , <i>Eucalyptus victrix</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia bivenosa</i> , <i>Acacia pruinocarpa</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia bivenosa</i> , <i>Acacia marramamba</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs 0.5-1 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia bivenosa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Solanum sturtianum</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Abutilon cunninghamii</i> , <i>Corchorus incanus</i> subsp. <i>incanus</i> , <i>Corchorus parviflorus</i> , <i>Indigofera monophylla</i> , <i>Sida</i> sp. <i>verrucosa</i> <i>glands</i> (F.H. Mollemans 2423), <i>Tribulus suberosus</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Setaria verticillata</i> , <i>Themeda triandra</i>
Herbs	<i>Abutilon cunninghamii</i> , <i>Citrullus colocynthis</i> , <i>Cleome viscosa</i> , <i>Hibiscus</i> <i>coatesii</i> , <i>Hybanthus aurantiacus</i> , <i>Malvastrum americanum</i> , <i>Stemodia</i> <i>viscosa</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Glycine canescens</i> , <i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 037

Described CCS Date 19/10/2008 Type: Q 100m * 25m
 Season P Uniformit

Location
 MGA Zone 50 804821 mE 7514271 mN
 Habitat gully base, gentle slope
 Soil red orange coarse clayey coarse sand, loose soil fine gravel, coarse gravel, stones, and boulders
 level rock plates. Rock abundance: continuous

Rock Type Banded Iron Formation (BIF) bedrock and loose colluvium/alluvium

Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* isolated low trees\ *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii* subsp. *hispidula*, *Gossypium robinsonii* tall shrubland\mixed shrubs and grasses\ *Triodia epactia* sparse hummock grassland.

Veg Condition Excellent (minimal disturbance) exploration track nearby

Fire Old (>5 years since fire)

Notes widespread plentiful leaf litter and wood litter,

Species List:

Trees <5 metres	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Gossypium robinsonii</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia acradenia</i> , <i>Acacia ancistrocarpa</i> , <i>Acacia maitlandii</i> , <i>Rulingia luteiflora</i> , <i>Senna venusta</i> , <i>Senna venusta</i>
Shrubs 0.5-1 metres	<i>Solanum phlomoides</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hibiscus coatesii</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Sida</i> sp. Pilbara (A.A. Mitchell PRP 1543)), <i>Tephrosia rosea</i> var. <i>clementii</i>
Hummock grasses	<i>Triodia epactia</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Themeda triandra</i>
Herbs	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>

Roy Hill 1 Infrastructure Site 038

Described CW Date 20/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 10
 MGA Zone 50 806523 mE 7505189 mN
 Habitat Flat/plain, mulga banding on western/clay flats, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock (gravel) abundance - many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana*, *Acacia aneura* var. *intermedia* low open forest (in banded patches)*Dodonaea petiolaris* tall shrubland**Bidens bipinnata* herbs*Aristida contorta*, *Aristida inaequiglumis* open mid to low grasses. Main vegetation is in dense bands that are separated by areas of sparse to isolated vegetation.
 Veg Condition Poor (significant disturbance, exploration tracks, cattle, heavy grazing)
 Fire No fire history evident
 Notes moderate leaf litter mainly under shrubs, moderate wood litter,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia ayersiana</i>
Shrubs < 2 metres	<i>Cucumis maderaspatanus</i> , <i>Dodonaea petiolaris</i> , <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax suaveolens</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs 0.5-1 metres	<i>Isotropis forrestii</i> , <i>Rulingia loxophylla</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Sclerolaena cornishiana</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i>
Herbs	<i>Abutilon cryptopetalum</i> , <i>Bidens bipinnata</i> , <i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Citrullus colocynthis</i> , <i>Goodenia prostrata</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
Climbers	<i>Duperreya commixta</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 039

Described	CCS	Date	20/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 806135 mE	7507905 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange loamy clay, surface crust, fine gravel, coarse gravel,				
Rock Type	nil bedrock, ferrous gravels only				
Vegetation	<i>Acacia aneura</i> (mixed varieties), <i>Acacia pruinocarpa</i> low woodland\ <i>Acacia tetragonophylla</i> and <i>Dodonaea petiolaris</i> sparse tall to mid shrubland\ <i>mixed shrubs, herbs, climbers</i> \mixed open tussock grassland.				
Veg Condition	Good (moderate disturbance to heavy cattle grazing)				
Fire	No fire history evident				
Notes	moderate to sparse leaf litter mainly under shrubs, moderate wood litter, veg. description using				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pruinocarpa</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>intermedia</i> , <i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Sida ectogama</i>
Shrubs 0.5-1 metres	<i>Indigofera georgei</i> , <i>Indigofera georgei</i>
Shrubs < 0.5 metres	<i>Corchorus parviflorus</i> , <i>Hybanthus aurantiacus</i> , <i>Maireana villosa</i> , <i>Sclerolaena cornishiana</i> , <i>Senna sericea</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cenchrus ciliaris</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i> , <i>Eriachne mucronata</i>
Herbs	<i>Citrullus colocynthis</i> , <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Rostellularia adscendens</i> var. <i>latifolia</i> , <i>Salsola tragus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Glycine canescens</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 040

Described CW Date 20/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 11, vegetation survey site is slightly outside of proposed impact zone, as the area was has existing disturbance from ripping and tracks/roads.
 MGA Zone 50 806519 mE 7504763 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange sand to sandy clay, loos soil, coarse gravel (rock abundance(gravel): many
 Rock Type ferrous gravel
 Vegetation *Senna stricta* isolated tall to mid shrubs*Ptilotus schwartzii* var. *schwartzii*, *Tribulus suberosus* sparse low shrubland*Aristida contorta* sparse low tussock grassland.
 Veg Condition Poor (significant disturbance), tracks
 Fire No fire history evident
 Notes negligible leaf litter and wood litter,

Species List:

Shrubs < 2 metres	<i>Senna stricta</i>
Shrubs 0.5-1 metres	<i>Dodonaea petiolaris</i> , <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. x <i>luerssenii</i>
Shrubs < 0.5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Eremophila cuneifolia</i> , <i>Goodenia prostrata</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sclerolaena cornishiana</i> , <i>Senna glaucifolia</i> , <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Eriachne helmsii</i> , <i>Paraneurachne muelleri</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Hybanthus aurantiacus</i> , <i>Mollugo molluginea</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Trianthema pilosa</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 041

Described	CCS	Date	20/10/2008	Type: Q	50m x 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 804554 mE	7506703 mN			
Habitat	Undulating plain, gentle slope				
Soil	red-orange loamy clay, surface crust, fine gravel, coarse gravel, stones, rock abundance: many				
Rock Type	Nil bedrock, ferrous gravels				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> low woodland (banded patches)\ <i>Acacia synchronicia</i> and <i>Acacia tetragonophylla</i> sparse tall shrubland\mixed shrubs and herbs\ <i>Aristida contorta</i> tussock grassland.				
Veg Condition	Good (moderate disturbance to fairly heavy cattle grazing and a few weeds)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter,				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Ehretia saligna</i> var. <i>saligna</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Psyrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Corchorus parviflorus</i> , <i>Indigofera monophylla</i> , <i>Malvastrum americanum</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i>
Herbs	<i>Amaranthus mitchellii</i> , <i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Crotalaria medicaginea</i> var. <i>neglecta</i> , <i>Heliotropium tenuifolium</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Tephrosia supina</i>
Climbers	<i>Ipomoea muelleri</i>

Roy Hill 1 Infrastructure Site 042

Described CW Date 20/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 12
 MGA Zone 50 806982 mE 7504579 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock (gravel) abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia tetragonophylla* sparse tall to mid shrubland\ *Aristida inaequiglumis*, *Aristida contorta* mid to low tussock grassland\ *Triodia lanigera*, *Triodia* sp. 1 (Inadequate material) isolated hummock grasses.
 Veg Condition Good (moderate disturbance, tracks)
 Fire No fire history evident
 Notes Negligible leaf litter and wood litter.

Species List:

Shrubs < 2 metres	<i>Acacia ayersiana</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna glaucifolia</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Hakea chordophylla</i> , <i>Maireana villosa</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia lanigera</i> , <i>Triodia</i> sp. 1 (Inadequate material)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i>
Herbs	<i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 043

Described	CCS	Date	20/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 804023 mE	7507044 mN			
Habitat	Undulating plain, gentle slope				
Soil	red-orange loamy clay, surface crust, loose soil, fine gravel, coarse gravel, stones. rock Abundance: many				
Rock Type	Nil bedrock, ferrous gravels and stones				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Atalaya hemiglauca</i> low woodland\mixed <i>Acacia</i> spp. open tall shrubland\mixed mid to low shrubs\ <i>Aristida contorta</i> open low tussock grassland.				
Veg Condition	Good (moderate disturbance to fairly heavy cattle grazing and some weeds)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under trees, moderate wood litter,				

Species List:

Trees 5-15 metres	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Atalaya hemiglauca</i> , <i>Capparis umbonata</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia pruinocarpa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Vachellia farnesiana</i>
Shrubs 0.5-1 metres	<i>Aerva javanica</i>
Shrubs < 0.5 metres	<i>Eremophila cuneifolia</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 044

Described CW Date 20/10/2008 Type: Q 50m * 50m
 Season E Uniformit
 Location a proposed crusher site
 MGA Zone 50 805518 mE 7508260 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sand to sandy clay, loose soil, coarse gravel, rock (gravel) abundance:
 many
 Rock Type ferrous gravel
 Vegetation *Solanum lasiophyllum* isolated low shrubs*Salsola tragus* sparse herbs*Aristida contorta* open low tussock grassland.
 Veg Condition Good (moderate disturbance, tracks - vehicle and cattle)
 Fire No fire history evident
 Notes negligible leaf litter and wood litter,

Species List:

Trees <5 metres	<i>Acacia pruinocarpa</i>
Shrubs 0.5-1 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs < 0.5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Boerhavia repleta</i> , <i>Corchorus parviflorus</i> , <i>Eremophila latrobei</i> subsp. <i>latrobei</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Hibiscus burtonii</i> , <i>Pluchea dunlopii</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Citrullus colocynthis</i> , <i>Euphorbia australis</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 045

Described	CCS	Date	20/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 803900 mE	7507435 mN			
Habitat	Undulating plain, gentle slope				
Soil	red-orange loamy clay, surface crust, loose soil, fine gravel, coarse gravel, rock abundance: many				
Rock Type	nil bedrock, ferrous gravels				
Vegetation	Acacia aneura var. pilbarana low woodland\Acacia synchronicia and Acacia tetragonophylla sparse mid shrubland\other mixed shrubs\Aristida contorta low tussock grassland.				
Veg Condition	Good (moderate disturbance to fairly heavy cattle grazing and weeds)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs, moderate wood litter,				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i>
Shrubs 0.5-1 metres	<i>Corchorus parviflorus</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Eremophila cuneifolia</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna notabilis</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 046

Described CW Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 5
 MGA Zone 50 803868 mE 7512764 mN
 Habitat Flat/plain, clay pan, mulga banding, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock (gravel) abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana* low woodland to open tall shrubland*Dodonaea petiolaris*, *Ptilotus obovatus* var. *obovatus* open mid to low shrubland*Aristida contorta*, *Aristida inaequiglumis* low tussock grassland.
 Veg Condition Good (moderate disturbance)
 Fire No fire history evident
 Notes moderate leaf litter mainly under shrubs, sparse wood litter,

Species List:

Trees < 5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tetragonophylla</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia pruinocarpa</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psyrax latifolia</i>
Shrubs 0.5-1 metres	<i>Corchorus parviflorus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glaucifolia</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna stricta</i>
Shrubs < 0.5 metres	<i>Corchorus parviflorus</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Gomphrena cunninghamii</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Maireana villosa</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Sida ectogama</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon cylindricus</i> , <i>Eulalia aurea</i> , <i>Iseilema membranaceum</i> , <i>Iseilema membranaceum</i> , <i>Panicum effusum</i>
Herbs	<i>Abutilon cunninghamii</i> , <i>Abutilon macrum</i> , <i>Bidens bipinnata</i> , <i>Cleome viscosa</i> , <i>Euphorbia biconvexa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Hybanthus aurantiacus</i> , <i>Mollugo molluginea</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Rutidosis helichrysoides</i> subsp. <i>helichrysoides</i> , <i>Salsola tragus</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 047

Described	CCS	Date	20/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	a proposed crusher site				
MGA Zone	50 805368 mE	7508747 mN			
Habitat	Creek Bank/flood bank, gentle slope				
Soil	red orange loamy clay, cracked clay, surface crust, fine gravel, rock abundance: few				
Rock Type	Nil bedrock, few ferrous gravels				
Vegetation	<i>Eucalyptus victrix</i> open mid woodland\ <i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Atalaya hemiglauca</i> low woodland\ <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> sparse tall shrubland\ <i>Cenchrus ciliaris</i> low tussock grassland.				
Veg Condition	Poor (significant disturbance, heavy cattle grazing and widespread weeds)				
Fire	No fire history evident				
Notes	widespread plentiful leaf litter and moderate wood litter,				

Species List:

Trees 5-15 metres	<i>Eucalyptus victrix</i>
Trees <5 metres	<i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Atalaya hemiglauca</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
Shrubs 1- 2 metres	<i>Petalostylis labicheoides</i>
Shrubs < 0.5 metres	<i>Corchorus parviflorus</i> , <i>Malvastrum americanum</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 048

Described CW Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed north Lined Evaporation Pond
 MGA Zone 50 803207 mE 7507007 mN
 Habitat Flat/plain, with negligible slope.
 Soil Red-orange sandy-clay, with surface cover of loose soil (10%), and continuous coarse gravel (90%).
 Rock Type Ferrous gravels only, nil bedrock
 Vegetation *Acacia aneura* var. *pilbarana* open low woodland*Senna sericea* open mid-shrubland*Eremophila cuneifolia* open low shrubland*Aristida contorta* tussock grassland.
 Veg Condition Good (moderate disturbance - cattle tracks and grazing)
 Fire Old (>5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter. Veg. description using NVIS,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia ayersiana</i> , <i>Acacia tetragonophylla</i> , <i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Corchorus parviflorus</i> , <i>Eremophila cuneifolia</i> , <i>Eremophila lanceolata</i> , <i>Maireana planifolia</i> , <i>Neptunia dimorphantha</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i> , <i>Streptoglossa bubakii</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis desertorum</i>
Herbs	<i>Abutilon macrum</i> , <i>Abutilon otocarpum</i> , <i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Euphorbia boophthona</i> , <i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 049

Described	CCS	Date	20/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	a proposed crusher site				
MGA Zone	50 804165 mE	7512296 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange loamy clay, surface crust, fine gravel, coarse gravel, stones. Rock abundance: continuous				
Rock Type	Nil bedrock, ferrous gravels				
Vegetation	Acacia aneura var. pilbarana low woodland\Acacia pruinocarpa sparse tall shrubland\mixed low shrubs\Aristida contorta open low tussock grassland.				
Veg Condition	Good (moderate disturbance/cattle grazing)				
Fire	No fire history evident				
Notes	sparse leaf litter mainly under shrubs, moderate wood litter,				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia pruinocarpa</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i>
Shrubs 0.5-1 metres	<i>Acacia tetragonophylla</i> , <i>Anthobolus leptomerioides</i> , <i>Duperreya commixta</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax suaveolens</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Tribulus suberosus</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Pluchea tetranthera</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna notabilis</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum ellipticum</i> , <i>Solanum phlomoides</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis cumingii</i> , <i>Panicum effusum</i> , <i>Solanum lasiophyllum</i>
Herbs	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Polycarpaea longiflora</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Cymbopogon ambiguus</i>

Roy Hill 1 Infrastructure Site 050

Described CCS Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Northern Lined Evaporation Pond
 MGA Zone 50 802940 mE 7507531 mN
 Habitat Flat/plain, negligible slope, mulga banding
 Soil Red-orange sandy clay, with a surface cover of loose soil, coarse gravel. Rock abundance: common,
 Rock Type Ferrous gravel only, nil bedrock
 Vegetation *Acacia aneura* var. *pilbarana* open low woodland to tall shrubland*Senna artemisioides* subsp. *helmsii* open mid-shrubland*Solanum lasiophyllum* sparse shrubland*Aristida contorta* and *Enneapogon polyphyllus* open tussock grassland.
 Veg Condition Good (moderate disturbance - cattle grazing)
 Fire No Fire history evident
 Notes Sparse leaf litter mainly under shrubs, sparse wood litter. Veg. description using NVIS,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Solanum lasiophyllum</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs < 0.5 metres	<i>Abutilon otocarpum</i> , <i>Eremophila lanceolata</i> , <i>Indigofera georgei</i> , <i>Maireana planifolia</i> , <i>Sclerolaena cornishiana</i> , <i>Sida ectogama</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum ellipticum</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , <i>Eulalia aurea</i>
Herbs	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Salsola tragus</i> , <i>Stenopetalum anfractum</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 051

Described	CCS	Date	21/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 803864 mE	7513205 mN			
Habitat	Flood bank, gentle slope				
Soil	red orange fine loamy sand, surface crust, loose soil, fine gravel, coarse gravel, rock(gravel) abundance: few				
Rock Type	nil bedrock, few gravels				
Vegetation	<i>Corymbia candida</i> subsp. <i>candida</i> , <i>Corymbia hamersleyana</i> isolated low trees\ <i>Acacia pruinocarpa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> open tall shrubland\ mixed low shrubs\ mixed open tussock grassland\ <i>Triodia longiceps</i> sparse hummock grassland.				
Veg Condition	Good (moderate disturbance, cattle grazing and weeds present)				
Fire	Moderate (1 to 5 years since fire)				
Notes	Widespread-plentiful leaf litter and wood litter.				

Species List:

Trees <5 metres	<i>Corymbia candida</i> subsp. <i>candida</i> , <i>Corymbia hamersleyana</i>
Shrubs < 2 metres	<i>Acacia pruinocarpa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Gossypium robinsonii</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)
Shrubs 0.5-1 metres	<i>Gossypium australe</i> , <i>Indigofera monophylla</i> , <i>Indigofera monophylla</i> , <i>Malvastrum americanum</i> , <i>Psydrax latifolia</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Abutilon otocarpum</i> , <i>Abutilon otocarpum</i> , <i>Boerhavia coccinea</i> , <i>Corchorus parviflorus</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Hibiscus sturtii</i> var. <i>truncatus</i> , <i>Hybanthus aurantiacus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum phlomoides</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon caerulescens</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis cumingii</i> , <i>Setaria verticillata</i> , <i>Themeda triandra</i>
Herbs	<i>Bidens bipinnata</i> , <i>Cleome viscosa</i> , <i>Euphorbia australis</i> , <i>Euphorbia biconvexa</i> , <i>Euphorbia boophthona</i> , <i>Euphorbia boophthona</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Mollugo molluginea</i> , <i>Polycarpha longiflora</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 052

Described CW Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed camp 2 (western)
 MGA Zone 50 802802 mE 7507864 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange sandy clay to clay, loose soil, coarse gravel, rock (gravel) abundance: common
 Rock Type ferrous gravel
 Vegetation *Senna stricta* sparse tall to mid shrubland*Solanum lasiophyllum* isolated low shrubs*Aristida contorta* sparse low tussock grassland.
 Veg Condition Good (moderate disturbance, tracks & cattle)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Shrubs > 2 metres	<i>Senna stricta</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Senna stricta</i> , <i>Senna glaucifolia</i>
Shrubs 0.5-1 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna glaucifolia</i>
Shrubs < 0.5 metres	<i>Boerhavia coccinea</i> , <i>Eremophila cuneifolia</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sclerolaena cornishiana</i> , <i>Senna notabilis</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cymbopogon obtectus</i>
Herbs	<i>Citrullus colocynthis</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Stenopetalum anfractum</i>

Roy Hill 1 Infrastructure Site 053

Described CCS Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Processing Plant
 MGA Zone 50 800613 mE 7509016 mN
 Habitat Undulating plain, gentle slope
 Soil Red-orange loamy clay, surface crust, loose soil, fine gravel, coarse gravel,
 rock(gravel)
 Abundance: continuous
 Rock Type nil bedrock, ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana*, *Acacia aneura* var. *conifera* low woodland\
Acacia tetragonophylla and *Eremophila cuneifolia* open mid to low shrubland\
Aristida contorta open low tussock grassland.
 Veg Condition Good (moderate disturbance, cattle grazing)
 Fire No fire history evident
 Notes sparse leaf litter, mainly under shrubs. moderate wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Boerhavia coccinea</i> , <i>Eremophila cuneifolia</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Eragrostis eriopoda</i> , <i>Setaria verticillata</i>
Herbs	<i>Bidens bipinnata</i> , <i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Neptunia dimorphantha</i> , <i>Portulaca oleracea</i> , <i>Rostellularia adscendens</i> var. <i>latifolia</i>

Roy Hill 1 Infrastructure Site 054

Described	CW	Date	21/10/2008	Type: Q	50m * 50m
	Season	E	Uniformit		
Location	proposed Camp 2				
MGA Zone	50 802690 mE	7508002 mN			
Habitat	Flat/plain, mulga banding, negligible slope				
Soil	red-orange sandy clay, loose soil, coarse gravel, rock (gravel) abundance: many				
Rock Type	ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pruinocarpa</i> open low forest\ <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Dodonaea petiolaris</i> open mid to low shrubland\ <i>*Bidens bipinnata</i> herbs\ <i>Aristida contorta</i> sparse low tussock grass.				
Veg Condition	Poor (significant disturbance, grazing, * <i>Bidens</i> weed)				
Fire	No fire history evident				
Notes	moderate leaf litter, mainly under shrubs, moderate wood litter.				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pruinocarpa</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs 0.5-1 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Solanum lasiophyllum</i>
Shrubs < 0.5 metres	<i>Abutilon otocarpum</i> , <i>Corchorus parviflorus</i> , <i>Dicladantha forrestii</i> , <i>Indigofera georgei</i> , <i>Malvastrum americanum</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Enneapogon polyphyllus</i> , <i>Sporobolus australasicus</i>
Herbs	<i>Abutilon macrum</i> , <i>Bidens bipinnata</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Glycine canescens</i>

Roy Hill 1 Infrastructure Site 055

Described	CCS	Date	21/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed processing plant				
MGA Zone	50 800965 mE	7508631 mN			
Habitat	Flat/plain, negligible slope				
Soil	Red-orange fine sandy clay loam, surface crust, loose soil, fine gravel, coarse gravel, rock (gravel)				
	Abundance: continuous				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> low woodland\mixed <i>Senna</i> spp., <i>Acacia</i> spp. open tall to low shrubland with <i>Eremophila cuneifolia</i> \ <i>Aristida contorta</i> open low tussock grassland.				
Veg Condition	Good (moderate disturbance, cattle and horse grazing)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter. 9 horses seen				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia tetragonophylla</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Psydrax latifolia</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Eremophila cuneifolia</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Cleome viscosa</i>

Roy Hill 1 Infrastructure Site 056

Described CW Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed tailings dam
 MGA Zone 50 799123 mE 7509549 mN
 Habitat Flat/plain, mulga banding (open), negligible slope
 Soil Red-orange sandy clay, loose soil, coarse gravel, rock abundance (gravel): many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana* low woodland*Senna sericea* sparse mid to low
 shrubland*Aristida contorta* open low tussock grassland.
 Veg Condition Poor (significant disturbance, heavily grazed by cattle)
 Fire No fire history evident
 Notes moderate leaf litter mainly under shrubs, sparse wood litter... veg. descriptions using
 NVIS

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x <i>helmsii</i>
Shrubs < 0.5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Eremophila lanceolata</i> , <i>Gomphrena cunninghamii</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Sida ectogama</i> , <i>Sida fibulifera</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i> , <i>Eragrostis tenellula</i>
Herbs	<i>Cleome viscosa</i> , <i>Cullen lachnostachys</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Goodenia pinnatifida</i> , <i>Lepidium phlebopetalum</i> , <i>Tephrosia supina</i>
Climbers	<i>Amyema fitzgeraldii</i>

Roy Hill 1 Infrastructure Site 057

Described	CCS	Date	21/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Processing Plant				
MGA Zone	50 801307 mE	7508272 mN			
Habitat	Flat/plain, with negligible slope				
Soil	Red-orange fine sandy clay loam, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarensis</i> , <i>Acacia aneura</i> var. <i>conifera</i> (<i>Acacia paraneura</i> nearby) low woodland\mixed <i>Acacia</i> , <i>Senna</i> , <i>Eremophila</i> spp. open tall to low shrubland\ <i>Aristida contorta</i> open low tussock grassland.				
Veg Condition	good (moderate disturbance, grazing pressure by cattle and horses)				
Fire	No fire history evident				
Notes	moderate leaf litter, mainly under shrubs, moderate wood litter. veg. descriptions using NVIS				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Eremophila cuneifolia</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Senna notabilis</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Enneapogon caerulescens</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 058

Described CW Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher conveyor 16
 MGA Zone 51 196097 mE 7501541 mN
 Habitat Flat/plain, undulating plain, mulga, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock (gravel) abundance: common
 Rock Type ferrous gravel
 Vegetation *Acacia catenulata* subsp. *occidentalis*, *Acacia aneura* var. *pilbarana* low woodland\
Psydrax latifolia, *Solanum lasiophyllum* sparse mid to low shrubland\
Aristida contorta open low tussock grassland.
 Veg Condition good (moderate disturbance, cattle grazing)
 Fire No fire history evident
 Notes moderate leaf litter mainly under shrubs, sparse wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia catenulata</i> subsp. <i>occidentalis</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs 0.5-1 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i>
Shrubs < 0.5 metres	<i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Eriachne helmsii</i>
Herbs	<i>Hybanthus aurantiacus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 059

Described	CCS	Date	21/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	proposed Camp 2				
MGA Zone	50 802598 mE	7508325 mN			
Habitat	flat/plain, negligible slope				
Soil	Red-orange fine sandy clay loam, surface crust, loose soil, fine gravel, coarse gravel, rock(gravel) abundance: many				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pruinocarpa</i> open low woodland\mixed <i>Acacia</i> , <i>Senna</i> , <i>Eremophila</i> spp. sparse mid to low shrubland\ <i>Aristida contorta</i> open low tussock grassland.				
Veg Condition	Good (moderate disturbance, cattle and horse grazing)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia pruinocarpa</i>
Shrubs 1- 2 metres	<i>Acacia synchronica</i> , <i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila cuneifolia</i> , <i>Pluchea tetranthera</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 060

Described	CW	Date	22/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed crusher site 16				
MGA Zone	51 196135 mE	7501888 mN			
Habitat	Flat/plain, creek bank, negligible slope				
Soil	red-orange sand to sandy clay, coarse gravel, rock abundance (gravel): continuous				
Rock Type	ferrous gravel				
Vegetation	<i>Corymbia candida</i> subsp. <i>candida</i> , <i>Acacia paraneura</i> open low woodland, <i>Acacia tumida</i> var. <i>pilbarensis</i> open tall to mid shrubland\mixed shrubs\ <i>Eriachne mucronata</i> , <i>Themeda triandra</i> open low tussock grasses\ <i>Triodia epactia</i> sparse mid hummock grass.				
Veg Condition	good (moderate disturbance, cattle grazing)				
Fire	no fire history evident				
Notes	sparse leaf litter mainly under shrubs, sparse wood litter				

Species List:

Trees <5 metres	<i>Acacia catenulata</i> subsp. <i>occidentalis</i> , <i>Acacia paraneura</i> , <i>Acacia rhodophloia</i> , <i>Corymbia candida</i> subsp. <i>candida</i>
Shrubs < 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i>
Shrubs 0.5-1 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dodonaea petiolaris</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> , <i>Indigofera monophylla</i> , <i>Isotropis forrestii</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna glaucifolia</i> , <i>Sida ectogama</i>
Shrubs < 0.5 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Hibiscus coatesii</i>
Hummock grasses	<i>Triodia epactia</i>
Tussock and annual grasses	<i>Enneapogon cylindricus</i> , <i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Eulalia aurea</i> , <i>Paraneurachne muelleri</i> , <i>Sporobolus australasicus</i> , <i>Themeda triandra</i>
Herbs	<i>Hybanthus aurantiacus</i> , <i>Waltheria indica</i>
Climbers	<i>Glycine canescens</i>

Roy Hill 1 Infrastructure Site 061

Described	CCS	Date	21/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Water Supply Dam (?#)				
MGA Zone	50 798724 mE	7509205 mN			
Habitat	Creek bed and creek bank, gentle slope				
Soil	red-orange loamy clay, cracked clay, surface crust, loose soil, fine gravel, rock (gravel) abundance: few				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Eucalyptus victrix</i> mid woodland\ <i>Acacia coriacea</i> subsp. <i>pendens</i> and <i>Atalaya hemiglauca</i> low woodland\ mixed shrubs\ * <i>Cenchrus ciliaris</i> low grassland.				
Veg Condition	Poor (significant disturbance, heavy cattle grazing and weeds)				
Fire	No fire history evident				
Notes	widespread plentiful leaf litter and wood litter				

Species List:

Trees 5-15 metres	<i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Eucalyptus victrix</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Atalaya hemiglauca</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Vachellia farnesiana</i>
Shrubs < 0.5 metres	* <i>Malvastrum americanum</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i>
Herbs	<i>Rostellularia adscendens</i> var. <i>latifolia</i>

Roy Hill 1 Infrastructure Site 062

Described CW Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher conveyor # 17
 MGA Zone 51 196635 mE 7501862 mN
 Habitat Flat/plain, foot slope of small hill, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous cover
 Rock Type ferrous
 Vegetation Isolated tall to low shrubs such as *Grevillea wickhamii* subsp. *hispidula* \ *Triodia basedowii* hummock grassland.
 Veg Condition good (moderate disturbance, tracks)
 Fire no fire history evident
 Notes negligible leaf litter and wood litter

Species List:

Shrubs < 2 metres	<i>Acacia marramamba</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs < 0.5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Hibiscus coatesii</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia basedowii</i>

Roy Hill 1 Infrastructure Site 063

Described CCS Date 21/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Water Supply Dam
 MGA Zone 50 799025 mE 7510079 mN
 Habitat Minor channel - along plains, gentle slope
 Soil red-orange loamy clay, cracked clay, surface crust, loose soil, fine gravel
 Rock Type nil bedrock, ferrous gravel
 Vegetation Acacia aneura var. pilbarana, Acacia paraneura open low forest\mixed sparse shrubs and herbs*Cenchrus ciliaris open low tussock grassland. (concentrated along channel on plain).
 Veg Condition Good (moderate disturbance, fairly heavy cattle grazing)
 Fire No fire history evident
 Notes widespread plentiful leaf litter and wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i>
Shrubs 1- 2 metres	<i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Chrysopogon fallax</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Cleome viscosa</i> , <i>Cullen lachnostachys</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Goodenia pinnatifida</i> , <i>Portulaca oleracea</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>
Climbers	<i>Amyema fitzgeraldii</i> , <i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 064

Described CW Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 17
 MGA Zone 51 196648 mE 7502017 mN
 Habitat gentle mid-slope, undulating plain
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation *Grevillea wickhamii* subsp. *hispidula*, *Acacia ancistrocarpa* open tall to mid
 shrubland*Ptilotus calostachyus* var. *calostachyus* sparse low shrubs*Triodia
 basedowii* low hummock grassland.
 Veg Condition good (moderate disturbance, tracks).
 Fire Old (>5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Shrubs < 2 metres	<i>Acacia ancistrocarpa</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 0.5-1 metres	<i>Acacia inaequilatera</i> , <i>Dodonaea petiolaris</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dampiera candidans</i> , <i>Senna notabilis</i>
Hummock grasses	<i>Triodia basedowii</i>
Herbs	<i>Goodenia stobbsiana</i> , <i>Goodenia triodiophila</i> , <i>Hybanthus aurantiacus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>

Roy Hill 1 Infrastructure Site 065

Described CCS Date 22/10/2008 Type: Q 100m * 25m
 Season P Uniformit
 Location Proposed Southern Conveyor
 MGA Zone 51 192047 mE 7501014 mN
 Habitat minor channel along flat/plain, gentle slope
 Soil red-orange loamy clay, cracked clay, surface crust, loose soil, fine gravel, coarse gravel, rock
 (gravel) abundance: common
 Rock Type nil bedrock, ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana* low woodland* *Malvastrum americanum* sparse low shrubs*Cenchrus ciliaris* open low tussock grassland.
 Veg Condition Degraded (Very heavy cattle grazing)
 Fire No fire history evident
 Notes moderate leaf litter mainly under trees, moderate wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 0.5-1 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Malvastrum americanum</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis tenellula</i> , <i>Themeda triandra</i>
Herbs	<i>Alternanthera nodiflora</i> , <i>Gomphrena cunninghamii</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 066

Described CW Date 22/10/2008 Type: Q 100m * 25m
 Season P Uniformit
 Location Proposed crusher site 18
 MGA Zone 51 197093 mE 7502037 mN
 Habitat Flat/plain, undulating plain, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous
 Rock Type Ferrous gravel
 Vegetation *Eucalyptus leucophloia* subsp. *leucophloia* open low woodland*Grevillea wickhamii* subsp. *hispidula* open tall to mid shrubland, *Corchorus lasiocarpus* subsp. *parvus* open low shrubs*Triodia longiceps* open mid hummock grass.
 Veg Condition good (moderate disturbance), tracks
 Fire Moderate (1 to 5 years since fire)
 Notes towards the later end of the fire age period (i.e. 4/5 years since fire). sparse leaf litter mainly under shrubs, moderate wood litter

Species List:

Trees <5 metres	<i>Acacia pruinocarpa</i> , <i>Acacia rhodophloia</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>
Shrubs < 2 metres	<i>Acacia ancistrocarpa</i> , <i>Acacia tetragonophylla</i> , <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>
Shrubs 1- 2 metres	<i>Psyrax latifolia</i> , <i>Sida arenicola</i>
Shrubs 0.5-1 metres	<i>Abutilon cunninghamii</i> , <i>Abutilon lepidum</i> , <i>Indigofera monophylla</i> , <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> , <i>Solanum sturtianum</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Senna notabilis</i> , <i>Solanum phlomoides</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Eriachne mucronata</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i> , <i>Paraneurachne muelleri</i> , <i>Themeda triandra</i>
Herbs	<i>Hybanthus aurantiacus</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Tephrosia supina</i>
Climbers	<i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 067

Described	CCS	Date	22/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Southern Conveyor				
MGA Zone	51 194212 mE	7501025 mN			
Habitat	Broad drainage depression/channel, negligible slope				
Soil	red-brown loamy clay, surface crust, fine gravel, coarse gravel,				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Corymbia aspera</i> , <i>Atalaya hemiglauca</i> open low forest\mixed shrubs and climbers* <i>Cenchrus ciliaris</i> and other grasses forming open low tussock grassland\ <i>Triodia longiceps</i> isolated hummock grass.				
Veg Condition	Poor (significant disturbance, heavy cattle grazing and weeds)				
Fire	No fire history evident				
Notes	widespread plentiful leaf litter and wood litter				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Corymbia aspera</i>
Trees <5 metres	<i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Acacia pruinocarpa</i> , <i>Atalaya hemiglauca</i> , <i>Ehretia saligna</i> var. <i>saligna</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Indigofera monophylla</i>
Shrubs < 0.5 metres	<i>Abutilon macrum</i> , <i>Boerhavia coccinea</i> , <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Malvastrum americanum</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i> , <i>Setaria verticillata</i>
Herbs	<i>Euphorbia boophthona</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Amyema fitzgeraldii</i> , <i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 068

Described CCS Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Crusher conveyor 18
 MGA Zone 51 197105 mE 7501621 mN
 Habitat Flat/plain, negligible slope, with mulga banding
 Soil Red-orange sandy clay, with surface layer of crust, coarse gravel (abundance-many)
 Rock Type Ferrous gravel only, nil bedrock
 Vegetation *Acacia aneura* var. *aneura*, *Acacia aneura* var. *conifera*, *Acacia catenulata* subsp. *occidentalis*, *Acacia ayersiana* low woodland\Ptilotus *schwartzii* var. *schwartzii* sparse low shrubs\herbs\Triodia *basedowii* and *Triodia longiceps* open low hummock grassland.
 Veg Condition Good (moderate disturbance - vehicle tracks)
 Fire No fire history evident
 Notes Sparse leaf litter mainly under shrubs, sparse wood litter, *Rhagodia* sp. Hamersley @ 51K 197118.37 mE/7501613.52 mN

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia ayersiana</i> , <i>Acacia catenulata</i> subsp. <i>occidentalis</i> , <i>Acacia rhodophloia</i>
Shrubs < 2 metres	<i>Acacia pruinocarpa</i> , <i>Acacia ayersiana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Psydrax latifolia</i> , <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)
Shrubs 0.5-1 metres	<i>Dodonaea petiolaris</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Hibiscus burtonii</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i>
Hummock grasses	<i>Triodia basedowii</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne helmsii</i> , <i>Eulalia aurea</i>
Herbs	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260)
Climbers	<i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 069

Described	CCS	Date	22/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Southern Conveyor				
MGA Zone	51 194967 mE	7501027 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange loamy clay, cracked clay, surface crust, loose soil, fine gravel, coarse gravel,				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia catenulata</i> subsp. <i>occidentalis</i> , <i>Acacia paraneura</i> open low woodland\ <i>Dodonaea petiolaris</i> sparse tall shrubland\mixed shrubs, herbs and grasses such as <i>Aristida contorta</i> .				
Veg Condition	Excellent (minimal disturbance, light cattle grazing and a few weeds)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs and trees, moderate wood litter, veg. description using				

Species List:

Trees 5-15 metres	<i>Acacia catenulata</i> subsp. <i>occidentalis</i> , <i>Grevillea berryana</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia paraneura</i> , <i>Acacia pruinocarpa</i>
Shrubs 1- 2 metres	<i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sida ectogama</i>
Shrubs 0.5-1 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Pluchea tetranthera</i> , <i>Psydrax suaveolens</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cenchrus ciliaris</i> , <i>Eriachne helmsii</i>
Herbs	* <i>Bidens bipinnata</i> , <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>

Roy Hill 1 Infrastructure Site 070

Described CCS Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location end of proposed southern conveyor (east-west)
 MGA Zone 51 198866 mE 7501345 mN
 Habitat Flat/plain, undulating plain, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera*, *Acacia paraneura* open low woodland*Ptilotus schwartzii* var. *schwartzii* sparse low shrubs*Triodia basedowii*, *Triodia longiceps* open low hummock grassland.
 Veg Condition Excellent, minimal disturbance
 Fire no fire history evident
 Notes negligible leaf and wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia paraneura</i> , <i>Acacia pruinocarpa</i>
Shrubs 1- 2 metres	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Dodonaea petiolaris</i>
Shrubs < 0.5 metres	<i>Anthobolus leptomerioides</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Hibiscus burtonii</i> , <i>Pluchea tetranthera</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Hummock grasses	<i>Triodia basedowii</i> , <i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cymbopogon obtectus</i>
Herbs	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>

Roy Hill 1 Infrastructure Site 071

Described	CCS	Date	22/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Southern Conveyor				
MGA Zone	51 196128 mE	7501201 mN			
Habitat	Broad shallow depression/drainage line on plain, very gently sloping				
Soil	red-orange fine loamy clay, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia catenulata</i> var. <i>occidentalis</i> , <i>Acacia pruinocarpa</i> open mid forest\Dodonaea petiolaris, Sida ectogama mid shrubland\mixed shrubs, herbs, grasses such as <i>Aristida contorta</i> .				
Veg Condition	Excellent (minimal disturbance, very light cattle grazing)				
Fire	No fire history evident				
Notes	widespread plentiful leaf litter and wood litter.				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia catenulata</i> subsp. <i>occidentalis</i> , <i>Acacia pruinocarpa</i> , <i>Corymbia aspera</i>
Shrubs 1- 2 metres	<i>Acacia rhodophloia</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psyrax latifolia</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Sida ectogama</i>
Shrubs 0.5-1 metres	<i>Acacia tetragonophylla</i> , <i>Indigofera monophylla</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Bidens bipinnata</i> , <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Ptilotus clementii</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 072

Described CW Date 22/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed crusher site 13
 MGA Zone 50 807298 mE 7502403 mN
 Habitat Flat/plain, between mulga bands, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation Acacia aneura var. conifera, Acacia rhodophloia isolated tall shrubs\Solanum lasiophyllum sparse
 low shrubland\isolated herbs and grasses.
 Veg Condition good, (moderate disturbance, drill pads and tracks adjacent)
 Fire No fire history evident
 Notes negligible leaf litter and wood litter.

Species List:

Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia rhodophloia</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i>
Shrubs 0.5-1 metres	<i>Eremophila lanceolata</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna glaucifolia</i>
Shrubs < 0.5 metres	<i>Eriachne helmsii</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i>
Herbs	<i>Lepidium echinatum</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus polystachyus</i> var. <i>polystachyus</i> , <i>Stenopetalum anfractum</i>

Roy Hill 1 Infrastructure Site 073

Described	CCS	Date	22/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	a proposed crusher site				
MGA Zone	50 807742 mE	7502060 mN			
Habitat	flat/plain, negligible slope				
Soil	red-brown loamy clay, cracked clay, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	nil bedrock, ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> (plus <i>Corymbia aspera</i> - outside of site)isolated trees woodland\ <i>Senna sericea</i> sparse low shrubland\ <i>Aristida contorta</i> , * <i>Cenchrus ciliaris</i> sparse low tussock grassland.				
Veg Condition	Good (moderate disturbance) to Poor (significant disturbance), heavy cattle grazing				
Fire	No fire history evident				
Notes	sparse leaf litter mainly under shrubs, moderate wood litter,				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Vachellia farnesiana</i>
Shrubs 0.5-1 metres	<i>Acacia synchronicia</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Acacia tetragonophylla</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Salsola tragus</i> , <i>Zygophyllum iodocarpum</i>
Climbers	<i>Ipomoea muelleri</i>

Roy Hill 1 Infrastructure Site 074

Described CW Date 23/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location a proposed crusher site
 MGA Zone 50 799176 mE 7514488 mN
 Habitat Flat/plain, negligible slope
 Soil red orange sand to sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation tussock grassland under mulga
 Veg Condition poor, (significant disturbance)
 Fire no fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Trees <5 metres *Acacia aneura* var. *aneura*, *Acacia aneura* var. *pilbarana*
 Shrubs 1- 2 metres *Acacia tetragonophylla*, *Eremophila forrestii* subsp. *forrestii*, *Eremophila latrobei* subsp. *filiformis*, *Psyrax latifolia*, *Rhagodia* sp. *Hamersley* (M. Trudgen 17794), *Senna artemisioides* subsp. *helmsii*
 Shrubs < 0.5 metres *Acacia ?sericophylla*, *Eremophila lanceolata*, *Hibiscus burtonii*, *Hibiscus leptocladus*, *Sclerolaena cornishiana*, *Sida* sp. *verrucosa glands* (F.H. Mollemans 2423), *Solanum lasiophyllum*
 Tussock and annual grasses *Aristida inaequiglumis*, *Enneapogon polyphyllus*
 Herbs *Calocephalus* sp. *Pilbara-Desert* (M.E. Trudgen 11454), *Gomphrena canescens* subsp. *canescens*, *Lepidium echinatum*, *Maireana villosa*

Roy Hill 1 Infrastructure Site 075

Described	CCS	Date	23/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location					
MGA Zone	50 795503 mE	7514319 mN			
Habitat	broad drainage channel, gently sloping				
Soil	red-orange clay loam and sand, with a surface cover of crust, fine gravel and coarse gravel,				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Corymbia aspera</i> , <i>Atalaya hemiglauca</i> open low forest\ <i>Acacia tetragonophylla</i> open tall shrubland\ * <i>Cenchrus ciliaris</i> low grassland.				
Veg Condition	Poor (significant disturbance, heavy cattle grazing and * <i>Cenchrus</i> grass				
Fire	No fire history evident				
Notes	Widespread plentiful leaf litter, plentiful wood litter				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Corymbia aspera</i>
Trees <5 metres	<i>Atalaya hemiglauca</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Senna glaucifolia</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Malvastrum americanum</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Chrysopogon fallax</i>
Herbs	<i>Dicladanthera forrestii</i> , <i>Rostellularia adscendens</i> var. <i>latifolia</i>
Climbers	<i>Amyema fitzgeraldii</i> , <i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 076

Described CW Date 23/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed crusher site 2
 MGA Zone 50 799430 mE 7514336 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera* low woodland*Senna artemisioides* subsp. *helmsii*,
Sclerolaena cornishiana sparse low shrubland*Aristida contorta* sparse low tussock
 grassland.
 Veg Condition poor, (significant disturbance)
 Fire no fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter.

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pruinocarpa</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna glutinosa</i> subsp. <i>pruinosa</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Aerva javanica</i> , <i>Eremophila lanceolata</i> , <i>Sclerolaena cornishiana</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Gomphrena</i> <i>canescens</i> subsp. <i>canescens</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i>

Roy Hill 1 Infrastructure Site 077

Described	CCS	Date	23/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Northern Rail Line spur				
MGA Zone	50 796279 mE	7513399 mN			
Habitat	Flat/plain with negligible slope				
Soil	Red-orange fine sandy clay loam, with a surface layer of crust, loose soil, fine gravel, coarse gravel				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>aneura</i> low woodland\ <i>Senna sericea</i> & mixed sparse tall to low shrubland\ <i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> open low tussock grassland.				
Veg Condition	Good (moderate disturbance, cattle grazing)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter.				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pruinocarpa</i>
Shrubs < 2 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna sericea</i>
Shrubs 1- 2 metres	<i>Vachellia farnesiana</i>
Shrubs < 0.5 metres	<i>Aristida contorta</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida latifolia</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i> , <i>Eragrostis tenellula</i> , <i>Eriachne helmsii</i>
Herbs	<i>Cleome viscosa</i> , <i>Salsola tragus</i>
Climbers	<i>Amyema fitzgeraldii</i>

Roy Hill 1 Infrastructure Site 078

Described CW Date 23/10/2008 Type: Q 100m * 25m
 Season P Uniformit
 Location a proposed crusher site
 MGA Zone 50 799783 mE 7513819 mN
 Habitat Flat/plain, creek bed/direct creek bank, negligible slope
 Soil red-orange sandy clay, loose soil (at bank), stones (river/creek), rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation *Eucalyptus victrix* mid woodland (in creek bed)\ *Acacia coriacea* subsp. *pendens*, *Acacia pruinocarpa*, *Atalaya hemiglauca*, *Acacia tetragonophylla* and other species as open low forest (on creek bank)\ mixed shrubs and herbs\ **Cenchrus ciliaris* open low tussock grassland (creek banks).
 Veg Condition Poor, significant disturbance, cattle grazing, **Cenchrus grass*
 Fire No fire history evident
 Notes moderate leaf litter, mainly under shrubs, sparse wood litter

Species List:

Trees 5-15 metres	<i>Eucalyptus victrix</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Acacia pruinocarpa</i> , <i>Acacia tetragonophylla</i> , <i>Atalaya hemiglauca</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia coriacea</i> subsp. <i>pendens</i>
Shrubs 1- 2 metres	<i>Acacia ?sericophylla</i> , <i>Vachellia farnesiana</i>
Shrubs 0.5-1 metres	<i>Corchorus parviflorus</i>
Shrubs < 0.5 metres	<i>Indigofera monophylla</i> , <i>Malvastrum americanum</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Eragrostis tenellula</i> , <i>Eriachne helmsii</i> , <i>Themeda triandra</i>
Herbs	<i>Abutilon cunninghamii</i> , <i>Cleome viscosa</i> , <i>Euphorbia australis</i> , <i>Polycarpaea longiflora</i>
Climbers	<i>Amyema fitzgeraldii</i> , <i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 079

Described	CCS	Date	23/10/2008	Type: Q	50m x 50m
	Season	P	Uniformit		
Location	Northern Spur conveyor				
MGA Zone	50 797395 mE	7512806 mN			
Habitat	Flat/plain, with negligible slope				
Soil	Red-orange clay loam, with surface crust, fine gravel, coarse gravel				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i> low woodland\ <i>Acacia synchronicia</i> , <i>Senna sericea</i> sparse tall to mid shrubland\ <i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> low grassland.				
Veg Condition	Excellent (minimal disturbance, light cattle grazing)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs, moderate wood litter. .				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Aerva javanica</i> , <i>Portulaca oleracea</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs < 0.5 metres	<i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cleome viscosa</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>

Roy Hill 1 Infrastructure Site 080

Described CW Date 23/10/2008 Type: Q 50m x 50m
 Season P Uniformit
 Location proposed conveyor 3
 MGA Zone 50 798935 mE 7513113 mN
 Habitat flat/plain, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation Isolated trees of *Acacia aneura* varieties and *Acacia paraneura*\ *Acacia synchronicia*
 open tall shrubland\ *Senna* spp., *Sclerolaena cornishiana* open low shrubland\ *Aristida*
contorta sparse low tussock grassland.
 Veg Condition poor, (significant disturbance)
 Fire no fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Ptilotus polystachyus</i> var. <i>polystachyus</i>

Roy Hill 1 Infrastructure Site 081

Described	CCS	Date	23/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Northern Rail corridor				
MGA Zone	50 797776 mE	7511756 mN			
Habitat	Flat/plain, with negligible slope				
Soil	Red-orange clay loam, with surface crust, loose soil, fine gravel, coarse gravel,				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	Acacia aneura var. aneura, Acacia aneura var. conifera open low woodland\Acacia synchronicia, Senna sericea, other mixed species sparse tall to low shrubland\Aristida contorta, Eragrostis eriopoda open tussock grassland.				
Veg Condition	Good (moderate disturbance, cattle grazing/horse grazing)				
Fire	No fire history evident				
Notes	Moderate leaf litter, mainly under shrubs. moderate wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia aneura</i> var. <i>conifera</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Malvastrum americanum</i> , <i>Pluchea tetranthera</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Neptunia dimorphantha</i> , <i>Ptilotus aervoides</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 082

Described CW Date 23/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed conveyor 3
 MGA Zone 50 798864 mE 7513666 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sandy clay, loose soil, gravel, rock abundance: few
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana* open low forest*Acacia tetragonophylla*, *Eremophila latrobei* subsp. *filiformis* sparse tall to low shrubland*Enneapogon polyphyllus* open tussock grassland.
 Veg Condition poor (significant disturbance, **Malvastrum* weed, cattle /horses
 Fire Old (>5 years since fire)
 Notes widespread and plentiful leaf litter, moderate wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Malvastrum americanum</i> , <i>Ptilotus calostachyus</i> var. <i>calostachyus</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Chloris pectinata</i> , <i>Chrysopogon fallax</i> , <i>Digitaria ctenantha</i> , <i>Enneapogon polyphyllus</i> , <i>Setaria verticillata</i>
Herbs	<i>Bidens bipinnata</i> , <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>

Roy Hill 1 Infrastructure Site 083

Described	CCS	Date	23/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Northern crusher conveyor				
MGA Zone	50 798368 mE	7513939 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange clay loam, with surface crust, loose soil, fine gravel, coarse gravel (continuous cover)				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	Acacia aneura var. aneura low woodland\Acacia tetragonophylla, Acacia synchronicia, Senna sericea and other mixed species open tall to low shrubland\Aristida contorta open low tussock				
Veg Condition	Excellent, minimal disturbance (moderate cattle grazing)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Pluchea tetranthera</i> , <i>Sclerolaena cornishiana</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon caerulescens</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne helmsii</i> , <i>Setaria verticillata</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Portulaca oleracea</i> , <i>Ptilotus aevoides</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 084

Described	CW	Date	23/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	proposed rail, northern spur				
MGA Zone	50 798280 mE	7511127 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange sandy clay, loose soil, coarse gravel, rock abundance: many				
Rock Type	ferrous gravel				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> low woodland and shrubs\ <i>Enneapogon polyphyllus</i> open low tussock grassland.				
Veg Condition	Poor (significant disturbance, tracks, cattle, heavily grazed)				
Fire	No fire history evident				
Notes	sparse leaf litter mainly under shrubs, sparse wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. x <i>luerssenii</i>
Shrubs < 0.5 metres	<i>Dicladantha forrestii</i> , <i>Eremophila lanceolata</i> , <i>Maireana planifolia</i> , <i>Malvastrum americanum</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Chloris pectinata</i> , <i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis tenellula</i>
Herbs	<i>Boerhavia coccinea</i> , <i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Rostellularia adscendens</i> var. <i>latifolia</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Stenopetalum anfractum</i> , <i>Stenopetalum nutans</i>
Climbers	<i>Amyema fitzgeraldii</i>

Roy Hill 1 Infrastructure Site 085

Described CCS Date 23/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Water Supply Dam
 MGA Zone 50 799792 mE 7509160 mN
 Habitat Broad minor channel on plains, gently sloping
 Soil Red-orange clay loam, with surface crust, loose soil, fine gravel,
 Rock Type Nil bedrock, ferrous gravel only
 Vegetation *Acacia aneura* var. *conifera* low open forest\ *Acacia tetragonophylla*, *Acacia rhodophloia* sparse tall shrubland\ **Malvastrum americanum* open low shrubland\ mixed sparse low tussock grassland.
 Veg Condition Good (moderate disturbance, cattle grazing)
 Fire No fire history evident
 Notes Widespread plentiful leaf litter, plentiful wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Anthobolus leptomerioides</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psyrax suaveolens</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs < 0.5 metres	<i>Malvastrum americanum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Chrysopogon fallax</i> , <i>Digitaria ctenantha</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Cleome viscosa</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne helmsii</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 086

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed conveyor 12
 MGA Zone 50 806545 mE 7503994 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange sandy clay, loose solid, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *pilbarana* isolated low trees*Senna artemisioides* subsp. *helmsii*
 sparse low shrubs*Aristida contorta*, *Aristida inaequiglumis* open low tussock
 grassland.
 Veg Condition poor (significant disturbance, cattle grazing)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, negligible wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Dodonaea petiolaris</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Hakea chordophylla</i> , <i>Maireana villosa</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cymbopogon obtectus</i> , <i>Eriachne helmsii</i> , <i>Eulalia aurea</i>
Herbs	<i>Boerhavia repleta</i> , <i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Ptilotus polystachyus</i> var. <i>polystachyus</i> , <i>Salsola tragus</i> , <i>Tribulus astrocarpus</i>

Roy Hill 1 Infrastructure Site 087

Described	CCS	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Crusher conveyor				
MGA Zone	50 807973 mE	7501333 mN			
Habitat	plain, negligible slope				
Soil	red-orange clay loam, with surface crust, loose soil, fine gravel and coarse gravel				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> low woodland\ <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i> sparse mid shrubland\ <i>Cenchrus ciliaris</i> and other mixed species sparse low tussock grassland.				
Veg Condition	Good (moderate disturbance, cattle grazing)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under tree, moderate wood litter.				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psydrax latifolia</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i> , <i>Vachellia farnesiana</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Malvastrum americanum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Enneapogon polyphyllus</i> , <i>Setaria verticillata</i>
Herbs	<i>Alternanthera nodiflora</i> , <i>Bidens bipinnata</i> , <i>Centipeda minima</i> subsp. <i>macrocephala</i> , <i>Lepidium phlebopetalum</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 088

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed conveyer 11
 MGA Zone 50 805812 mE 7503984 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange sandy clay to clay, surface crust, loose soil, rock abundance: few
 Rock Type ferrous gravel
 Vegetation *Senna glaucifolia*, *Eremophila cuneifolia* isolated low shrubs*Aristida contorta* open low tussock grassland.
 Veg Condition poor (significant disturbance, tracks, cattle grazing)
 Fire No fire history evident
 Notes negligible leaf and wood litter

Species List:

Shrubs < 0.5 metres	<i>Boerhavia repleta</i> , <i>Eremophila cuneifolia</i> , <i>Pluchea dentex</i> , <i>Ptilotus schwartzii</i> var. <i>schwartzii</i> , <i>Sclerolaena convexula</i> , <i>Senna glaucifolia</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Eriachne mucronata</i> , <i>Leptochloa digitata</i>
Herbs	<i>Lepidium echinatum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 089

Described CCS Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Crusher conveyor
 MGA Zone 50 807458 mE 7501531 mN
 Habitat Flat/plain, negligible slope
 Soil red orange clay loam, with cracked clay, surface crust, loose soil, fine gravel, coarse gravel,
 Rock Type Nil bedrock on surface, ferrous gravel only
 Vegetation *Acacia aneura* var. *pilbarana*, *Acacia aneura* var. *conifera*, *Acacia paraneura* sparse low woodland*Sclerolaena cornishiana* sparse low shrubland*Aristida contorta* sparse low tussock grassland.
 Veg Condition Poor (significant disturbance, fairly heavy grazing)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs < 0.5 metres	<i>Malvastrum americanum</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Citrullus colocynthis</i> , <i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i> , <i>Zygophyllum iodocarpum</i>

Roy Hill 1 Infrastructure Site 090

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed conveyor 10
 MGA Zone 50 805030 mE 7504173 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sandy clay to clay, surface crust, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera* low woodland*Psyrax latifolia*, *Dodonaea petiolaris*
 sparse tall to mid shrubland*Aristida contorta*, *Eriachne mucronata* open low tussock
 grassland.
 Veg Condition Poor (significant disturbance, cattle, heavily grazed)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter.

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i>
Shrubs < 2 metres	<i>Psyrax latifolia</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Dodonaea petiolaris</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Psyrax suaveolens</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Sclerolaena convexula</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Eriachne mucronata</i> , <i>Eulalia aurea</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Hibiscus burtonii</i> , <i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 091

Described	CCS	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Southern Crusher conveyor				
MGA Zone	50 807042 mE	7501608 mN			
Habitat	Flat/plain with negligible slope,				
Soil	red orange clay to clay loam, with surface crust, loose soil, fine gravel and coarse gravel				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> sparse open low woodland\ <i>Acacia tetragonophylla</i> , <i>Acacia synchronicia</i> isolated mid shrubs\ mixed low shrubs and herbs\ <i>Aristida contorta</i> sparse low tussock grassland.				
Veg Condition	Poor (significant disturbance, heavy cattle grazing)				
Fire	No fire history evident				
Notes	sparse leaf litter mainly under shrubs, sparse wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia synchronicia</i> , <i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs 0.5-1 metres	<i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Hibiscus leptocladus</i> , <i>Malvastrum americanum</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Sclerolaena cornishiana</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna notabilis</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Eragrostis eriopoda</i>
Herbs	<i>Goodenia prostrata</i> , <i>Lepidium phlebopetalum</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Salsola tragus</i> , <i>Tephrosia supina</i>

Roy Hill 1 Infrastructure Site 092

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed rail, southern spur
 MGA Zone 50 804931 mE 7503158 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sand to sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia synchronicia* open tall to mid shrubland*Eremophila cuneifolia* low shrubland (40 50%)*Aristida contorta* open low tussock grassland.
 Veg Condition Poor (significant disturbance, tracks, heavily grazed)
 Fire Old (>5 years since fire)
 Notes negligible leaf litter, sparse wood litter.

Species List:

Trees <5 metres *Acacia aneura* var. *conifera*, *Atalaya hemiglauca*, *Psyrax latifolia*
 Shrubs 1- 2 metres *Acacia tetragonophylla*, *Eremophila latrobei* subsp. *filiformis*, *Rhagodia* sp.
Hamersley (M. Trudgen 17794)
 Shrubs < 0.5 metres *Abutilon macrum*, *Eremophila cuneifolia*, *Eremophila lanceolata*,
Sclerolaena cornishiana, *Sclerolaena cuneata*, *Senna glutinosa* subsp. *x*
luerssenii, *Sida fibulifera*, *Solanum lasiophyllum*
 Tussock and annual grasses *Aristida contorta*, *Enneapogon polyphyllus*, *Eulalia aurea*
 Herbs *Calocephalus* sp. Pilbara-Desert (M.E. Trudgen 11454), *Salsola tragus*
 s14s3 *Acacia synchronicia*

Roy Hill 1 Infrastructure Site 093

Described	CCS	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Far Southern Rail Spur				
MGA Zone	50 805552 mE	7502364 mN			
Habitat	Broad drainage channel, gently sloping				
Soil	orange brown clay to clay loam, with cracked clay, surface crust, loose soil, fine gravel, coarse				
Rock Type	Nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Corymbia aspera</i> open low forest\ <i>Acacia tetragonophylla</i> , <i>Senna sericea</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> sparse tall to mid shrubland\mixed sparse low tussock grassland.				
Veg Condition	Poor (significant disturbance, heavy livestock grazing - cattle and horses)				
Fire	No fire history evident				
Notes	sparse leaf litter mainly under shrubs, moderate wood litter.				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i> , <i>Corymbia aspera</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Psydrax latifolia</i> , <i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Sida ectogama</i>
Shrubs < 0.5 metres	<i>Hibiscus leptocladus</i> , <i>Maireana villosa</i> , <i>Malvastrum americanum</i> , <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423)
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis tenellula</i>
Herbs	<i>Alternanthera nodiflora</i> , <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i>

Roy Hill 1 Infrastructure Site 094

Described	CW	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	proposed Dam 1 location				
MGA Zone	50 807562 mE	7511439 mN			
Habitat	Flat/plain, undulating plain/floodbank, gentle slope				
Soil	red-orange sandy clay, loose soil, coarse gravel, rock abundance: few				
Rock Type	ferrous gravel, stones				
Vegetation	<i>Corymbia hamersleyana</i> isolated low trees\ <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i> sparse med to low shrubs, * <i>Cenchrus ciliaris</i> open tussock grassland\ <i>Triodia longiceps</i> open hummock grassland.				
Veg Condition	Excellent (light cattle grazing)				
Fire	Moderate (1 to 5 years since fire)				
Notes	sparse leaf litter mainly under shrubs, negligible wood litter				

Species List:

Trees <5 metres	<i>Atalaya hemiglauca</i> , <i>Corymbia hamersleyana</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs 1- 2 metres	<i>Acacia bivenosa</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Gossypium robinsonii</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/1990)
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Abutilon cunninghamii</i> , <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Hibiscus sturtii</i> var. <i>aff. grandiflorus</i> , <i>Indigofera monophylla</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna notabilis</i> , <i>Senna sericea</i> , <i>Sida arsiniata</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Themeda triandra</i>
Herbs	<i>Cleome viscosa</i> , <i>Euphorbia australis</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Stemodia viscosa</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Duperreya commixta</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 095

Described	CCS	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Dam 3 (southern)				
MGA Zone	51 191525 mE	7503785 mN			
Habitat	Broad gully base between hills, gently sloping				
Soil	brown fine sandy clay loam, with surface crust, fine gravel, coarse gravel				
Rock Type	nil bedrock on surface, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pruinocarpa</i> , <i>Corymbia aspera</i> open mid to low forest\mixed tall to low sparse shrubland\ <i>Aristida contorta</i> sparse low grassland\ <i>Triodia longiceps</i> sparse mid hummock grassland.				
Veg Condition	Good (moderate disturbance), some cattle grazing				
Fire	none evident/<1 year since fire				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>aneura</i> , <i>Acacia pruinocarpa</i> , <i>Corymbia aspera</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>aneura</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i>
Shrubs 1- 2 metres	<i>Dodonaea petiolaris</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs 0.5-1 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Isotropis forrestii</i> , <i>Tephrosia rosea</i> var. <i>clementii</i> , <i>Waltheria indica</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dicladantha forrestii</i> , <i>Hibiscus sturtii</i> var. <i>platyklamys</i> , <i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Malvastrum americanum</i> , <i>Rutidosis helichrysoides</i> subsp. <i>helichrysoides</i> , <i>Sida</i> sp. dark green fruits (S. van Leeuwen 2260), <i>Sida</i> sp. <i>verrucosa glands</i> (F.H. Mollemans 2423)
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , <i>Themeda triandra</i>
Herbs	<i>Pterocaulon sphaeranthoides</i> , <i>Ptilotus exaltatus</i> var. <i>exaltatus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Duperreya commixta</i>

Roy Hill 1 Infrastructure Site 096

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed southern rail/spur
 MGA Zone 50 802437 mE 7506357 mN
 Habitat flat/plain, clay pan, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera* isolated low trees*Eremophila lanceolata* sparse low shrubland*Salsola tragus* sparse herbs*Aristida contorta* open low tussock grassland.
 Veg Condition Good (moderate disturbance, tracks, small amount of grazing)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, negligible wood litter

Species List:

Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794), <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Acacia synchronicia</i> , <i>Eremophila lanceolata</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. <i>Pilbara-Desert</i> (M.E. Trudgen 11454), <i>Goodenia pinnatifida</i> , <i>Lepidium echinatum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 097

Described	CCS	Date	24/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Southern spur,				
MGA Zone	50 804179 mE	7504804 mN			
Habitat	Broad drainage channel on plains				
Soil	red orange to brown sandy clay loam, with surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	Nil bedrock on surface, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pilbarana</i> , <i>Atalaya hemiglauca</i> low open forest\mixed sparse tall to low shrubland* <i>Cenchrus ciliaris</i> low tussock grassland.				
Veg Condition	Poor (significant disturbance - heavy cattle grazing and weeds)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs. Moderate wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia paraneura</i> , <i>Atalaya hemiglauca</i>
Shrubs < 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> , <i>Acacia synchronicia</i> , <i>Psyrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i> , <i>Vachellia farnesiana</i>
Shrubs 0.5-1 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>
Shrubs < 0.5 metres	<i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Malvastrum americanum</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Themeda triandra</i>
Climbers	<i>Amyema fitzgeraldii</i> , <i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Glycine canescens</i>

Roy Hill 1 Infrastructure Site 098

Described CW Date 24/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed southern rail/spur
 MGA Zone 50 802756 mE 7505898 mN
 Habitat Flat/plain, floodplain of river/creek, negligible slope
 Soil red-orange sand to sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Eucalyptus victrix*, *Atalaya hemiglauca* low woodland*Acacia pyrifolia* var. *pyrifolia*
 open tall shrubland\other mixed low shrubs*Cenchrus ciliaris* moderately dense low
 tussock grassland.
 Veg Condition degraded (heavily grazed, **Cenchrus* grass)
 Fire No fire history evident
 Notes moderate leaf litter mainly under trees, sparse wood litter

Species List:

Trees 5-15 metres	<i>Eucalyptus victrix</i>
Trees <5 metres	<i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Atalaya hemiglauca</i>
Shrubs < 2 metres	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>
Shrubs 0.5-1 metres	<i>Corchorus parviflorus</i> , <i>Indigofera monophylla</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Shrubs < 0.5 metres	<i>Corchorus parviflorus</i> , <i>Malvastrum americanum</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Cenchrus ciliaris</i>
Herbs	<i>Boerhavia repleta</i> , <i>Euphorbia biconvexa</i> , <i>Hybanthus aurantiacus</i> , <i>Salsola tragus</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i> , <i>Rhyncharrhena linearis</i>

Roy Hill 1 Infrastructure Site 099

Described	CCS	Date	25/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	Proposed Tailings Dam site				
MGA Zone	50 796854 mE	7509383 mN			
Habitat	Flat/plain, gently sloping				
Soil	red-orange clay loam, with fine gravel, coarse gravel, stones				
Rock Type	nil bedrock, ferrous gravel and stones				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> low woodland\ <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Solanum lasiophyllum</i> sparse mid to low shrubland\ <i>Aristida contorta</i> , <i>Aristida latifolia</i> open low tussock grassland.				
Veg Condition	Excellent (minimal disturbance, moderate to light cattle grazing/horse grazing)				
Fire	No fire history evident				
Notes	Moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Psydrax latifolia</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i>
Herbs	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Ptilotus aervoides</i>

Roy Hill 1 Infrastructure Site 100

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed tailings dam site
 MGA Zone 50 798251 mE 7509161 mN
 Habitat Flat/plain, clay pan, mulga and clay banding, negligible slope
 Soil red-orange sandy clay, coarse gravel, rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation *Acacia synchronicia* sparse tall to mid shrubland*Senna sericea*, *Sclerolaena cornishiana* sparse low shrubland*Aristida contorta* open low tussock grassland.
 Veg Condition poor (significant disturbance)
 Fire Old (>5 years since fire)
 Notes Sparse leaf litter, mainly under trees, sparse wood litter.

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Rhagodia</i> sp. <i>Hamersley</i> (M. Trudgen 17794)
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Hibiscus leptocladus</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Boerhavia repleta</i> , <i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Euphorbia australis</i> , <i>Euphorbia boophthona</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Salsola tragus</i>
s36	<i>Senna sericea</i>

Roy Hill 1 Infrastructure Site 101

Described CCS Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Tailings Dam site
 MGA Zone 50 797622 mE 7510287 mN
 Habitat flat/plain, negligible slope
 Soil red-orange clay loam, with surface crust, loose soil, fine gravel, coarse gravel
 Rock Type nil bedrock, ferrous gravel only
 Vegetation *Acacia aneura* var. *pilbarana* low woodland*Senna* spp. and *Acacia tetragonophylla* sparse mid to low shrubland*Aristida contorta*, *Aristida latifolia* open low tussock grassland.
 Veg Condition Excellent (minimal disturbance - moderate to light grazing by livestock - cattle/horses)
 Fire No fire history evident
 Notes Moderate leaf litter mainly under shrubs, moderate wood litter.

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne pulchella</i> subsp. <i>pulchella</i>
Herbs	<i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Neptunia dimorphantha</i> , <i>Portulaca oleracea</i> , <i>Ptilotus aervoides</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>
Climbers	<i>Amyema fitzgeraldii</i>

Roy Hill 1 Infrastructure Site 102

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location proposed tailings dam site
 MGA Zone 50 797835 mE 7509632 mN
 Habitat Flat/plain, mulga banding, negligible slope
 Soil red-orange sandy clay, surface crust, loose soil, rock abundance: little gravel
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera* open low forest to tall shrubland\mixed mid to low shrubs*Aristida contorta*, *Enneapogon polyphyllus* open low tussock grassland.
 Veg Condition poor (significant disturbance, heavily grazed)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, moderate wood litter

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>conifera</i>
Shrubs < 2 metres	<i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Eremophila latrobei</i> subsp. <i>filiformis</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Hibiscus leptocladus</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Chloris pectinata</i> , <i>Enneapogon polyphyllus</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Lepidium phlebopetalum</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 103

Described CCS Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed Tailings Dam site
 MGA Zone 50 797747 mE 7510993 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange clay loam, with surface crust, loose soil, fine gravel, coarse gravel
 Rock Type Nil bedrock, ferrous gravel only
 Vegetation *Acacia aneura* var. *pilbarana* low woodland*Senna* spp., *Acacia tetragonophylla* and other mixed sparse mid to low shrubland*Aristida contorta*, *Enneapogon polyphyllus* open low tussock grassland.
 Veg Condition Excellent (minimal disturbance - moderate to light cattle grazing)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, sparse wood litter,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs 1- 2 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Acacia tetragonophylla</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Chrysopogon fallax</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i> , <i>Eragrostis tenellula</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Ptilotus aervoides</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 104

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed tailings dam site
 MGA Zone 50 798239 mE 7509869 mN
 Habitat Flat/plain, mulga banding
 Soil red-orange clay to sandy clay, surface crust, loose soil, coarse gravel, rock abundance: common
 Rock Type ferrous gravel
 Vegetation *Acacia synchronicia* open tall to mid shrubland\ *Sclerolaena cornishiana* sparse low shrubs\mixed herbs**Cenchrus ciliaris* sparse low tussock grassland.
 Veg Condition poor (significant disturbance)
 Fire Old (>5 years since fire)
 Notes sparse leaf litter mainly under shrubs, sparse wood litter.

Species List:

Trees <5 metres	<i>Acacia ?sericophylla</i> , <i>Hakea lorea</i> subsp. <i>lorea</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Acacia aneura</i> var. <i>conifera</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Boerhavia repleta</i> , <i>Goodenia prostrata</i> , <i>Ipomoea muelleri</i> , <i>Malvastrum americanum</i> , <i>Sclerolaena cornishiana</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Citrullus colocynthis</i> , <i>Cleome viscosa</i> , <i>Euphorbia australis</i> , <i>Euphorbia biconvexa</i> , <i>Euphorbia boophthona</i> , <i>Goodenia prostrata</i> , <i>Pterocaulon sphaeranthoides</i> , <i>Salsola tragus</i> , <i>Tephrosia supina</i>

Roy Hill 1 Infrastructure Site 105

Described	CCS	Date	25/10/2008	Type: Q	50m * 50m
	Season	E	Uniformit		
Location	Proposed airstrip site				
MGA Zone	50 796130 mE	7510952 mN			
Habitat	Flat/plain, negligible slope				
Soil	red-orange clay loam, with cracked clay, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia aneura</i> var. <i>pilbarana</i> low woodland\ <i>Acacia synchronicia</i> , <i>Senna sericea</i> and other mixed sparse tall to low shrubland\ <i>Aristida contorta</i> , <i>Aristida latifolia</i> open low tussock grassland.				
Veg Condition	Good (disturbance moderate to heavy cattle/horse grazing)				
Fire	no fire history evident				
Notes	moderate leaf litter mainly under trees, moderate wood litter,				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1- 2 metres	<i>Senna glutinosa</i> subsp. <i>x luerssenii</i> , <i>Senna sericea</i>
Shrubs 0.5-1 metres	<i>Senna artemisioides</i> subsp. <i>helmsii</i>
Shrubs < 0.5 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila lanceolata</i> , <i>Solanum ellipticum</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Chrysopogon fallax</i> , <i>Eragrostis eriopoda</i> , <i>Eriachne helmsii</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Heliotropium heteranthum</i> , <i>Pluchea tetranthera</i> , <i>Salsola tragus</i>

Roy Hill 1 Infrastructure Site 106

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed airstrip site
 MGA Zone 50 795146 mE 7511035 mN
 Habitat Flat/plain, clay pan, negligible slope
 Soil red-orange clay to sandy clay, surface crust, loose soil, rock abundance: little gravel
 Rock Type ferrous gravel
 Vegetation *Acacia synchronicia* open tall to mid height shrubland\ sparse herbs and grasses
 Veg Condition degraded (heavily grazed)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, negligible wood litter.

Species List:

Shrubs < 2 metres	<i>Acacia synchronicia</i>
Shrubs 1-2 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs 0.5-1 metres	<i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs < 0.5 metres	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i> , <i>Malvastrum americanum</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>Solanum lasiophyllum</i> , <i>Vachellia farnesiana</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida inaequiglumis</i> , <i>Cenchrus ciliaris</i> , <i>Chloris pectinata</i> , <i>Enneapogon caerulescens</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis xerophila</i>
Herbs	<i>Eragrostis tenellula</i> , <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i> , <i>Salsola tragus</i> , <i>Sida fibulifera</i> , <i>Streptoglossa bubakii</i> , <i>Tephrosia supina</i>

Roy Hill 1 Infrastructure Site 107

Described CCS Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed airstrip site
 MGA Zone 50 796829 mE 7510568 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange clay loam, with surface crust, loose soil, fine gravel, coarse gravel
 Rock Type nil bedrock, ferrous gravel only
 Vegetation *Acacia aneura* var. *pilbarana* isolated low trees\mixed *Acacia* spp., *Senna* spp., *Eremophila* spp. open tall to low shrubland\ *Aristida contorta* open low tussock grassland.
 Veg Condition Poor (significant disturbance - moderate to heavy cattle grazing)
 Fire No fire history evident
 Notes sparse leaf litter mainly under shrubs, moderate wood litter,

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>pilbarana</i>
Shrubs < 2 metres	<i>Acacia synchronicia</i> , <i>Acacia tetragonophylla</i>
Shrubs 1- 2 metres	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>
Shrubs 0.5-1 metres	<i>Eremophila cuneifolia</i> , <i>Senna sericea</i>
Shrubs < 0.5 metres	<i>Eremophila lanceolata</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Solanum lasiophyllum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Aristida latifolia</i> , <i>Enneapogon polyphyllus</i> , <i>Eragrostis eriopoda</i>
Herbs	<i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Pluchea tetranthera</i> , <i>Ptilotus aevroides</i>
Climbers	<i>Rhynchosia minima</i>

Roy Hill 1 Infrastructure Site 108

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed airstrip site
 MGA Zone 50 797016 mE 7511218 mN
 Habitat Flat/plain, minor channel (slight depression), negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock abundance: many
 Rock Type ferrous gravel
 Vegetation *Acacia aneura* var. *conifera* open low forest to tall shrubland\ *Aristida contorta*,
Eriachne helmsii sparse low tussock grasses.
 Veg Condition degraded (heavy cattle grazing and tracks)
 Fire No fire history evident
 Notes moderate leaf litter mainly under trees, moderate wood litter

Species List:

Trees <5 metres	<i>Acacia aneura</i> var. <i>conifera</i>
Shrubs 1- 2 metres	<i>Acacia tetragonophylla</i> , <i>Eremophila latrobei</i> subsp. <i>filiformis</i>
Shrubs < 0.5 metres	<i>Sida</i> sp. <i>verrucosa</i> glands (F.H. Mollemans 2423), <i>Solanum ellipticum</i>
Tussock and annual grasses	<i>Aristida contorta</i> , <i>Chloris pectinata</i> , <i>Chrysopogon fallax</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne helmsii</i>
Herbs	<i>Abutilon otocarpum</i> , <i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454), <i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Malvastrum americanum</i>

Roy Hill 1 Infrastructure Site 109

Described	CCS	Date	25/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	proposed Crusher conveyor corridor				
MGA Zone	50 801053 mE	7510895 mN			
Habitat	Creek bed/creek bank (gently sloping bank)				
Soil	red-orange loamy clay, with surface crust, loose soil, fine gravel, coarse gravel, stones				
Rock Type	ferrous gravel/stones, breccia - style rock at edges of creek/bank				
Vegetation	<i>Eucalyptus victrix</i> , <i>Corymbia ferritcola</i> low woodland\ <i>Acacia rhodophloia</i> , other <i>Acacia</i> spp. and mixed species tall to low shrubland\ <i>Eriachne helmsii</i> low tussock grassland\ <i>Triodia longiceps</i> isolated mid hummock grasses.				
Veg Condition	Good (moderate disturbance, livestock grazing and weeds)				
Fire	No fire history evident				
Notes	moderate leaf litter mainly under shrubs, moderate wood litter				

Species List:

Trees 5-15 metres	<i>Eucalyptus victrix</i>
Trees <5 metres	<i>Corymbia ferritcola</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i>
Shrubs 1- 2 metres	<i>Acacia pyrifolia</i> var. <i>morrisonii</i> , <i>Acacia tetragonophylla</i>
Shrubs 0.5-1 metres	<i>Waltheria indica</i>
Shrubs < 0.5 metres	<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Dicladantha forrestii</i> , <i>Hybanthus aurantiacus</i> , <i>Indigofera monophylla</i> , <i>Malvastrum americanum</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Hummock grasses	<i>Triodia longiceps</i>
Tussock and annual grasses	<i>Cenchrus ciliaris</i> , <i>Eragrostis cumingii</i> , <i>Eragrostis tenellula</i> , <i>Eriachne helmsii</i> , <i>Setaria verticillata</i> , <i>Themeda triandra</i>
Herbs	<i>Alternanthera nodiflora</i> , <i>Bidens bipinnata</i> , <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Cleome viscosa</i> , <i>Polycarpaea longiflora</i> , <i>Rostellularia adscendens</i> var. <i>latifolia</i>
Climbers	<i>Glycine canescens</i>

Roy Hill 1 Infrastructure Site 110

Described CW Date 25/10/2008 Type: Q 50m * 50m
 Season P Uniformit
 Location Proposed conveyor site 5
 MGA Zone 50 802101 mE 7511019 mN
 Habitat Flat/plain, negligible slope
 Soil red-orange sandy clay, loose soil, coarse gravel, rock abundance: continuous
 Rock Type ferrous gravel
 Vegetation *Acacia paraneura* low woodland\mixed *Senna* spp., *Eremophila* spp., *Acacia* spp.
 sparse tall to low shrubland*Aristida contorta* sparse low tussock grassland.
 Veg Condition good (moderate disturbance, tracks and cattle grazing)
 Fire no fire history evident
 Notes sparse leaf litter, mainly under shrubs, sparse wood litter.

Species List:

Trees <5 metres *Acacia paraneura*
 Shrubs < 2 metres *Acacia tetragonophylla*, *Senna glutinosa* subsp. *x luerssenii*, *Senna stricta*
 Shrubs 1- 2 metres *Eremophila latrobei* subsp. *filiformis*, *Rhagodia* sp. *Hamersley* (M. Trudgen 17794), *Senna artemisioides* subsp. *helmsii*, *Sida ectogama*, *Senna glutinosa* subsp. *x luerssenii*, *Senna stricta*
 Shrubs 0.5-1 metres *Acacia synchronicia*, *Eremophila forrestii* subsp. *forrestii*
 Shrubs < 0.5 metres *Anthobolus leptomerioides*, *Dodonaea petiolaris*, *Eremophila cuneifolia*, *Ptilotus schwartzii* var. *schwartzii*, *Sclerolaena cornishiana*, *Sida* sp. *verrucosa glands* (F.H. Mollemans 2423), *Solanum lasiophyllum*
 Tussock and annual grasses *Aristida contorta*, *Enneapogon polyphyllus*, *Eulalia aurea*

Roy Hill 1 Infrastructure Site 111

Described	CCS	Date	25/10/2008	Type: Q	50m * 50m
	Season	P	Uniformit		
Location	proposed crusher conveyor corridor				
MGA Zone	50 802927 mE	7511158 mN			
Habitat	Broad drainage channel				
Soil	red-orange sandy clay and clay loam, surface crust, loose soil, fine gravel, coarse gravel				
Rock Type	nil bedrock, ferrous gravel only				
Vegetation	<i>Acacia pruinocarpa</i> , <i>Acacia aneura</i> var. <i>pilbarana</i> open low forest\ <i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i> open tall shrubland\ mixed mid to low shrubs, herbs, climbers\ <i>Themeda triandra</i> open mid tussock grassland.				
Veg Condition	Good (moderate disturbance - weeds present)				
Fire	No fire history evident				
Notes	widespread plentiful leaf litter, plentiful wood litter,				

Species List:

Trees 5-15 metres	<i>Acacia aneura</i> var. <i>pilbarana</i> , <i>Acacia pruinocarpa</i>
Shrubs < 2 metres	<i>Acacia rhodophloia</i> , <i>Acacia tetragonophylla</i> , <i>Grevillea berryana</i>
Shrubs 1- 2 metres	<i>Acacia pyrifolia</i> var. <i>morrisonii</i> , <i>Dodonaea petiolaris</i> , <i>Psyrax latifolia</i>
Shrubs 0.5-1 metres	<i>Indigofera monophylla</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>Tephrosia rosea</i> var. <i>glabrior</i>
Shrubs < 0.5 metres	<i>Atalaya hemiglauca</i> , <i>Corchorus lasiocarpus</i> subsp. <i>parvus</i> , <i>Isotropis forrestii</i> , <i>Malvastrum americanum</i> , <i>Ptilotus astrolasius</i> var. <i>astrolasius</i>
Tussock and annual grasses	<i>Cymbopogon ambiguus</i> , <i>Enneapogon polyphyllus</i> , <i>Setaria verticillata</i> , <i>Themeda triandra</i>
Herbs	<i>Bidens bipinnata</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>
Climbers	<i>Cucumis maderaspatanus</i> , <i>Duperreya commixta</i>

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