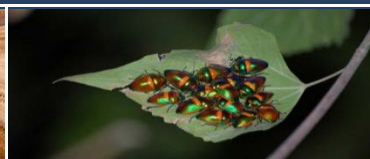




Appendix H2 Flora Report



Sherwin Iron (NT) Pty Ltd
Sherwin Creek Iron Ore Project
Environmental Impact Statement



2013





Flora of the Sherwin Iron Lease

Prepared for: Sherwin Iron (NT) Pty Ltd

Prepared by: EcOz Environmental Services



2013



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Executive Summary

Sherwin Iron (NT) Pty Ltd (Sherwin) intends to commence Direct Shipping Ore (DSO) operations at Deposit C within MLA29584. The approval process for this project requires the submission of a formal assessment at Environmental Impact Statement (EIS) level under the NT *Environmental Assessment Act (EA Act)*. This document describes the flora of the project area and identifies threatened flora species and communities protected by federal, *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, and/or Territory legislation, *Territory Parks and Wildlife Conservation Act (NT) (TPWC Act)*, that occur or are likely to occur in the area of the proposed development.

The vegetation survey was conducted between 2011 and 2013 at 100 sites with 32 of these occurring at Deposit C and surrounds. The survey recorded 230 plant species and 16 vegetation communities at Deposit C and surrounds. Eight of the vegetation communities occur within the project area; these vegetation communities are common and widespread in the region thus it is expected that the proposed vegetation clearance will cause little or no threat to the regional biodiversity and ecological processes. No threatened species protected under the *EPBC Act* or the *TPWC Act* was recorded during the field survey.

The EIS guidelines issued by Northern Territory Environment Protection Authority (NT EPA) highlights that the project area may support one Threatened Ecological Community known as the Arnhem Plateau Sandstone Shrubland Complex. This ecological community is listed as Endangered under the *EPBC Act*. Based on mapping by Blake (2004) (Appendix 3) it is very unlikely for this community to occur within the project area. The nearest area considered likely to support this community is approximately 100 km to the north-west. On ground surveys did not detect this community.

The NT Flora Atlas database search revealed records of two threatened species, *Macrothelypteris torresiana*, listed Endangered under *TPWC Act* and *Solanum carduiforme*, listed Vulnerable under *EPBC Act*.

The occurrence of *Macrothelypteris torresiana* is dependent on permanent spring fed gorges, none of which have been identified in the project area. Such gorges are quite distinct when seen on aerial photography, usually with very green vegetation or deep in shadow. All major gorge systems within Deposit C likely to be disturbed by the proposed development were investigated and found to be dry, thus we can be very certain that this species does not occur in the project area.

If *Solanum carduiforme* does occur on Deposit C, it is uncommon or restricted as it was not observed during baseline and targeted surveys. It is not a cryptic species and is readily observable at all times of the year in those areas that are not recently burnt. If this species does occur, it may be directly impacted by clearing and mining. Notwithstanding the extinction of a possible population on Deposit C, sandstone geology is common in the region, thus only a very small proportion of possible habitat would be disturbed.

Dry monsoon rainforest was recorded within the proposed development. This vegetation type is considered sensitive in the Northern Territory. Aerial photography and ground survey have estimated the extent of the closed forest vegetation at approximately 0.25 hectares.

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Appendix 1 –	Dendrogram of vegetation communities based on species composition
Appendix 2 –	Description of vegetation communities
Appendix 3 –	Distribution of Arnhem Plateau Sandstone Shrubland Complex
Appendix 4 –	Flora species recorded at Deposit C and surrounds

1 Introduction

Sherwin Iron (NT) Pty Ltd (Sherwin) intends to commence Direct Shipping Ore (DSO) operations at Deposit C within MLA29584, located in the Roper River region of the Northern Territory. The proposal includes the construction of open pits and associated infrastructure facilities, accommodation village, stock pile and waste areas as deemed necessary to support the project. This project is named Sherwin Creek Iron Ore Project.

The approval process for this project requires the submission of a formal assessment at Environmental Impact Statement (EIS) level under the NT *Environmental Assessment Act (EA Act)*. This document describes the flora of the project area and identifies threatened flora species and communities protected by federal, *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, and/or Territory legislation, *Territory Parks and Wildlife Conservation Act (NT) (TPWC Act)*, that occur or are likely to occur in the area of the proposed development.

1.1 Project location

Deposit C is located in the Northern Territory 570 km south-east of Darwin and 150 km east of Mataranka by road (Figure 1). Access to the project area is by road from the Roper Highway, then by a 4.5 km long access road.

The focus area of the vegetation survey was Deposit C and surrounds, shown in Figure 1. The vegetation communities were defined for this survey area (See Section 3.2).

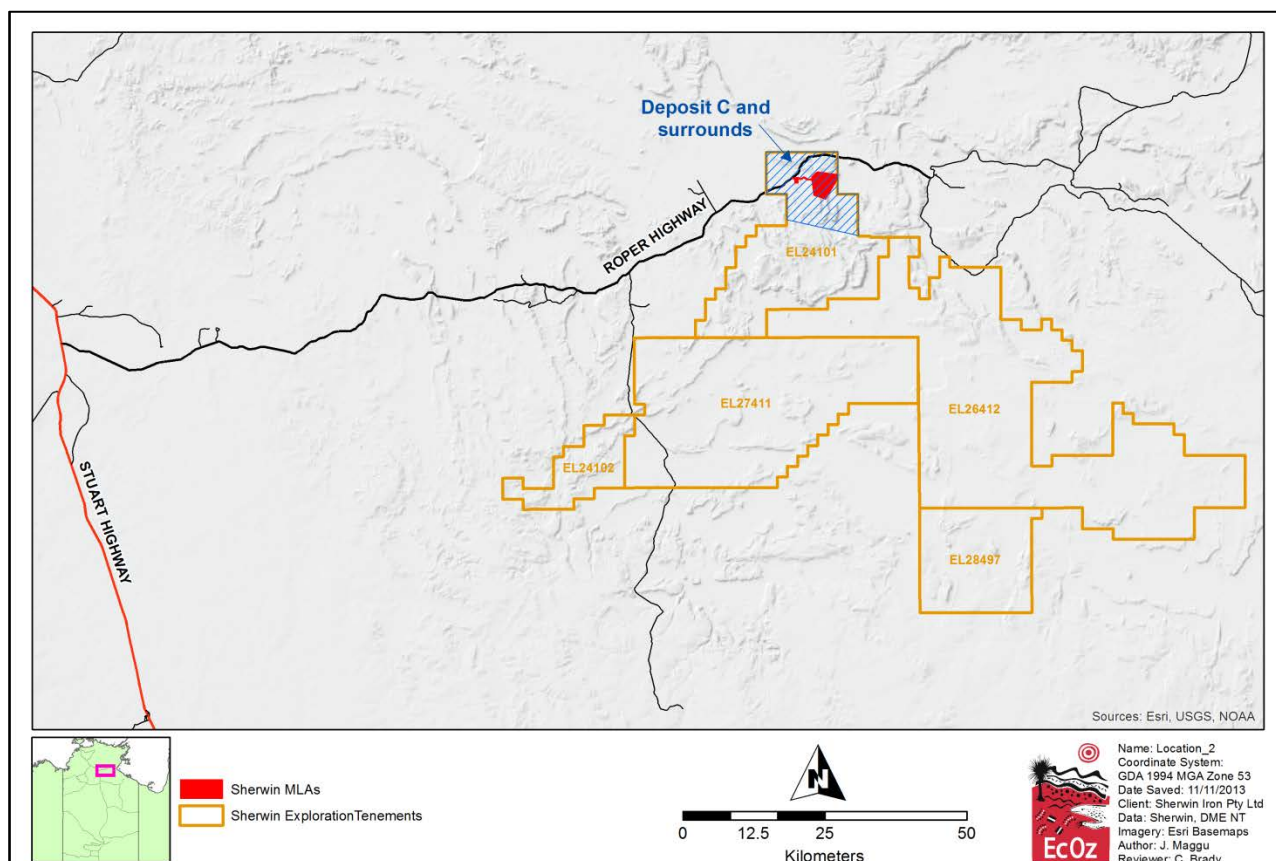


Figure 1. Image showing the location of project area; and Deposit C and surrounds

1.2 Objectives

EcOz Environmental Services was commissioned by Sherwin to undertake a general flora survey, and targeted searches for threatened flora species and communities in the area of proposed development. The objectives for this terrestrial biodiversity assessment were to:

- Describe the terrestrial vegetation communities present within and close to the proposed development area, including plant species present
- Map the local extent and geographic distribution of terrestrial vegetation communities within and around the development area
- Assess the condition of each vegetation community with reference to existing disturbance (such as fire, introduced plants or weeds, feral animals) prior to the development
- Identify threatened flora and vegetation communities protected by legislation (*TPWC Act* or/and *EPBC Act*) that are known or predicted to occur in the project area
- Provide an inventory of exotic plants including Declared Weeds.

This report is intended to provide the detailed baseline information underpinning management decisions. It consolidates all matters of conservation significance identified from desktop research and field investigations. It does not address potential ecological impacts nor recommend specific mitigation measures. Consideration of risks and mitigation measures relating to vegetation are discussed in Chapter 3 – Risk Assessment.

2 Methodology

2.1 Desktop review

A list of regional flora species, which are known or predicted to occur within the Gulf Falls and Upland (GFU) bioregion, was compiled from the following sources:

- Northern Territory Flora Atlas (Department of Land Resource Management, DLRM)
- EPBC protected matters search tool (Coordinates: -14.290935 132.697993,-14.269641 132.763911,-13.886013 134.98315,-15.585937 135.862056,-16.557162 137.905513,-19.771809 137.817622,-19.067246 134.543696, -14.99248 133.401118,-14.290935 132.697993).

These databases were also used to compile a list of threatened flora and introduced plants including declared weeds. To ensure that all potential weeds declared under the NT *Weed Management Act* and *Australian Weed Strategy* are included, the Northern Territory Natural Resource Management (NT NRM) Infonet was reviewed, and all additional records of declared plants were incorporated. These databases were initially reviewed in April 2011 prior to conducting the on ground surveys and were revised in September 2013.

In addition to those above, the following datasets and studies were reviewed to inform the spatial pattern of vegetation and sensitive environment known at the regional scale and also to assist in the site selection for on ground surveys.

- National Vegetation Information System, NVIS (Department of Land Resource Management, DLRM)
- Land System Map at 1:250, 000 scale (Aldrick & Wilson 1992)
- Hodgson Down Iron Ore Project - Vegetation and Flora Assessment : Phase 1 (Ecologia Environment 2011)
- The Environment Impact Statement for the Western Desert Resources Limited's Roper Bar Iron Ore Project (EcOz Environmental Services 2011)
- Broad-scale reviews of climate data, geomorphology, land system and vegetation mapping, existing flora records, and known distributions and preferred habitats of flora species.

2.2 Flora surveys

Field surveys were undertaken by EcOz Environmental Services between 2011 and 2013. Prior to conducting the on-ground survey, a desktop based review of previous studies and existing datasets was conducted.

2.2.1 General Flora Survey

A general flora survey was conducted in the broader area surrounding Deposit C to provide the local context and identify the visual compatibility of vegetation and landforms between the development areas and surrounding lands.

Site selection

Prior to undertaking on ground surveys, high resolution aerial photography (1:25 000) was used to identify boundaries of obvious vegetation communities. Vegetation survey sites were placed within representative patches of each easily discernible vegetation community. Where vegetation was highly variable (such as in gullies and gorges) a range of survey sites were established.

Survey timing and effort

Field survey was conducted on Deposit C during May 2012 (early dry season) over five days. The timing maximised access to survey sites while still providing the opportunity to detect ephemeral plant species.

A total of 32 vegetation survey sites were sampled within and in the vicinity of Deposit C (Figure 2). Of these 16 were reference sites and 16 were check sites. Data collected at reference sites were used to provide detailed vegetation and habitat descriptions. Check sites were designed to confirm and ground truth the identity of mapped vegetation communities. At check sites data was collected on the dominant species within each vegetation layer.

In addition to vegetation data collection at 32 sites on Deposit C and surrounds, vegetation was also recorded from a vehicle or on foot along the traversed track to substantiate the boundaries of vegetation communities. This vegetation data was collected at the same level as recorded at check sites.

Vegetation surveys were also conducted at 26 sites to the south (Blackwater Creek and Hodgson Creek) and 42 sites to the south-west (Deposits X and W) of Deposit C between 2011 and 2012 to provide regional context and allow a more informed interpretation of aerial images at local level (Figure 2).

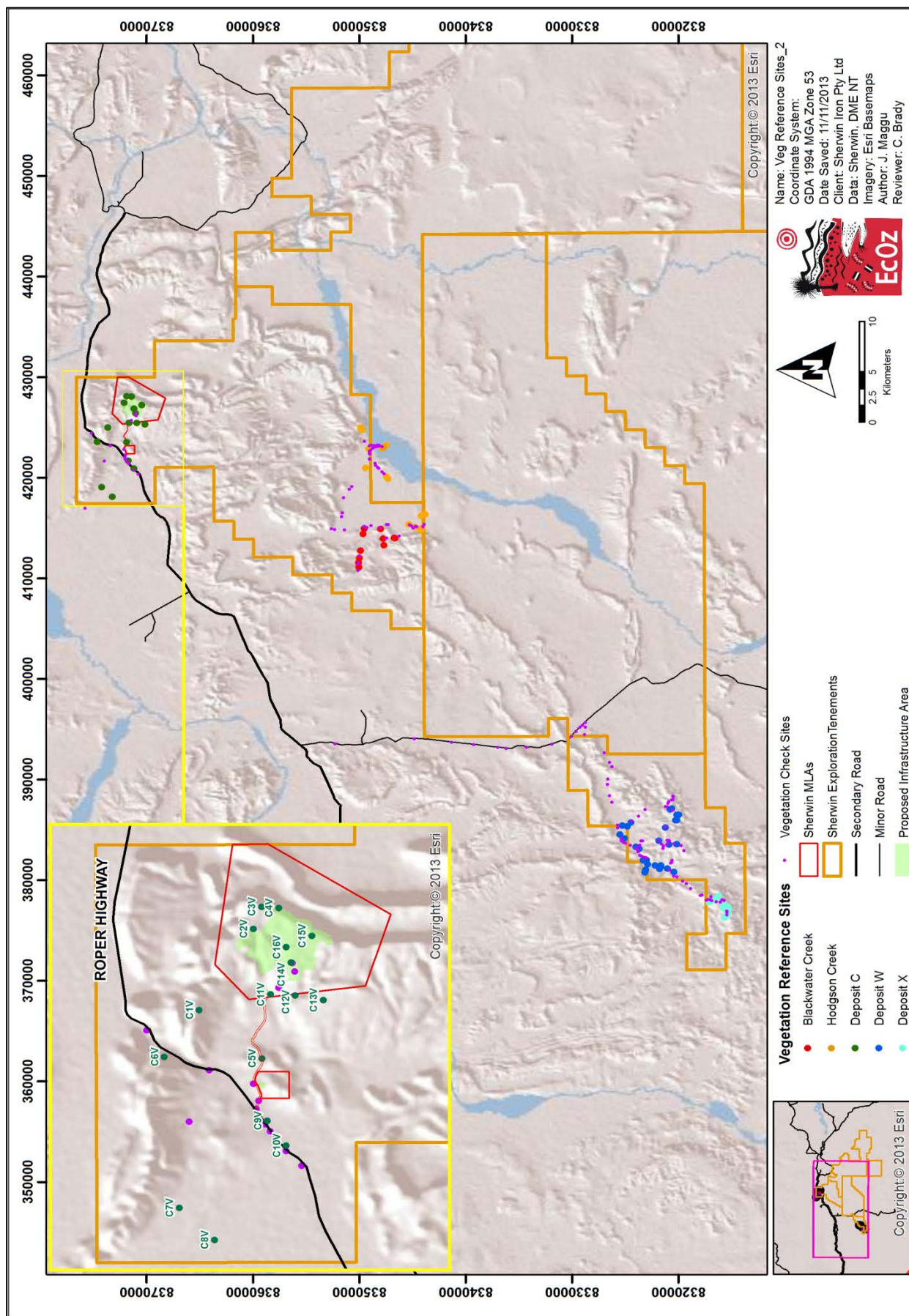


Figure 2. Image showing the location of flora survey sites

Survey design and data collection

The methods for flora survey followed the *Northern Territory Guidelines and Field Methodology for Vegetation Survey and Mapping* (Brocklehurst et al. 2007) with some minor modifications.

Data was collected within 400 m² quadrats established at each site (generally 20 x 20 m, however in some cases such as riparian or narrow rock ridges 10 x 40 m was used). A range of site attributes were recorded including:

- **Site location** - GPS coordinates and general description
- **Habitat information** - Landform pattern and element, vegetation patch size, aspect, slope, surface soil type (broad category only), estimated soil depth, estimated drainage capacity and percentage ground cover for standing biomass, litter, bare earth and pebble/rock/outcrop, presence of fallen logs, mistletoe, flowering plants and termite mounds (and their type)
- **Status of disturbance** - The time since the last fire and scorch height, the presence and extent (estimated cover) of weed species, the presence and stability of erosion, and feral animal impact
- **Broad structural information** - The estimated crown separation ratio, the estimated percentage canopy cover or ground cover for the main three vegetation strata and their height range and average height
- **Floristic and structural formation** - A full list of species present along with canopy heights and percentage cover for each species in the strata
- **Basal sweep** - Estimates of basal area for over-storey species using a basal wedge (for both live and dead trees) to give an estimate of species dominance.

This method follows Brocklehurst et al. (2007), except tree heights were estimated rather than measured with a clinometer and the observations and categories for soil characteristics and depth were simplified. Landform observations follow Speight (2009).

Where plant species could not be identified in the field, voucher specimens were collected for identification using the resources at the NT Herbarium.

Data analysis

Multivariate analysis was used to objectively group vegetation sites into vegetation communities. Data collected from reference sites were analysed using the multivariate statistics package, PATN (Belbin 1989). Species that occurred less than 5 times across all sites were removed from the analysis. Percentage cover data for each species were transformed into 5 categories.

The Bray Curtis Association Measure was used to calculate the similarity between all pairs of sites based on species composition and abundance. Hierarchical Agglomerative Fusion was then used to define the number of vegetation groups. These vegetation groups were displayed in the form of a dendrogram. Vegetation groups or vegetation communities were defined using the dendrogram as a guide, along with the vegetation data and the row group statistics generated in PATN. These vegetation communities were mapped at a scale of 1:25 000 using ArcMap (version 10.2) Geographic Information System software in GDA94 Zone 53. The coordinates for the mapping area are:

-14.683719 134.233753, -14.750356 134.233917, -14.750363 134.266285, -14.791031 134.267292, -14.816204 134.383875, -14.750355 134.383601, -14.750667 134.350463 and -14.683672 134.350630.

Compiling vegetation descriptions

A descriptive summary was developed for each identified vegetation community.

Attributes for each vegetation type were compiled by averaging data from three reference sites for each discerned type. Height and cover data have been used to generate average abundance, height and frequency summaries for the description of each vegetation type. Frequencies for all species in each vegetation type were calculated via a unique count of each species per site (e.g. if a species is present in multiple strata it is counted being present within the site only once).

Vegetation descriptions are composed of up to five species which are above 20% frequency in each of the three strata. Species are listed in descending order of frequency with species that achieved a 100% frequency listed first. However, using frequency data alone does not readily permit conveying that the vegetation cover within a type may be dominated by a particular suite of species. To overcome this limitation, where possible, species with high cover values are listed first if they occurred with several other species that are also of the same frequency. For example if three species are consistently present within a vegetation types they will rank the same frequency. If one of these three species generally dominates the cover and structure, this species is placed first in the description to convey this dominance. Species which were not dominant are listed by strata under other species.

Only the vegetation communities occurring at Deposit C and its close environment are described in this report.

Nomenclature

The species nomenclature for plants follows the Checklist of Vascular Plants of the Northern Territory (Short et al. 2011).

Data limitations

Detecting rare or ephemeral species is a particular challenge for vegetation assessments, especially in extensive areas.

2.2.2 Targeted survey

Following on from the general flora surveys, a targeted vegetation survey was conducted on Deposit C to detect the local distribution and abundance of threatened flora species and vegetation communities. The survey was conducted in September 2013 over three days.

Threatened Flora

Solanum carduiforme, listed Vulnerable under *EPBC Act*, was the focus of the targeted survey. Of the two threatened species recorded in the bioregion, only this species was identified as potentially occurring within the proposed disturbance area (See Section 4.2).

The survey primarily targeted areas proposed to be cleared. Habitat found suitable for *Solanum carduiforme* was determined by collating information from NT Herbarium database records (Holtz database), available publications and studies (including the baseline flora surveys discussed in this report). Survey sites were selected in all known suitable habitat types (such as sandstone hills - top, middle and foot and sandstone gorges), prior to conducting on ground surveys. Site selection was influenced by proximity to access tracks and local fire history (sourced from the North Australian Fire Information (NAFI) website). A total of 16 sites were selected, of which four were outside the proposed disturbance area.

Ground surveys were performed by two environmental scientists from EcOz Environmental Services with past experience in surveying the target species. A total of 31 transects were traversed, including seven outside the disturbance area. The distance traversed at each site was dependent on the variation in landform and vegetation (resulting in variable transect lengths). Along each transect an active search was

conducted across 20m (10m on either side of sampling transect). The route for all transects was recorded by GPS to record the location and level of survey effort; this is shown in Figure 3.

Due to high morphological similarity of a number of species (e.g. *Solanum* sp. *Litchfield*, *Solanum chippendalei*, *Solanum cunninghamii*, *Solanum dioicum*) to *S. carduiforme*, specimens of all *Solanum* spp. located were collected for later confirmation at the Darwin herbarium. The point location of each occurrence was recorded with a handheld GPS (accuracy ± 10 m). Photos of plants and habitat were also taken for the future reference.

Sensitive vegetation community

General flora surveys found a dry monsoon rainforest community at survey site CV2, located inside a sheltered sandstone gully (See Section 3.2 and 4.1.2). The detection of this sensitive vegetation community within the project area was followed by a targeted search to determine the boundary extent of the community.

The search was undertaken within the vicinity of site CV2. High resolution aerial imagery was uploaded onto a handheld GPS unit to inform suitable search areas. A 1.2 km long winding transect was traversed. Along this transect, visual observations were made 10 m on either side and photos of vegetation were taken, where a significant variation in canopy cover and vegetation structure was observed. A GPS (accuracy ± 10 m) location was also noted for each photo point. Figure 5 shows the survey effort and photos of the target vegetation community.

Following on from the active ground search of this vegetation community, the extent of closed monsoon rainforest was mapped using ArcMap (version 10.2) Geographic Information System software in GDA94 Zone 53 (See Figure 5) and the area was calculated.

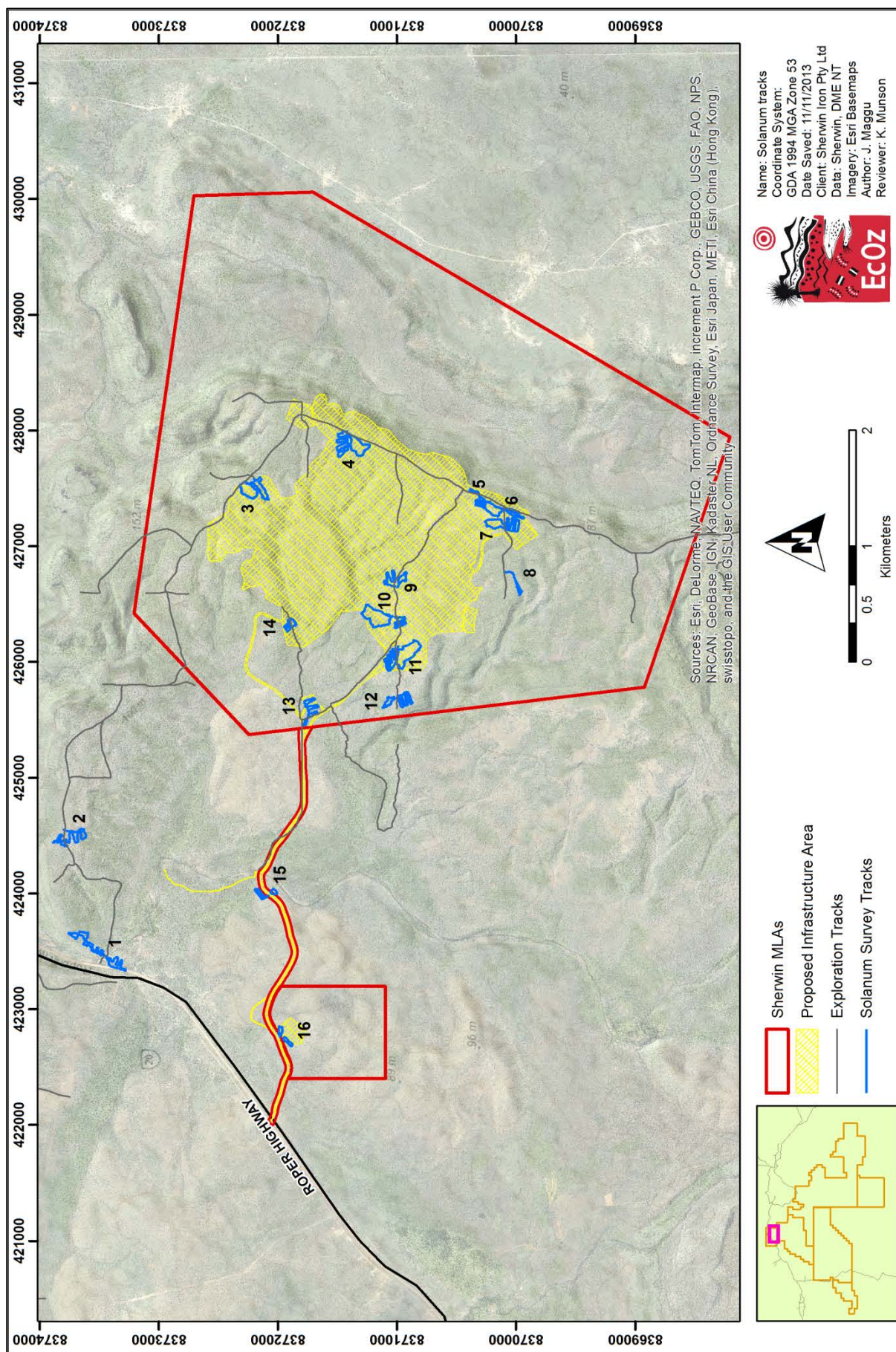


Figure 3. Map of *Solanum cardiiforme* survey tracks

3 Results

3.1 Desktop

The Gulf Fall and Uplands Bioregion has 1790 plant species from 145 families recorded from previous surveys (within the NT Atlas database). Of these, two are considered threatened species: *Macrothelypteris torresiana*, listed as Endangered (TPWC Act) and *Solanum carduiforme*, listed as Vulnerable (EPBC Act).

The EIS guidelines issued by the Northern Territory Environment Protection Authority (NT EPA) highlighted one Threatened Ecological Community as potentially occurring in the project area. This community is known as the Arnhem Plateau Sandstone Shrubland Complex, which is listed Endangered under the EPBC Act.

Desktop research and baseline flora surveys produced a list of 109 introduced plants (Table 1). Of these, the following are declared under the *Weed Management Act* (WM Act):

- 12 are declared as Class A – to be eradicated
- 22 are declared Class B – growth and spread to be controlled
- A further one species is declared Class C – not to be introduced to the Northern Territory (note all Class A and B weeds are also Class C).
- Eight of the above species are Weeds of National Significance (WoNS).

The discussion on the management of these declared species is covered in Appendix I – Pest and Weed Management Plan.

Table 1. Introduced plant species of the Gulf Fall and Upland Bioregion

Species Name	National Status	Recorded during surveys
Declared Weed Class A - to be eradicated		
<i>Barleria prionitis</i>	ALERT	
<i>Cryptostegia madagascariensis</i> var. <i>indeterminate</i>		
<i>Dalbergia sissoo</i>		
<i>Datura ferox</i>		
<i>Echium plantagineum</i>		
<i>Jatropha gossypifolia</i>	WONS	
<i>Martynia annua</i>		
<i>Mimosa pigra</i>	WONS	
<i>Parthenium hysterophorus</i>	WONS	
<i>Prosopis pallida</i>	WONS	
<i>Vachellia nilotica</i>	WONS	
<i>Ziziphus mauritiana</i>		
Declared Weed Class B - growth and spread to be controlled		
<i>Acanthospermum hispidum</i>		
<i>Alternanthera pungens</i>		
<i>Cenchrus echinatus</i>		
<i>Cenchrus polystachios</i>		
<i>Hyptis suaveolens</i>		X
<i>Lantana camara</i>	WONS	
<i>Parkinsonia aculeata</i>	WONS	

Species Name	National Status	Recorded during surveys
<i>Pennisetum polystachion subsp. indeterminate</i>		
<i>Senna alata</i>		
<i>Senna obtusifolia</i>		
<i>Senna occidentalis</i>		
<i>Sida acuta</i>		
<i>Sida cordifolia</i>		
<i>Sida rhombifolia</i>		
<i>Stachytarpheta cayennensis</i>		
<i>Stachytarpheta jamaicensis</i>		
<i>Stachytarpheta mutabilis</i>		
<i>Tamarix aphylla</i>	WONS	
<i>Themeda quadrivalvis</i>		
<i>Tribulus cistoides</i>		
<i>Tribulus terrestris</i>		
<i>Xanthium strumarium</i>		
Declared Weeds Class C - not to be introduced into the Northern Territory		
<i>Datura leichhardtii</i>		
Other introduced plants		
<i>Aerva javanica</i>		
<i>Aeschynomene americana</i>		
<i>Aeschynomene villosa</i>		
<i>Alternanthera dentata cv. indeterminate</i>		
<i>Alysicarpus ovalifolius</i>		
<i>Alysicarpus vaginalis</i>		
<i>Amaranthus viridis</i>		
<i>Aristolochia elegans</i>		
<i>Azadirachta indica</i>		
<i>Bidens pilosa</i>		
<i>Calotropis procera **</i>		
<i>Cenchrus pennisetiformis</i>		
<i>Centratherum punctatum</i>		
<i>Chloris barbata</i>		
<i>Citrullus colocynthis</i>		
<i>Citrullus lanatus</i>		
<i>Clitoria ternatea</i>		
<i>Corchorus olitorius</i>		
<i>Crotalaria goreensis</i>		
<i>Crotalaria juncea</i>		
<i>Cynodon dactylon var. dactylon</i>		
<i>Cynodon radiatus</i>		
<i>Cyperus brevifolius</i>		
<i>Cyperus compressus</i>		
<i>Cyperus involucratus</i>		
<i>Cyperus rotundus</i>		
<i>Dactyloctenium aegyptium</i>		
<i>Digitaria bicornis</i>		X
<i>Digitaria ciliaris</i>		
<i>Echinochloa colona</i>		

Species Name	National Status	Recorded during surveys
<i>Eleusine indica</i>		
<i>Eragrostis amabilis</i>		
<i>Eragrostis pilosa</i>		
<i>Euphorbia cyathophora</i>		
<i>Euphorbia heterophylla</i>		
<i>Euphorbia hirta</i>		
<i>Euphorbia prostrata</i>		
<i>Gomphrena celosioides</i>		
<i>Gossypium hirsutum</i> var. <i>indeterminate</i>		
<i>Heliotropium indicum</i>		
<i>Indigofera glandulosa</i>		
<i>Indigofera hirsuta</i>		
<i>Ipomoea carnea</i> subsp. <i>fistulosa</i>		
<i>Ipomoea triloba</i>		
<i>Macroptilium atropurpureum</i>		
<i>Malvastrum americanum</i>		
<i>Malvastrum coromandelianum</i>		
<i>Melia azedarach</i> var. <i>australasica</i>		
<i>Merremia dissecta</i>		
<i>Mitracarpus hirtus</i>		
<i>Momordica balsamina</i>		
<i>Oldenlandia corymbosa</i> var. <i>corymbosa</i>		
<i>Passiflora foetida</i>		X
<i>Pennisetum pedicellatum</i> subsp. <i>indeterminate</i>		
<i>Phyllanthus amarus</i>		
<i>Phyllanthus debilis</i>		
<i>Physalis angulata</i>		
<i>Portulaca pilosa</i> subsp. <i>indeterminate</i>		
<i>Salsola tragus</i> subsp. <i>grandiflora</i>		
<i>Scoparia dulcis</i>		
<i>Sesamum indicum</i>		
<i>Sorghum alnum</i>		
<i>Spermacoce articularis</i>		
<i>Sporobolus fertilis</i>		
<i>Stylosanthes hamata</i>		
<i>Stylosanthes humilis</i>		
<i>Stylosanthes scabra</i>		X
<i>Stylosanthes viscosa</i>		
<i>Tamarindus indica</i>		
<i>Trianthema portulacastrum</i>		
<i>Tridax procumbens</i>		
<i>Triumfetta pentandra</i>		
<i>Triumfetta rhomboidea</i>		
<i>Urochloa mosambicensis</i>		

Note

Common name of the declared weeds is provided in Appendix I – Pest and Weed Management Plan

** - *Calotropis procera* is a declared Class B weed south of 16°30'S

3.2 Flora survey

The flora survey recorded 489 plant species with 230 of these species recorded at Deposit C and surrounds (Appendix 4). No threatened species protected under the *EPBC Act* or the *TPWC Act* was recorded during the field surveys.

The survey indicated that weed occurrence in the project area is relatively low and is mostly concentrated around cattle yards and creeks close to the Roper Highway. Only six introduced plant species were recorded, of which four species occur at Deposit C and surrounds (Table 1). One of the four species, *Hyptis suaveolens*, is declared a Class B weed under the *WMA*, requiring that spread and growth be controlled. This species is often associated with pastoral activities and was not commonly seen in undisturbed areas.

Twenty vegetation communities were defined using the dendrogram (Appendix 1) as a guide, as well as referring to vegetation data and the row group statistics generated in PATN. Although most of the groupings were recognisable vegetation entities, some groups were manually subdivided (e.g. group 1 was divided into 3 other groups based on canopy species composition) and some vegetation sites were “moved” into other groups based on species composition. This resulted in identification of 16 vegetation communities at Deposit C and surrounds with eight of these occurring in the project area (Figure 4). The vegetation communities are summarised in Table 2 and a full description of each vegetation community is given in Appendix 2.

Most of the project area (88%) features a prominent sandstone escarpment dominated by vegetation community 17.1, which is defined as mid woodland of *Eucalyptus phoenicea* +/- *Corymbia dichromophloia*, *Eucalyptus tetradonta*, *Corymbia ferruginea* subsp. *Ferruginea*. Other areas support diverse vegetation represented by vegetation community 11.2 (6%), vegetation community 14.1 (2%), vegetation community 16.1 (2%) and vegetation community 2.1 (1%). Vegetation communities 4.1, 5.1 and 11.1 were all attributed to less than 1% of the project area. All of the identified vegetation communities are common and widespread in the region and therefore it is expected that the proposed vegetation clearance will cause little or no threat to the regional biodiversity and ecological processes.

Vegetation at survey site CV2 (located within low woodland vegetation community 11.2) recorded a canopy cover greater than 70% and is therefore described as dry monsoon rainforest. This community is recognised as a sensitive environment in the Northern Territory (DLRM 2010). Aerial photography and ground surveys have determined the extent of the dry monsoon forest within the project area at approximately 0.25 hectares (Figure 5).

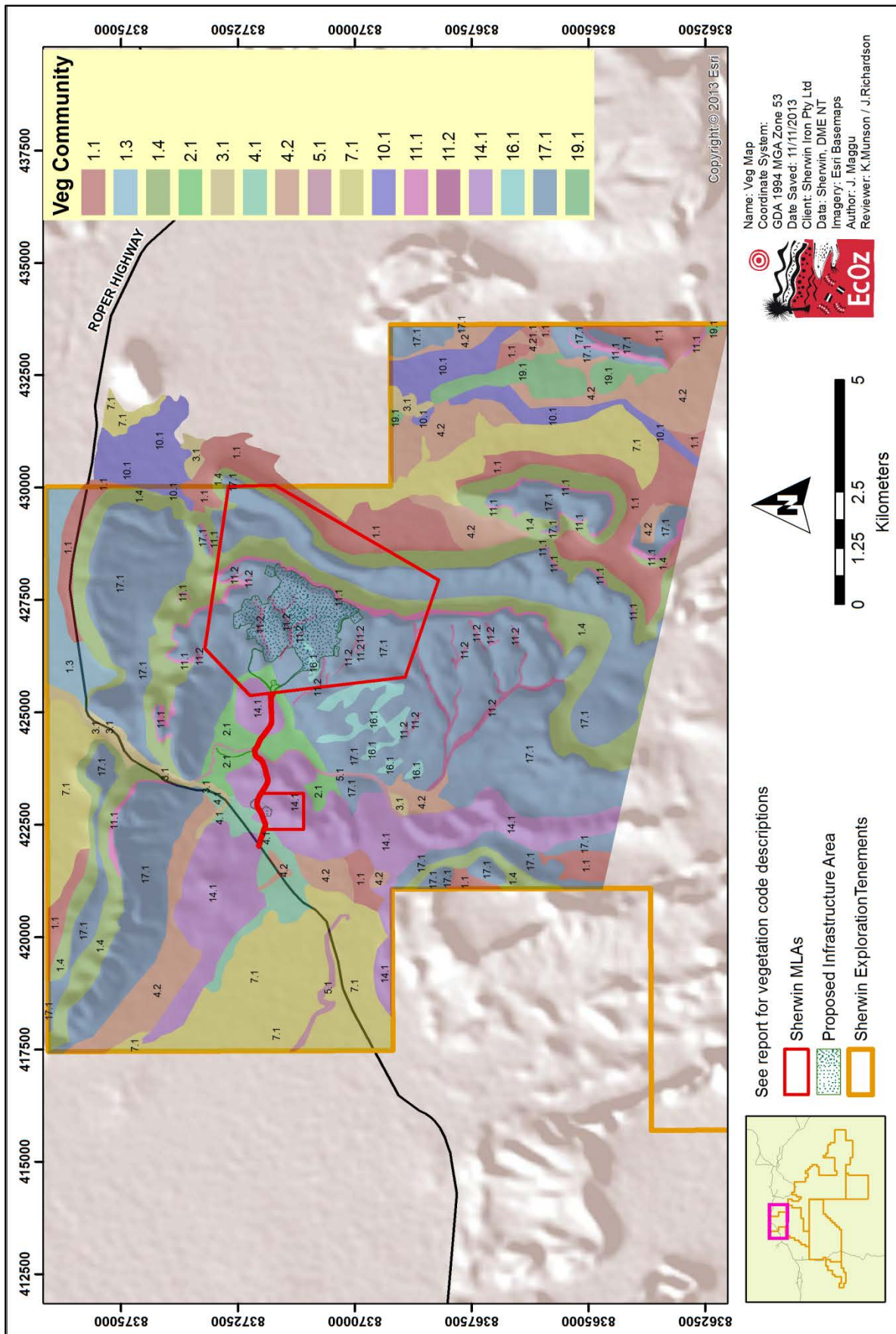


Figure 4. Map of vegetation communities at Deposit C and surrounds

Table 2. Description of the vegetation communities of Deposit C and surrounds

Veg Code	Land Form; Soil	Short Description	Area (Ha)	% of mapped area	Proposed clearing area (ha)
1.1	Plains; Heavy clay	<i>Eucalyptus pruinosa</i> +/- <i>Corymbia flavescens</i> , <i>Corymbia polycarpa</i> , <i>Erythrophleum chlorostachys</i> and <i>Melaleuca citrolens</i> Low Open Woodland.	1482	8.6	-
1.3	Plains; Light clay	<i>Eucalyptus tectifica</i> +/- <i>Erythrophleum chlorostachys</i> and <i>Terminalia platyptera</i> Mid Open Woodland.	260	1.5	-
1.4	Escarpment, hills-lobes; Clay	<i>Eucalyptus tectifica</i> , <i>Acacia pachyphloia</i> , <i>Corymbia terminalis</i> and <i>Erythrophleum chlorostachys</i> Low Woodland.	2116	12.3	-
2.1	Escarpment, foot-slopes; Sandy to loam	<i>Corymbia latifolia</i> , <i>Corymbia flavescens</i> , <i>Erythrophleum chlorostachys</i> and <i>Melaleuca viridiflora</i> Low Woodland.	267	1.5	3.6
3.1	Alluvial plain, drainage depression; Loam	<i>Corymbia polycarpa</i> , <i>Erythrophleum chlorostachys</i> +/- <i>Corymbia bella</i> , <i>Corymbia confertiflora</i> and <i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> Mid Woodland.	196	1.1	-
4.1	Rises, crests and slopes; Silty	<i>Corymbia polycarpa</i> , <i>Erythrophleum chlorostachys</i> +/- <i>Corymbia bella</i> , <i>Corymbia confertiflora</i> and <i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> Mid Woodland.	239	1.4	0.6
4.2	Escarpment or Low Hills, foot-slopes or drainage depressions; Silty or light clay	<i>Melaleuca viridiflora</i> +/- <i>Melaleuca citrolens</i> , <i>Corymbia dichromophloia</i> , <i>Corymbia latifolia</i> and <i>Terminalia canescens</i> Low Open Woodland.	1340	7.8	-
5.1	Stream-bank; Sand or loam	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> +/- <i>Passiflora foetida</i> , <i>Acacia difficilis</i> , <i>Melaleuca argentea</i> and <i>Terminalia platyphylla</i> Mid Woodland.	89	0.5	0.2
7.1	Plains; Cracking clay	+/- <i>Excoecaria parvifolia</i> , <i>Atalaya hemiglaucula</i> , <i>Bauhinia cunninghamii</i> , <i>Corymbia terminalis</i> and <i>Eucalyptus microtheca</i> Low Open Woodland.	2112	12.3	-
10.1	Plains; Heavy clay	<i>Eucalyptus microtheca</i> +/- <i>Corymbia confertiflora</i> Low Open Woodland	666	3.9	-
11.1 and 11.2	Escarpment (11.1), gorges and hill-slopes (11.2); Sand	<i>Corymbia aspera</i> +/- <i>Acacia lamprocarpa</i> , <i>Buchanania obovata</i> , <i>Eucalyptus miniata</i> and <i>Eucalyptus tetrodonta</i> Low Woodland.	409	2.4	23.6
14.1	Low Hills, crests, hill-slopes and foot-slopes; Silt to light clay	<i>Eucalyptus leucophloia</i> +/- <i>Corymbia aspera</i> Low Open Woodland	1561	9.1	7.8
16.1	Escarpment, hill-slopes; Sand	<i>Corymbia dichromophloia</i> +/- <i>Corymbia aspera</i> Low Open Woodland.	151	0.9	7.8
17.1	Escarpment, hill-slopes; Sand	<i>Eucalyptus phoenicea</i> +/- <i>Corymbia dichromophloia</i> , <i>Eucalyptus tetrodonta</i> , <i>Corymbia ferruginea</i> subsp. <i>ferruginea</i> Mid Woodland.	6047	35.2	305.5
19.1	Escarpment, plains or foot-slopes; Sand	<i>Eucalyptus miniata</i> and <i>Corymbia ferruginea</i> subsp. <i>ferruginea</i> Low Open Woodland.	264	1.5	-

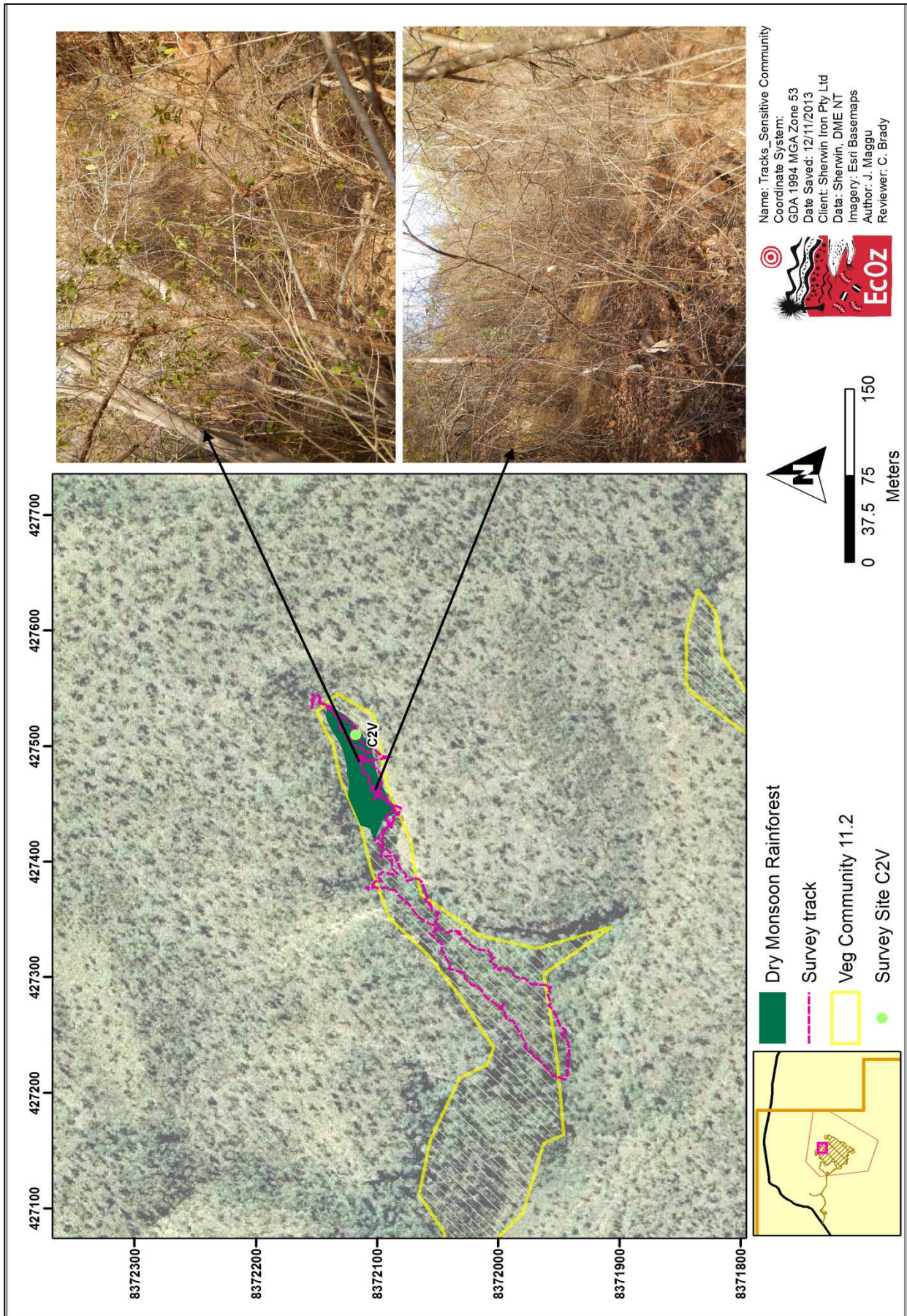


Figure 5. Map of Dry Monsoon Rainforest community

4 Discussion

4.1 Threatened and sensitive vegetation communities

4.1.1 *Arnhem Plateau Sandstone Shrubland Complex*

The EIS guidelines highlighted that one Threatened Ecological Community may occur within the project area. This community is known as Arnhem Plateau Sandstone Shrubland Complex, which is listed Endangered under the *EPBC Act*. The Arnhem Plateau Sandstone Shrubland Complex is comprised mostly of native shrubs, grasses and animals that live within rock country. The community is an important habitat to a number of plants and animals of the Top End of the NT (DSEWPaC 2012).

Based on mapping by Blake (2004) (Appendix 3) it is very unlikely for this community to occur within the project area. The nearest area considered likely to support this community is approximately 100 km to the north-west. On ground surveys did not detect this community.

4.1.2 *Dry Monsoon Rainforest*

The vegetation community observed at survey site CV2 (located within low woodland vegetation community 11.2) recorded a canopy cover that was greater than 70% and therefore is described as dry monsoon rainforest (Figure 5). The relatively dense canopy is likely to be the result of low fire frequency occurring within the gully.

Dry monsoon rainforest is considered a sensitive vegetation community in the Northern Territory (DLRM 2010). The Territory has the largest area of monsoon forest in Australia (2 700 km²), yet it only covers 0.2 per cent of the Territory. Although this is a small area, 13 per cent (604 species) of the known Territory flora occur in these rainforests, making them highly diverse and significant vegetation communities. The total rainforest estate in the Territory is divided into 15 000 patches. Patch size ranges between 1 ha and 4 000 ha in area and have a median size of 3.6 hectares. Rainforests are naturally fragmented, but have persisted due to a small number of mobile fruit-eating birds (Pied Imperial Pigeon, Rose-crowned Fruit-dove, Figbird, Yellow Oriole, Common Koel and Great Bowerbird) and the Black Flying Fox. These frugivores are responsible for the movement of seed between isolated patches. The relationship is mutually beneficial because the frugivores are heavily dependent on the rainforest as the main source of fruit for their diet (DLRM 2010). The extent of this vegetation type within the project area is relatively minor and therefore the proposed project is unlikely to impact on the local population of fruit-eating bird species or the sustainability of other dry monsoon rainforest patches in the surrounding area.

4.2 Threatened flora species

Two threatened flora species were identified as potentially occurring within the project area: *Solanum carduiforme* listed Vulnerable under the *EPBC Act* and *Macrothelypteris torresiana*, listed Endangered under the *TPWC Act*.

4.2.1 *Solanum carduiforme*

Solanum carduiforme is a clonal perennial subshrub growing to 50 cm that has been recorded previously on sandstone outcrops or deeper sandy soil adjacent to outcrops, sandy woodland and sandstone gully (NT Herbarium database records - Holtz database). In Queensland, it is known to occur on conglomerate rock formations. This species has a disjunct distribution across Queensland, Western Australia and the Northern Territory. It's occurrence on sandstone rock geology means that there is a possibility of this species

occurring within the Deposit C area, which consists of a prominent sandstone escarpment and sandstone gully. The closest records of this species to Deposit C are approximately 50 km to the southeast (Table 3).

S. carduiforme is not a cryptic species and is readily observable at all times of the year in those areas that are not recently burnt. If this species does occur on Deposit C, it is uncommon or restricted as no evidence of this plant was found during baseline and targeted flora surveys.

If this species does occur on Deposit C, it may be directly impacted by clearing and mining. Notwithstanding the extinction of a possible population on Deposit C, sandstone geology is common in the region, thus only a very small proportion of possible habitat would be disturbed.

4.2.2 *Macrothelypteris torresiana*

Macrothelypteris torresiana is a robust perennial sword fern species with fronds up to 1.2 m long. It has a widespread but disjunct distribution within Australia, and is also found outside of Australia. Within Australia the centre of the distribution is the east coast, with 2 major clusters of records from South Eastern Queensland Bioregion and the Wet Tropics Bioregion. In the Northern Territory this fern is confined to a few spring fed gorges where it grows on rock walls and at the base of seepages areas (Table 3).

The occurrence of this species is dependent on permanent spring fed gorges, none of which were found during flora surveys of the study area. Such gorges are quite distinct when seen on aerial photography, usually with very green vegetation or deep in shadow. All major gorge systems within the Deposit C likely to be disturbed by the proposed development were investigated and found to be dry, thus it is unlikely that this species occurs within the project area.

Table 3. Threatened flora species possibly occurring at Deposit C

Threatened Species	Habitat & Distribution	Threatening Processes	Existing Records	Likelihood of presence	
				Bio-region	Deposit C
<i>Solanum carduiforme</i> * SOLANACEAE (Vulnerable ¹ EPBC)	Habitat: Grows on sandy substrate. Recorded on sandstone outcrops or deeper sandy soil adjacent to outcrops (Cowie & Woinarski 2012a), sandy woodland and sandstone gullies (NT Herbarium database). In Qld it is known to occur on conglomerate rock formations (Purdie et al. 1982). Distribution: Occurs in a disjunct distribution across Qld, WA and the NT (Cowie & Woinarski 2012a)	Frequent, extensive and high intensity fires that characterise much of the Gulf hinterland (Woinarski et al. 2007).	This species is known from three distinct localities in the NT. A few post 1970 records occur in Limmen National Park, approximately 50km southeast of Deposit C. The other locations are outside the GFU bioregion (Pungalina and Keep River National Park).	Known	May
<i>Macrothelypteris torresiana</i> THELYPTERIDACEAE (Endangered ² TPWC)	Habitat: Sheltered, moist sandstone gorges where it is associated with springs and cliff line seepages (Cowie & Woinarski 2012b). Distribution: Known from the gulf region of the NT, northern WA, eastern Qld and north-eastern NSW (Bostock 1998).	Disturbance caused by feral pigs and livestock and invasion by weeds.	In NT, this species is known from two locations on Wollogorang Station. A 2005 record from near Spear Waterhole at Moonlight Gorge, Wollogorang is in the GFU bioregion.	Known	Unlikely

Note:

**Solanum carduiforme* is listed Data Deficient under the TPWC Act. The term Data Deficient means that there is inadequate information on species distribution and/or population status to make a direct, or indirect, assessment of its risk of extinction.

1. The term 'Vulnerable' defines that the species is at a very high risk of extinction in the wild with the calculated probability of at least 10% during the next 20 years.

2. The term 'Endangered' defines that the species is at a very high risk of extinction in the wild with the calculated probability of >20% during the next 20 years.

5 Acronyms

DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DSO	Direct Shipping Ore
EA Act	Environmental Assessment Act
EcOz	EcOz Environmental Services
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GFU	Gulf Falls and Upland
DLRM	Department of Land and Resource Management
NAFI	North Australian Fire Information
NT	Northern Territory
NT NRM	Northern Territory Natural Resource Management
NVIS	National Vegetation Information System
Sherwin	Sherwin Iron (NT) Pty Ltd
TPWC Act	Territory Parks and Wildlife Conservation Act
WMA	Weed Management Act
WoNS	Weeds of National Significance

6 References

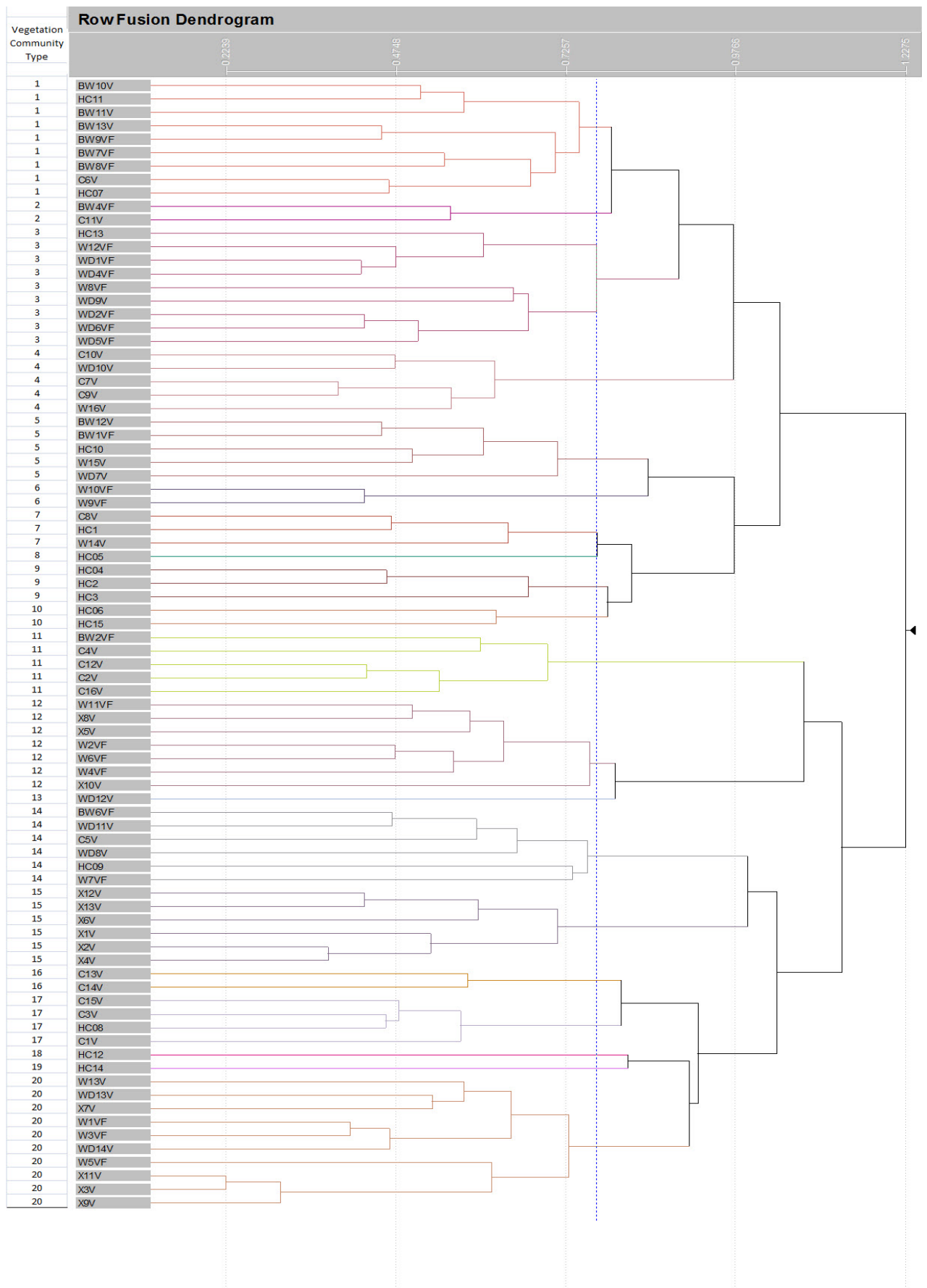
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Appendix 1 – Dendogram of vegetation communities based on species composition



Appendix 2 – Description of vegetation communities

Vegetation Community 1.1

Short Description: *Eucalyptus pruinosa* +/- *Corymbia flavescens*, *Corymbia polycarpa*, *Erythrophleum chlorostachys* and *Melaleuca citrolens* Low Open Woodland.

NVIS Code: T6i



Plate 1. Vegetation Community Site HC11 Community

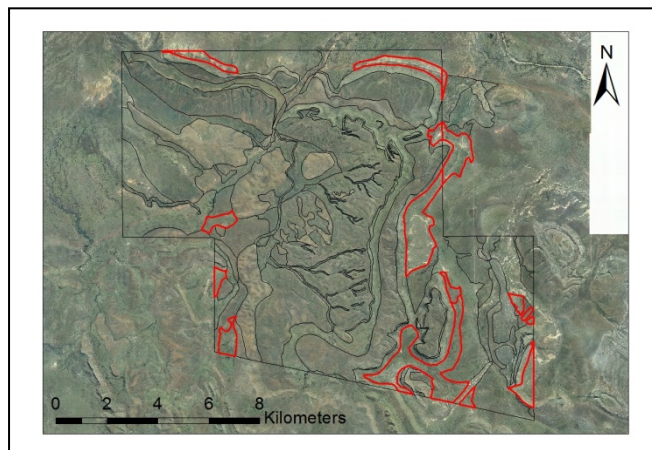


Plate 2. Distribution of the Vegetation Community

Area: 14.8km² and 8.6% of total mapped area

Survey sites sampled: HC11V, BW10V, BW11V, BW4VF

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus pruinosa* +/- *Corymbia flavescens*, *Corymbia polycarpa*, *Erythrophleum chlorostachys* and *Melaleuca citrolens* Low Open Woodland over +/- *Carissa lanceolata*, *Flueggea virosa*, *Grevillea striata*, *Hakea arborescens*, *Maytenus cunninghamii* Tall Sparse Shrubland over *Bacopa floribunda*, *Chrysopogon fallax*, *Ludwigia perennis*, *Sorghum plumosum* +/- *Eragrostis tenellula* Mid Tussock Grassland.

Upper: Low open woodland dominated by *Eucalyptus pruinosa* (fq 100%). *Corymbia flavescens* (fq 25%), *Corymbia polycarpa* (fq 25%), *Erythrophleum chlorostachys* (fq 25%) may also be present.

Mid: Tall sparse shrubland of *Carissa lanceolata* (fq 75%), *Flueggea virosa* (fq 75%), *Grevillea striata* (fq 75%), *Hakea arborescens* (fq 75%), and *Maytenus cunninghamii* (fq 50%) may also occur.

Ground: Mid tussock grassland dominated by *Chrysopogon fallax* (fq 100%), *Sorghum plumosum* (fq 100%) and *Eragrostis tenellula* (fq 75%). *Ludwigia perennis* (fq 100%) and *Bacopa floribunda* (fq 100%) are frequent forbs.

Other species:

Upper: *Melaleuca citrolens* (fq 25%), *Owenia vernicosa* (fq 25%), *Terminalia arostrata* (fq 25%), *Terminalia platyphylla* (fq 25%).

Mid 2 (M2): *Terminalia canescens* (fq 50%), *Acacia victoriae* (fq 25%), *Brachychiton paradoxus* (fq 25%), *Breynia cernua* (fq 25%), *Cayratia trifolia* (fq 25%), *Corymbia confertiflora* (fq 25%), *Corymbia flavescens* (fq 25%), *Dichrostachys spicata* (fq 25%), *Dodonaea physocarpa* (fq 25%), *Ehretia saligna* (fq 25%), *Erythrophleum chlorostachys* (fq 25%), *Terminalia volucris* (fq 25%), *Vitex glabrata* (fq 25%).

Ground: *Eriachne obtusa* (fq 75%), *Hibiscus meraukensis* (fq 75%), *Sehima nervosum* (fq 75%), *Themeda triandra* (fq 75%), *Acacia holosericea* (fq 50%), *Alysicarpus muelleri* (fq 50%), *Ammannia multiflora* (fq 50%), *Bergia pedicellaris* (fq 50%), *Blumea* sp. (fq 50%), *Brachyachne convergens* (fq 50%), *Dichanthium fecundum* (fq 50%), *Dichanthium sericeum* (fq 50%), *Dodonaea physocarpa* (fq 50%), *Eragrostis cumingii* (fq 50%), *Eulalia aurea* (fq 50%), *Fimbristylis miliacea* (fq 50%), *Grewia retusifolia* (fq 50%), *Heteropogon contortus* (fq 50%), *Hygrophila angustifolia* (fq 50%), *Iseilema vaginiflorum* (fq 50%), *Mnesithea formosa* (fq 50%), *Sida spinosa* (fq 50%), *Waltheria indica* (fq 50%), (fq 50%), *Acacia umbellata* (fq 25%), *Alternanthera angustifolia* (fq 25%), *Aristida holathera* (fq 25%), *Aristida latifolia* (fq 25%), *Astrebla elymoides* (fq 25%), *Atalaya hemiglauca* (fq 25%), *Blumea saxatilis* (fq 25%), *Blumea tenella* (fq 25%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 25%), *Brachychiton paradoxus* (fq 25%), *Bulbostylis barbata* (fq 25%), *Carissa lanceolata* (fq 25%), *Cayratia trifolia* (fq 25%), *Chamaecrista mimosoides* (fq 25%), *Chloris lobata* (fq 25%), *Cochlospermum gillivraei* (fq 25%), *Commelina agrostophylla* (fq 25%), *Crotalaria montana* (fq 25%), *Cyanotis axillaris* (fq 25%), *Desmodium flagellare* (fq 25%), *Desmodium muelleri* (fq 25%), *Dolichandrone filiformis* (fq 25%), *Dolichandrone heterophylla* (fq 25%), *Ectrosia scabrida* (fq 25%), *Elytrophorus spicatus* (fq 25%), *Eragrostis elongata* (fq 25%), *Eragrostis exigua* (fq 25%), *Eriachne armitii* (fq 25%), *Eriachne basalis* (fq 25%), *Eriachne ciliata* (fq 25%), *Euphorbia alsiniflora* (fq 25%), *Euphorbia* sp. (fq 25%), *Evolvulus alsinoides* var. *indeterminate* (fq 25%), *Fimbristylis rara* (fq 25%), *Fimbristylis schultzei* (fq 25%), *Fimbristylis tetragona* (fq 25%), *Glycine tomentella* (fq 25%), *Goodenia hispida* (fq 25%), *Goodenia minutiflora* (fq 25%), *Goodenia purpurascens* (fq 25%), *Goodenia* sp. Melville Island (fq 25%), *Hibiscus panduriformis* (fq 25%), *Hybanthus enneaspermus* subsp. *enneaspermus* (fq 25%), *Hydrolea zeylanica* (fq 25%), *Indigofera linifolia* (fq 25%), *Indigofera trita* (fq 25%), *Ipomoea plebeia* (fq 25%), *Iseilema windsorii* (fq 25%), *Marsdenia viridiflora* (fq 25%), *Melaleuca viridiflora* (fq 25%), *Cucumis maderaspatanus* (fq 25%), *Neptunia monosperma* (fq 25%), *Neptunia* sp. (fq 25%), *Nesaea muelleri* (fq 25%), *Panicum laevinode* (fq 25%), *Panicum mindanaense* (fq 25%), *Petalostigma banksii* (fq 25%), *Petalostigma quadriloculare* (fq 25%), *Phyllanthus maderaspatensis* (fq 25%), *Pseudopogonatherum contortum* (fq 25%), *Pterocaulon sphacelatum* (fq 25%), *Rhynchosia minima* (fq 25%), *Rhynchospora exserta* (fq 25%), *Rostellularia adscendens* (fq 25%), *Schizachyrium pachyarthron* (fq 25%), *Schizachyrium* sp. (fq 25%), *Scleria* sp. (fq 25%), *Sesbania* sp. (fq 25%), *Setaria apiculata* (fq 25%), *Sida cordifolia* (fq 25%), *Solanum echinatum* (fq 25%), *Spermacoce dolichosperma* (fq 25%), *Sphaeromorphaea australis* (fq 25%), *Streptoglossa odora* (fq 25%), *Stylosanthes hamata* (fq 25%), *Terminalia canescens* (fq 25%), *Terminalia carpentariae* (fq 25%), *Trema tomentosa* (fq 25%), *Triodia pungens* (fq 25%), *Uraria lagopodioides* (fq 25%), *Zornia muriculata* (fq 25%).

Landform: Footslopes and plains.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	12.3 (10 - 15)	8.1 (5 - 7)	T6r
Mid	Shrub	4 (3 - 5)	2.5 (1.5 - 5)	S4r
Ground	Tussock Grass	75 (60 - 85)	0.7 (0.3 - 1)	G2c

General Condition:

The condition of this vegetation community is not known at Deposit C and surrounds, as this vegetation community was sampled from the area around Hodgson River and Blackwater Creek.

Vegetation Community 1.3

Short Description: *Eucalyptus tectifica* +/- *Erythrophleum chlorostachys* and *Terminalia platyptera*
Mid Open Woodland.

NVIS Code: T7r



Plate 3. Vegetation Community Site HC7V Community

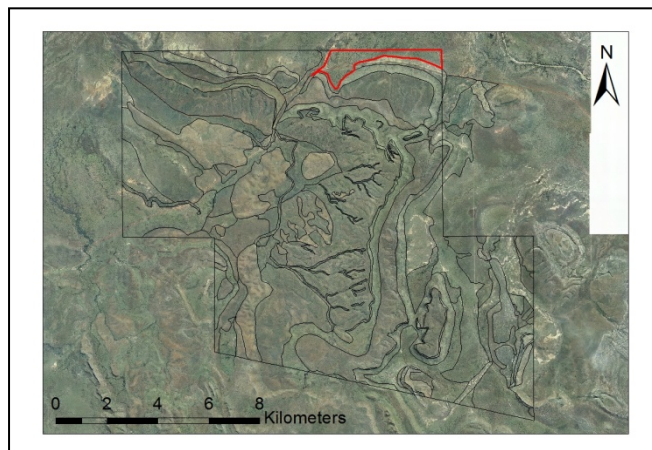


Plate 4. Distribution of the Vegetation Community

Area: 2.6 km² and 1.5% of total mapped area

Survey sites sampled: HC7V, BW7VF

Survey sites sampled within tenement C: None

NVIS Description: *Eucalyptus tectifica* +/- *Erythrophleum chlorostachys* and *Terminalia platyptera*
Mid Open Woodland over *Brachychiton diversifolius* subsp. *diversifolius*, *Carissa lanceolata*, *Flueggea virosa*, *Maytenus cunninghamii*, *Terminalia canescens* and *Wrightia saligna* Tall Sparse Shrubland over *Sorghum plumosum*, *Chrysopogon fallax*, *Eriachne obtusa*, *Mnesithea formosa* and *Uria lagopodioides* Mid Closed Tussock Grassland.

Upper: Mid open woodland dominated by *Eucalyptus tectifica* (fq 100%), *Erythrophleum chlorostachys* (fq 50%) and *Terminalia platyptera* (fq 50%).

Mid: Tall sparse shrubland of *Brachychiton diversifolius* subsp. *diversifolius* (fq 100%), *Carissa lanceolata* (fq 100%), *Flueggea virosa* (fq 100%), *Maytenus cunninghamii* (fq 100%), *Terminalia canescens* (fq 100%) and *Wrightia saligna* (fq 100%).

Ground: Mid closed tussock grassland dominated by *Chrysopogon fallax* (fq 100%), *Eriachne obtusa* (fq 100%), *Mnesithea formosa* (fq 100%) and *Sorghum plumosum* (fq 100%). *Uria lagopodioides* (fq 100%) is a frequent forb.

Other species

Upper: No additional species.

Mid: *Marsdenia viridiflora* (fq 100%) , *Acacia difficilis* (fq 50%), *Acacia hammondii* (fq 50%), *Acacia umbellata* (fq 50%), *Brachychiton paradoxus* (fq 50%), *Capparis lasiantha* (fq 50%), *Cassytha* sp. (fq 50%), *Cochlospermum fraseri* subsp. *fraseri* (fq 50%), *Dolichandrone filiformis* (fq 50%), *Dolichandrone heterophylla* (fq 50%), *Ehretia saligna* (fq 50%), *Grevillea striata* (fq 50%), *Grewia retusifolia* (fq 50%), *Hakea lorea* subsp. *lorea* (fq 50%), *Melaleuca viridiflora* (fq 50%), *Petalostigma banksii* (fq 50%), *Petalostigma pubescens* (fq 50%), *Terminalia platyptera* (fq 50%).

Ground: *Jasminum molle* (fq 100%), *Acacia holosericea* (fq 50%), *Alysicarpus* sp. (fq 50%), *Atalaya hemiglauca* (fq 50%), *Blumea* sp. (fq 50%), *Brachychiton paradoxus* (fq 50%), *Capparis umbonata* (fq 50%), *Crotalaria montana* (fq 50%), *Cymbopogon procerus* (fq 50%), *Desmodium filiforme* (fq 50%), *Dodonaea physocarpa* (fq 50%), *Dolichandrone filiformis* (fq 50%), *Erythroxylum ellipticum* (fq 50%), *Euphorbia alsiniflora* (fq 50%), *Goodenia hispida* (fq 50%), *Hakea arborescens* (fq 50%), *Helicteres cana* (fq 50%), *Hibiscus meraukensis* (fq 50%), *Hybanthus enneaspermus* subsp. *enneaspermus* (fq 50%), *Hyptis suaveolens* (fq 50%), *Murdannia graminea* (fq 50%), *Panicum mindanaense* (fq 50%), *Premna acuminata* (fq 50%), *Pseudopogonatherum contortum* (fq 50%), *Pterocaulon serrulatum* (fq 50%), *Rhynchospora exserta* (fq 50%), *Sehima nervosum* (fq 50%), *Triodia bitextura* (fq 50%), *Vigna lanceolata* (fq 50%), *Whiteochloa cymbiformis* (fq 50%).

Landform: Gently sloping plains and foot slopes.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	9 (3 - 15)	10.5 (6 - 12)	T7r
Mid	Shrub	8.5 (5 - 12)	2.9 (1 - 5)	S4r
Ground	Tussock Grass	77.5 (70 - 85)	0.9 (0.45 - 2)	G2d

General Condition:

The condition of this vegetation community is not known at Deposit C and surrounds, as this vegetation community was sampled from the area around Hodgson River and Blackwater Creek.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 1.4

Short Description: *Eucalyptus tectifica*, *Acacia pachyphloia*, *Corymbia terminalis* and *Erythrophleum chlorostachys* Low Woodland.

NVIS Code: T6i



Plate 5. Vegetation Community Site C6V Community

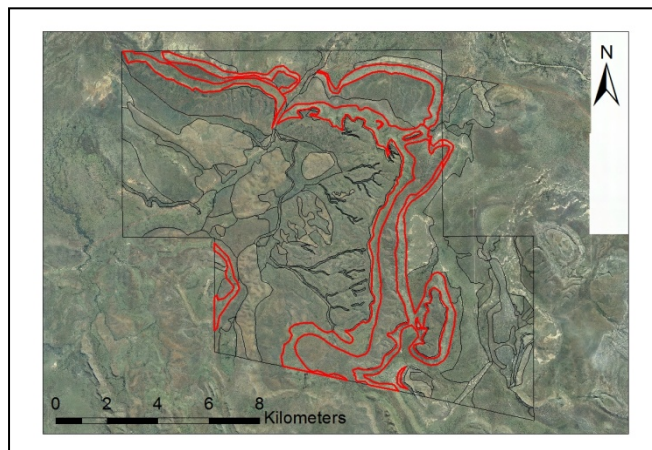


Plate 6. Distribution of the Vegetation Community

Area: 21.1 km² and 12.3% of total mapped area

Survey sites sampled: C6V

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus tectifica*, *Acacia pachyphloia*, *Corymbia terminalis* and *Erythrophleum chlorostachys* Low Woodland over *Cochlospermum fraseri* subsp. *fraseri*, *Brachychiton paradoxus*, *Grevillea dimidiata*, *Hakea arborescens*, *Terminalia canescens* Tall Sparse Shrubland over *Sehima nervosum*, *Sorghum plumosum*, *Chrysopogon fallax* and *Themeda triandra* Mid Closed Tussock Grassland.

Upper: Low open woodland dominated by *Eucalyptus tectifica* (fq 100%), *Acacia pachyphloia* (fq 100%), *Corymbia terminalis* (fq 100%) and *Erythrophleum chlorostachys* (fq 100%).

Mid: Tall sparse shrubland of *Cochlospermum fraseri* subsp. *fraseri* (fq 100%) *Brachychiton paradoxus* (fq 100%), *Grevillea dimidiata* (fq 100%), *Hakea arborescens* (fq 100%) and *Terminalia canescens* (fq 100%).

Ground: Mid closed tussock grassland dominated by *Sehima nervosum* (fq 100%), *Sorghum plumosum* (fq 100%) *Chrysopogon fallax* (fq 100%) and *Themeda triandra* (fq 100%).

Other species

Upper: No additional species were recorded.

Mid: *Lysiana spathulata subsp. indeterminate* (fq 100%), *Premna acuminata* (fq 100%), *Terminalia platyptera* (fq 100%).

Ground: *Alysicarpus muelleri* (fq 100%), *Crotalaria montana* (fq 100%), *Heteropogon contortus* (fq 100%), *Hyptis suaveolens* (fq 100%), *Indigofera linifolia* (fq 100%), *Mnesithea formosa* (fq 100%), *Panicum mindanaense* (fq 100%), *Polygala barbata* (fq 100%), *Rhynchosia minima* (fq 100%), , *Striga curviflora* (fq 100%), *Tephrosia polyzyga* (fq 100%), *Waltheria indica* (fq 100%), *Wrightia saligna* (fq 100%), *Zornia muriculata* (fq 100%).

Landform: Moderate to steep escarpment slopes.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	14 (14 - 14)	9 (6 - 12)	T6i
Mid	Shrub	17 (17 - 17)	3 (1 - 4)	S4r
Ground	Tussock Grass	90 (90 - 90)	0.7 (0.2 - 1)	G2d

General Condition:

The survey site surveyed in the close environment of Deposit C showed vegetation condition good to excellent with few signs of grazing from introduced herbivores, partly due to the rugged nature of the landform. Fire impacts were low and although the vegetation is fire tolerant, the site had not been burned for a number of years. One weed species is recorded as present in low numbers.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 2.1

Short Description: *Corymbia latifolia*, *Corymbia flavescens*, *Erythrophleum chlorostachys* and *Melaleuca viridiflora* Low Woodland.

NVIS Code: T6i



Plate 7. Vegetation Community Site C11V Community

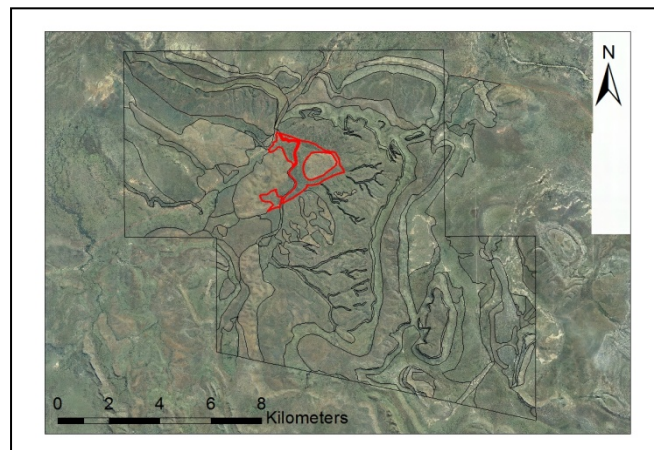


Plate 8. Distribution of the Vegetation Community

Area: 2.6 km² and 1.5% of total mapped area

Survey sites sampled: C11V

Survey sites sampled within Deposit C: C11V

NVIS Description: *Corymbia latifolia*, *Corymbia flavescens*, *Erythrophleum chlorostachys* and *Melaleuca viridiflora* Low Woodland over *Corymbia latifolia*, *Erythrophleum chlorostachys*, *Grevillea parallela* and *Terminalia canescens* Mid Sparse Shrubland over *Chrysopogon fallax*, *Sorghum plumosum*, *Mnesithea formosa*, *Pseudopogonatherum contortum* and *Eriachne obtusa* Mid Closed Tussock Grassland.

Upper: Low woodland dominated by *Corymbia flavescens* (fq 100%), *Corymbia latifolia* (fq 100%), *Erythrophleum chlorostachys* (fq 100%) and *Melaleuca viridiflora* (fq 100%).

Mid: Mid sparse shrubland of *Corymbia latifolia* (fq 100%), *Erythrophleum chlorostachys* (fq 100%), *Grevillea parallela* (fq 100%) and *Terminalia canescens* (fq 100%).

Ground: Mid closed tussock grassland dominated by *Chrysopogon fallax* (fq 100%), *Sorghum plumosum* (fq 100%), *Mnesithea formosa* (fq 100%), *Pseudopogonatherum contortum* (fq 100%) and *Eriachne obtusa* (fq 100%).

Other species

Upper: No additional species were recorded.

Mid: No additional species were recorded.

Ground: *Acacia galioides* var. *galioides* (fq 100%), *Carissa lanceolata* (fq 100%), *Dodonaea hispidula* var. *indeterminate* (fq 100%), *Fimbristylis schoenoides* (fq 100%), *Goodenia* sp. *Melville Island* (fq 100%), *Hibiscus leptocladus* (fq 100%), *Hybanthus enneaspermus* subsp. *enneaspermus* (fq 100%), *Maytenus cunninghamii* (fq 100%), *Melaleuca viridiflora* (fq 100%), *Murdannia graminea* (fq 100%), *Petalostigma quadriloculare* (fq 100%), *Polygala* sp. *small lobes* (fq 100%), *Schizachyrium fragile* (fq 100%), *Stemodia lythrifolia* (fq 100%), *Tephrosia subpectinata* (fq 100%), *Terminalia carpentariae* (fq 100%), *Triodia pungens* (fq 100%), *Wrightia saligna* (fq 100%), *Zornia muriculata* (fq 100%), *Zornia prostrata* (fq 100%).

Landform: Foot slopes and gentle slopes adjacent to drainage areas.

Structural Summary:

Strata	Modal growth form	Mean Cover (range) (%)	Mean Height (range) (m)	NVIS Code
Upper	Tree	25 (25 - 25)	9 (5 - 12)	T6i
Mid	Shrub	20 (20 - 20)	1.5 (1 - 5)	S3r
Ground	Tussock Grass	85 (85 - 85)	0.5 (0.2 - 1)	G2d

General Condition:

The survey site showed no weed or feral impacts. Fire impact was low to moderate with the last fire being more than 2 years ago.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 3.1

Short Description: *Corymbia polycarpa*, *Erythrophleum chlorostachys* +/- *Corymbia bella*, *Corymbia confertiflora* and *Eucalyptus camaldulensis* subsp. *obtus*a Mid Woodland.

NVIS Code: T7i



Plate 9. Vegetation Community Site HC13V Community

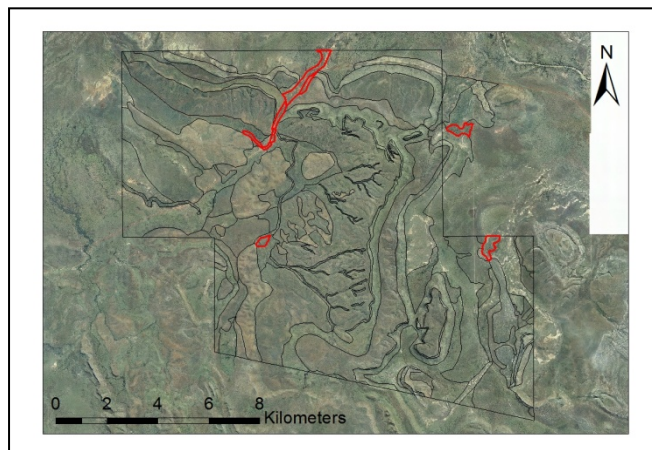


Plate 10. Distribution of the Vegetation Community

Area: 2km² and 1.1% of total mapped area

Survey sites sampled: HC13V, BW13V, BW9V, W12VF, WD1VF, WD4VF

Survey sites sampled within Deposit C: None

NVIS Description: *Corymbia polycarpa*, *Erythrophleum chlorostachys* +/- *Corymbia bella*, *Corymbia confertiflora* and *Eucalyptus camaldulensis* subsp. *obtus*a Mid Woodland over +/- *Acacia difficilis*, *Acacia holosericea*, *Carissa lanceolata*, *Erythrophleum chlorostachys* and *Flueggea virosa* Tall Sparse Shrubland over *Heteropogon contortus* +/- *Hyptis suaveolens*, *Chrysopogon fallax*, *Sorghum plumosum* and *Nelsonia campestris* Mid Closed Tussock Grassland.

Upper: Mid woodland dominated by *Corymbia polycarpa* (fq 100%), *Erythrophleum chlorostachys* (fq 100%), *Corymbia bella* (fq 67%), *Corymbia confertiflora* (fq 67%) and *Eucalyptus camaldulensis* subsp. *obtus*a (fq 50%).

Mid: Tall sparse shrubland of *Acacia difficilis* (fq 67%), *Acacia holosericea* (fq 67%), *Carissa lanceolata* (fq 67%), *Erythrophleum chlorostachys* (fq 67%) and *Flueggea virosa* (fq 67%).

Ground: Mid closed tussock grassland dominated by *Heteropogon contortus* (fq 100%), *Hyptis suaveolens* (fq 83%), *Chrysopogon fallax* (fq 67%), *Sorghum plumosum* (fq 67%) and the forb *Nelsonia campestris* (fq 67%).

Other species

Upper: *Brachychiton diversifolius* subsp. *diversifolius* (fq 33%), *Cayratia trifolia* (fq 17%), *Erythrina vespertilio* (fq 17%), *Eucalyptus microtheca* (fq 17%), *Terminalia platyphylla* (fq 17%).

Mid: *Acacia difficilis* (fq 67%), *Acacia holosericea* (fq 67%), *Carissa lanceolata* (fq 67%), *Erythrophleum chlorostachys* (fq 67%), *Flueggea virosa* (fq 67%), *Ehretia saligna* (fq 50%), *Alphitonia excelsa* (fq 33%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 33%), *Brachychiton paradoxus* (fq 33%), *Helicteres isora* (fq 33%), *Maytenus cunninghamii* (fq 33%), *Melaleuca viridiflora* (fq 33%), *Acacia gonoclada* (fq 17%), *Acacia tropica* (fq 17%), *Antidesma ghesaembilla* (fq 17%), *Atalaya hemiglaucula* (fq 17%), *Barringtonia acutangula* (fq 17%), *Cochlospermum* sp. (fq 17%), *Dichrostachys spicata* (fq 17%), *Erythroxylum ellipticum* (fq 17%), *Excoecaria parvifolia* (fq 17%), *Grevillea pteridifolia* (fq 17%), *Grewia retusifolia* (fq 17%), *Gyrocarpus americanus* (fq 17%), *Hakea arborescens* (fq 17%), *Petalostigma banksii* (fq 17%), *Strychnos lucida* (fq 17%), *Terminalia canescens* (fq 17%), *Terminalia platyptera* (fq 17%).

Ground: *Polymeria ambigua* (fq 67%), *Blumea saxatilis* (fq 50%), *Dichanthium fecundum* (fq 50%), *Hibiscus meraukensis* (fq 50%), *Passiflora foetida* (fq 50%), *Setaria apiculata* (fq 50%), *Sida acuta* (fq 50%), *Themeda triandra* (fq 50%), *Waltheria indica* (fq 50%), *Blumea tenella* (fq 33%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 33%), *Brachychiton paradoxus* (fq 33%), *Cajanus marmoratus* (fq 33%), *Cayratia trifolia* (fq 33%), *Crotalaria novae-hollandiae* subsp. *indeterminate* (fq 33%), *Cyanthillium cinereum* s.lat. (fq 33%), *Dolichandrone heterophylla* (fq 33%), *Eragrostis tenellula* (fq 33%), *Eriachne obtusa* (fq 33%), *Grewia retusifolia* (fq 33%), *Hybanthus enneaspermus* subsp. *enneaspermus* (fq 33%), *Marsdenia viridiflora* (fq 33%), *Rhynchosia minima* (fq 33%), *Sehima nervosum* (fq 33%), *Sida spinosa* (fq 33%), *Sphaeromorphaea australis* (fq 33%), *Tephrosia remotiflora* (fq 33%), *Zornia prostrata* (fq 33%).

Landform: Alluvial flats adjacent to water courses.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	20.3 (10 - 40)	11.2 (6 - 13)	T7i
Mid	Shrub	11.3 (5 - 15)	5 (1 - 12)	S4r
Ground	Tussock Grass	80.8 (67 - 95)	0.6 (0.2 - 1.5)	G2d

General Condition:

This vegetation community was not sampled at Deposit C and surrounds; however at all monitored locations this vegetation community was affected by feral herbivores and weeds varying from moderate to high. Fire impact was variable from low to high.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 4.1

Short Description: *Melaleuca citrolens*, *Eucalyptus pruinosa*, *Terminalia platyptera* +/- *Atalaya hemiglauc*a and *Dolichandrone filiformis* Low Open Woodland.

NVIS Code: T6r



Plate 11. Vegetation Community Site C10V
Community

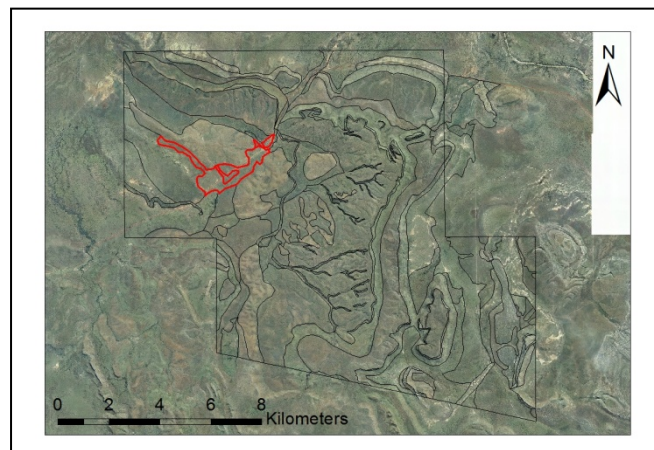


Plate 12. Distribution of the Vegetation

Area: 2.4km² and 1.4% of total mapped area

Survey sites sampled: C10V, BW8VF

Survey sites sampled within Deposit C: C10V

NVIS Description: *Melaleuca citrolens*, *Eucalyptus pruinosa* , *Terminalia platyptera* +/- *Atalaya hemiglauc*a and *Dolichandrone filiformis* Low Open Woodland over *Carissa lanceolata*, *Petalostigma banksii* +/- *Acacia gonocarpa*, *Acacia holosericea* and *Dodonaea physocarpa* Tall Sparse Shrubland over *Chrysopogon fallax*, *Mnesithea formosa*, *Sorghum plumosum*, *Hibiscus meraukensis* and *Zornia muriculata* Low Tussock Grassland.

Upper: Low open woodland dominated by *Melaleuca citrolens* (fq 100%), *Eucalyptus pruinosa* (fq 100%), *Terminalia platyptera* (fq 100%), *Atalaya hemiglauc*a (fq 50%) and *Dolichandrone filiformis* (fq 50%).

Mid: Tall sparse shrubland of *Carissa lanceolata* (fq 100%), *Petalostigma banksii* (fq 100%), *Acacia gonocarpa* (fq 50%), *Acacia holosericea* (fq 50%) and *Dodonaea physocarpa* (fq 50%).

Ground: Low tussock grassland dominated by *Chrysopogon fallax* (fq 100%), *Mnesithea formosa* (fq 100%) and *Sorghum plumosum* (fq 100%). *Hibiscus meraukensis* (fq 100%), *Zornia muriculata* (fq 100%) are frequent forbs.

Other species

Upper: *Maytenus cunninghamii* (fq 50%), *Ventilago viminalis* (fq 50%).

Mid: *Erythroxylum ellipticum* (fq 50%), *Flueggea virosa* (fq 50%), *Grevillea striata* (fq 50%), *Hakea lorea* subsp. *lorea* (fq 50%), *Helicteres cana* (fq 50%), *Jasminum molle* (fq 50%), *Melaleuca viridiflora* (fq 50%), *Terminalia canescens* (fq 50%).

Ground: *Acacia difficilis* (fq 50%), *Acacia galioides* var. *galioides* (fq 50%), *Acacia limbata* (fq 50%), *Alysicarpus muelleri* (fq 50%), *Aristida holathera* var. *holathera* (fq 50%), *Aristida latifolia* (fq 50%), *Bacopa floribunda* (fq 50%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 50%), *Brachychiton paradoxus* (fq 50%), *Calandrinia uniflora* (fq 50%), *Capparis lasiantha* (fq 50%), *Corchorus pumilio* (fq 50%), *Cyperus cristulatus* (fq 50%), *Dichrostachys spicata* (fq 50%), *Digitaria nematostachya* (fq 50%), *Dodonaea physocarpa* (fq 50%), *Ectrosia* sp (fq 50%), *Ehretia saligna* (fq 50%), *Eragrostis cumingii* (fq 50%), *Eriachne armitii* (fq 50%), *Eriachne ciliata* (fq 50%), *Eriachne melicacea* (fq 50%), *Eriachne obtusa* (fq 50%), *Eulalia aurea* (fq 50%), *Evolvulus alsinoides* var. *indeterminate* (fq 50%), *Fimbristylis pterygosperma* (fq 50%), *Goodenia* sp (fq 50%), *Grevillea parallela* (fq 50%), *Marsdenia viridiflora* (fq 50%), *Maytenus cunninghamii* (fq 50%), *Mitrasacme connata* (fq 50%), *Murdannia graminea* (fq 50%), *Neptunia* sp (fq 50%), *Phyllanthus exilis* (fq 50%), *Polygala longifolia* (fq 50%), *Polygala* sp two morph (fq 50%), *Pseudopogonatherum contortum* (fq 50%), *Rhynchospora* sp. (fq 50%), *Rostellularia adscendens* (fq 50%), *Schizachyrium fragile* (fq 50%), *Scleria brownii* (fq 50%), *Setaria apiculata* (fq 50%), *Sida spinosa* (fq 50%), *Tephrosia leptoclada* (fq 50%), *Uraria lagopodioides* (fq 50%), *Waltheria indica* (fq 50%), *Whiteochloa cymbiformis* (fq 50%).

Landform: Plains.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	19.5 (17 - 22)	6.8 (4 - 10)	T6r
Mid	Shrub	11 (7 - 15)	2.3 (1 - 3)	S4r
Ground	Tussock Grass	60 (50 - 70)	0.4 (0.2 - 0.8)	G1c

General Condition:

No feral herbivores or weeds were detected at survey site on Deposit C. Fire impact was low to moderate with no fires occurring within the last 2 years.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 4.2

Short Description: *Melaleuca viridiflora* +/- *Melaleuca citrolens*, *Corymbia dichromophloia*, *Corymbia latifolia* and *Terminalia canescens* Low Open Woodland.

NVIS Code: T6r



Plate 13. Vegetation Community Site C7V Community

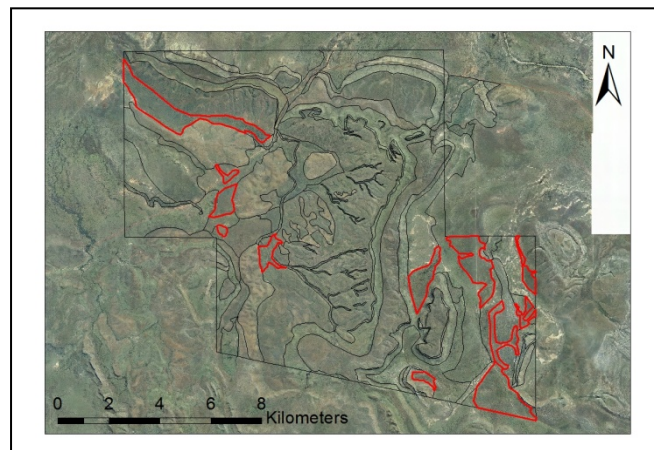


Plate 14. Distribution of the Vegetation Community

Area: 13.4km² and 7.8% of total mapped area

Survey sites sampled: C7V, C9V, W16V

Survey sites sampled within Deposit C: None

NVIS Description: *Melaleuca viridiflora* +/- *Melaleuca citrolens*, *Corymbia dichromophloia*, *Corymbia latifolia* and *Terminalia canescens* Low Open Woodland over *Petalostigma banksii* +/- *Melaleuca viridiflora*, *Bossiaea bossiaeoidea*, *Grevillea parallela* and *Grevillea striata* Tall Open Shrubland over *Pseudopogonatherum contortum*, *Chrysopogon fallax*, *Eriachne obtusa* +/- *Aristida holathera* var. *Holathera* and *Ectrosia scabrida* Low Tussock Grassland.

Upper: Low open woodland dominated by *Melaleuca viridiflora* (fq 100%) +/- *Melaleuca citrolens* (fq 33%), *Corymbia dichromophloia* (fq 33%), *Corymbia latifolia* (fq 33%), and *Terminalia canescens* (fq 33%).

Mid: Tall open shrubland of *Petalostigma banksii* (fq 100%), *Melaleuca viridiflora* (fq 67%), *Bossiaea bossiaeoidea* (fq 33%), *Grevillea parallela* (fq 33%) and *Grevillea striata* (fq 33%).

Ground: Low tussock grassland dominated by *Pseudopogonatherum contortum* (fq 100%), *Chrysopogon fallax* (fq 100%), *Eriachne obtusa* (fq 100%), *Aristida holathera* var. *holathera* (fq 67%) and *Ectrosia scabrida* (fq 67%).

Other species

Upper: *Capparis umbonata* (fq 33%).

Mid: *Helicteres cana* (fq 33%), *Terminalia canescens* (fq 33%).

Ground: *Pseudopogonatherum contortum* (fq 100%), *Chrysopogon fallax* (fq 100%), *Eriachne obtusa* (fq 100%), *Aristida holathera* var. *holathera* (fq 67%), *Ectrosia scabrida* (fq 67%), *Eriachne armitii* (fq 67%), *Fimbristylis simplex* (fq 67%), *Hibiscus meraukensis* (fq 67%), *Hybanthus enneaspermus* subsp. *enneaspermus* (fq 67%), *Mnesithea formosa* (fq 67%), *Murdannia graminea* (fq 67%), *Acacia hammondii* (fq 33%), *Alloteropsis semialata* (fq 33%), *Blumea tenella* (fq 33%), *Bonamia pannosa* (fq 33%), *Cartonema* sp. (fq 33%), *Cartonema trigonospermum* (fq 33%), *Cassytha capillaris* (fq 33%), *Chamaecrista mimosoides* (fq 33%), *Desmodium brownii* (fq 33%), *Drosera dilatatopetiolaris* (fq 33%), *Ectrosia laxa* (fq 33%), *Eragrostis cumingii* (fq 33%), *Eriachne melicacea* (fq 33%), *Eulalia aurea* (fq 33%), *Evolvulus alsinoides* var. *indeterminate* (fq 33%), *Fimbristylis furva* (fq 33%), *Fimbristylis pterygosperma* (fq 33%), *Fuirena ciliaris* (fq 33%), *Goodenia* sp. *Melville Island* (fq 33%), *Haemodorum coccineum* (fq 33%), *Hakea lorea* subsp. *lorea* (fq 33%), *Ipomoea muelleri* (fq 33%), *Ludwigia perennis* (fq 33%), *Myriophyllum filiforme* (fq 33%), *Phyllanthus exilis* (fq 33%), *Polygala* sp. *small lobes* (fq 33%), *Polygala bifoliata* (fq 33%), *Polygala parviflora* (fq 33%), *Rhynchospora leae* (fq 33%), *Rhynchospora submarginata* (fq 33%), *Schizachyrium fragile* (fq 33%), *Scleria novae-hollandiae* (fq 33%), *Senna oligoclada* (fq 33%), *Spermacoce auriculata* (fq 33%), *Stackhousia intermedia* (fq 33%), *Tephrosia humifusa* (fq 33%), *Tephrosia leptoclada* (fq 33%), *Thaumastochloa major* (fq 33%), *Thaumastochloa striata* (fq 33%), *Thecanthes punicea* (fq 33%), *Vigna lanceolata* (fq 33%), *Whiteochloa semitonsa* (fq 33%).

Landform: Footslopes with imperfect drainage and drainage depressions.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	18.3 (10 - 35)	6.5 (3 - 12)	T6r
Mid	Shrub	21.7 (15 - 30)	3.3 (1 - 7)	S4i
Ground	Tussock Grass	76.7 (60 - 90)	0.4 (0.2 - 0.8)	G1c

General Condition:

Survey sites C7V and C9V are present close to Deposit C, where no weeds were detected while impact of feral herbivores was observed from low to moderate. Fire impact was also low to moderate.

Vegetation Community 5.1

Short Description: *Eucalyptus camaldulensis* subsp. *obtusa* +/- *Passiflora foetida*, *Acacia difficilis*, *Melaleuca argentea* and *Terminalia platyphylla* Mid Woodland.

NVIS Code: T7i



Plate 15. Vegetation Community Site HC10V Community

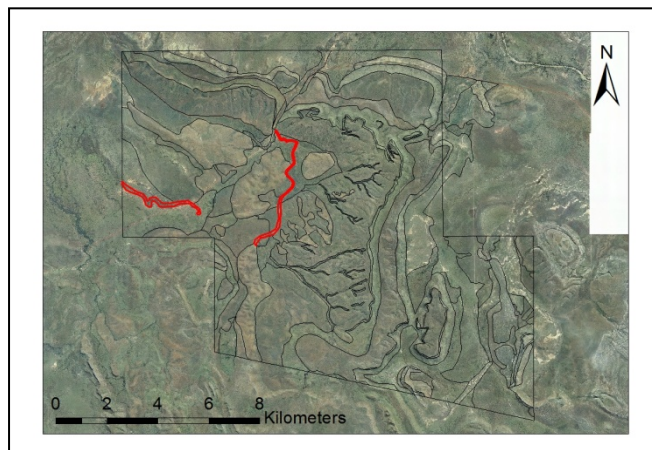


Plate 16. Distribution of the Vegetation Community

Area: 0.9km² and 0.5% of total mapped area

Survey sites sampled: BW12V, BW1VF, HC10V, W15V, WD7V

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus camaldulensis* subsp. *obtusa* +/- *Passiflora foetida*, *Acacia difficilis*, *Melaleuca argentea* and *Terminalia platyphylla* Mid Woodland over *Helicteres isora* +/- *Acacia holosericea*, *Acacia difficilis*, *Acacia tropica* and *Barringtonia acutangula* Tall Open Shrubland over +/- *Hyptis suaveolens*, *Chrysopogon fallax*, *Ischaemum australe*, *Mnesithea rottboellioides* and *Nelsonia campestris* Mid Open Tussock Grassland.

Upper: Mid woodland dominated by *Eucalyptus camaldulensis* subsp. *obtusa* (fq 100%), *Passiflora foetida* (fq 60%), *Acacia difficilis* (fq 40%), *Melaleuca argentea* (fq 40%), *Terminalia platyphylla* (fq 40%).

Mid: Tall open shrubland of *Helicteres isora* (fq 100%), *Acacia holosericea* (fq 80%), *Acacia difficilis* (fq 60%), *Acacia tropica* (fq 60%), *Barringtonia acutangula* (fq 60%).

Ground: Mid open tussock grassland of *Chrysopogon fallax* (fq 67%), *Ischaemum australe* (fq 67%) and *Mnesithea rottboellioides* (fq 67%). *Hyptis suaveolens* (fq 83%) and *Nelsonia campestris* (fq 67%) are frequent forbs.

Other species

Upper: *Acacia latescens* (fq 20%), *Alphitonia excelsa* (fq 20%), *Barringtonia acutangula* (fq 20%), *Corymbia bella* (fq 20%), *Corymbia polycarpa* (fq 20%), *Erythrophleum chlorostachys* (fq 20%), *Gyrocarpus americanus* (fq 20%), *Melaleuca leucadendra* (fq 20%), *Terminalia bursarina* (fq 20%), *Terminalia platyptera* (fq 20%).

Mid: *Ficus coronulata* (fq 60%), *Alphitonia excelsa* (fq 40%), *Antidesma ghesaembilla* (fq 40%), *Bridelia tomentosa* (fq 40%), *Excoecaria parvifolia* (fq 40%), *Glochidion disparipes* (fq 40%), *Terminalia bursarina* (fq 40%), *Acacia hammondii* (fq 20%), *Asteromyrtus symphyocarpa* (fq 20%), *Atalaya hemiglauca* (fq 20%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 20%), *Carissa lanceolata* (fq 20%), *Dichrostachys spicata* (fq 20%), *Dodonaea platyptera* (fq 20%), *Dolichandrone filiformis* (fq 20%), *Erythrophleum chlorostachys* (fq 20%), *Flueggea virosa* (fq 20%), *Margaritaria dubium-traceyi* (fq 20%), *Melaleuca leucadendra* (fq 20%), *Mnesithea rottboellioides* (fq 20%), *Passiflora foetida* (fq 20%), *Terminalia platyptera* (fq 20%), *Terminalia platyphylla* (fq 20%), *Vitex glabrata* (fq 20%).

Ground: *Hibiscus meraukensis* (fq 50%), *Pseudoraphis spinescens* (fq 50%), *Sorghum plumosum* (fq 50%), *Waltheria indica* (fq 50%), *Canscora diffusa* (fq 33%), *Chionachne cyathopoda* (fq 33%), *Eulalia aurea* (fq 33%), *Heteropogon contortus* (fq 33%), *Oldenlandia galioides* (fq 33%), *Setaria apiculata* (fq 33%), *Zornia prostrata* (fq 33%), *Acacia platycarpa* (fq 17%), *Achyranthes aspera* (fq 17%), *Alternanthera angustifolia* (fq 17%), *Ammannia multiflora* (fq 17%), *Aristida holathera* (fq 17%), *Blumea tenella* (fq 17%), *Bothriochloa bladhii* (fq 17%), *Calotropis procera* (fq 17%), *Cayratia trifolia* (fq 17%), *Centipeda minima* (fq 17%), *Crotalaria crispata* (fq 17%), *Cyperus castaneus* (fq 17%), *Cyperus cuspidatus* (fq 17%), *Desmodium filiforme* (fq 17%), *Dichanthium fecundum* (fq 17%), *Dodonaea viscosa* (fq 17%), *Ehretia saligna* (fq 17%), *Eragrostis cumingii* (fq 17%), *Eragrostis* sp. (fq 17%), *Eragrostis stenostachya* (fq 17%), *Fimbristylis littoralis* (fq 17%), *Fimbristylis microcarya* (fq 17%), *Flueggea virosa* (fq 17%), *Fuirena ciliaris* (fq 17%), *Grewia retusifolia* (fq 17%), *Hakea arborescens* (fq 17%), *Helicteres isora* (fq 17%), *Hygrophila angustifolia* (fq 17%), *Jasminum molle* (fq 17%), *Lipocarpa microcephala* (fq 17%), *Sida acuta* (fq 17%), *Sida cordifolia* (fq 17%), *Vitex glabrata* (fq 17%), *Whiteochloa* sp. (fq 17%).

Landform: Drainage depression.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	30.4 (5 - 60)	10.8 (5 - 14)	T7i
Mid	Shrub	28 (10 - 60)	4.1 (1 - 6)	S4i
Ground	Tussock Grass	29 (10 - 70)	0.7 (0.1 - 2)	G2i

General Condition:

The condition of this vegetation community is not known at deposit C and surrounds, as this community was sampled from the area around Hodgson River, Blackwater Creek and Deposit W.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 7.1

Short Description: +/- *Excoecaria parvifolia*, *Atalaya hemiglauca*, *Bauhinia cunninghamii*, *Corymbia terminalis* and *Eucalyptus microtheca* Low Open Woodland.

NVIS Code: T6r



Plate 17. Vegetation Community Site C8V
Community

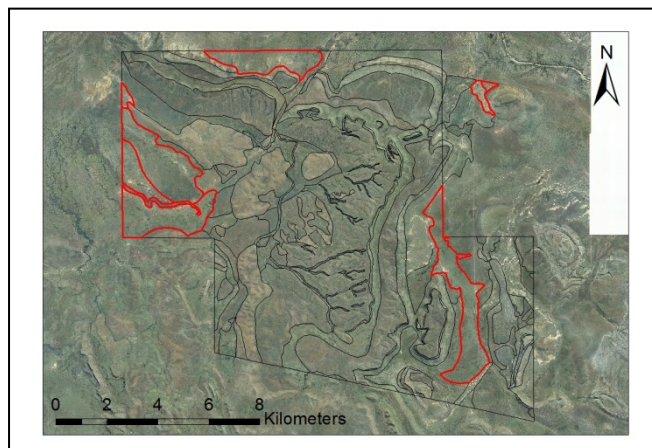


Plate 18. Distribution of the Vegetation

Area: 21.1km² and 12.2% of total mapped area

Survey sites sampled: W14V, C8V, HC1V

Survey sites sampled within Deposit C: None

NVIS Description: +/- *Excoecaria parvifolia*, *Atalaya hemiglauca*, *Bauhinia cunninghamii*, *Corymbia terminalis* and *Eucalyptus microtheca* Low Open Woodland over +/- *Sesbania cannabina*, *Atalaya hemiglauca*, *Capparis lasiantha* and *Dichrostachys spicata* Tall Sparse Shrubland over *Brachyachne convergens*, *Dichanthium fecundum*, *Dichanthium sericeum*, *Eulalia aurea*, *Abutilon hannii* subsp. *prostrata* and *Desmodium muelleri* Low Closed Tussock Grassland.

Upper: Low open woodland dominated by *Excoecaria parvifolia* (fq 67%), *Atalaya hemiglauca* (fq 33%), *Bauhinia cunninghamii* (fq 33%), *Corymbia terminalis* (fq 33%) and *Eucalyptus microtheca* (fq 33%).

Mid: Tall Sparse shrubland of *Sesbania cannabina* (fq 67%), *Atalaya hemiglauca* (fq 33%), *Capparis lasiantha* (fq 33%), *Carissa lanceolata* (fq 33%) and *Dichrostachys spicata* (fq 33%).

Ground: Low closed Tussock grassland dominated by *Brachyachne convergens* (fq 100%), *Dichanthium fecundum* (fq 100%), *Dichanthium sericeum* (fq 100%), and *Eulalia aurea* (fq 100%). *Abutilon hannii* subsp. *prostrata* (fq 100%) and *Desmodium muelleri* (fq 100%) are frequent forbs.

Other species

Upper: *Eucalyptus pruinosa* (fq 33%), *Melaleuca viridiflora* (fq 33%), *Terminalia volucris* (fq 33%).

Mid: *Dolichandrone filiformis* (fq 33%), *Ehretia saligna* (fq 33%), *Excoecaria parvifolia* (fq 33%), *Terminalia canescens* (fq 33%).

Ground: *Abelmoschus ficulneus* (fq 67%), *Aeschynomene indica* (fq 67%), *Aristida latifolia* (fq 67%), *Chrysopogon fallax* (fq 67%), *Hybanthus enneaspermus subsp. enneaspermus* (fq 67%), *Hygrophila angustifolia* (fq 67%), *Iseilema fragile* (fq 67%), *Iseilema macratherum* (fq 67%), *Iseilema vaginiflorum* (fq 67%), *Iseilema windersii* (fq 67%), *Neptunia monosperma* (fq 67%), *Oldenlandia argillacea* (fq 67%), *Panicum decompositum* (fq 67%), *Phyllanthus maderaspatensis* (fq 67%), *Rhynchosia minima* (fq 67%), *Sehima nervosum* (fq 67%), *Sesbania cannabina* (fq 67%), *Sida spinosa* (fq 67%), *Alternanthera nodiflora* (fq 33%), *Ammannia multiflora* (fq 33%), *Astrebla elymoides* (fq 33%), *Bacopa floribunda* (fq 33%), *Bergia pedicellaris* (fq 33%), *Brachyachne tenella* (fq 33%), *Commelina agrostophylla* (fq 33%), *Corchorus aestuans* (fq 33%), *Corchorus fascicularis* (fq 33%), *Crinum sp.* (fq 33%), *Cullen plumosum* (fq 33%), *Cyperus bifax* (fq 33%), *Desmodium trichostachyum* (fq 33%), *Ectrosia scabrida* (fq 33%), *Ectrosia sp* (fq 33%), *Elytrophorus spicatus* (fq 33%), *Eriachne glauca* (fq 33%), *Fimbristylis clavata* (fq 33%), *Fimbristylis laxiglumis* (fq 33%), *Fimbristylis microcarya* (fq 33%), *Fimbristylis miliacea* (fq 33%), *Fimbristylis tetragona* (fq 33%), *Glycine tomentella* (fq 33%), *Indigofera linifolia* (fq 33%), *Ipomoea coptica* (fq 33%), *Iseilema membranaceum* (fq 33%), *Ludwigia perennis* (fq 33%), *Melochia corchorifolia* (fq 33%), *Melochia pyramidata* (fq 33%), *Nymphoides crenata* (fq 33%), *Ophiuros exaltatus* (fq 33%), *Oryza australiensis* (fq 33%), *Panicum laevinode* (fq 33%), *Polymeria ambigua* (fq 33%), *Pseudoraphis spinescens* (fq 33%), *Ptilotus spicatus* (fq 33%), *Rostellularia adscendens* (fq 33%), *Rotala diandra* (fq 33%), *Scleria novae-hollandiae* (fq 33%), *Spermacoce pogostoma* (fq 33%), *Stylosanthes scabra* (fq 33%), *Vigna lanceolata* (fq 33%), *Waltheria indica* (fq 33%).

Landform: Plains.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	7.6 (5 - 10)	6.1 (5 - 10)	T6r
Mid	Shrub	5.3 (1 - 10)	2 (1 - 5)	S4r
Ground	Tussock Grass	86 (80 - 90)	0.5 (0.2 - 1)	G1d

General Condition:

Site C8V is present close to Deposit C, where this vegetation community was affected by low to moderate grazing impact and a lack of fire which has led to some woody thickening, and a change in ground species composition towards those that are more grazing tolerant.

Species of Conservation Significance: None encountered during surveys.

Vegetation Community 10.1

Short Description: *Eucalyptus microtheca* +/- *Corymbia confertiflora* Low Open Woodland.

NVIS Code: T6r



Plate 19. Vegetation Community Site HC15 Community

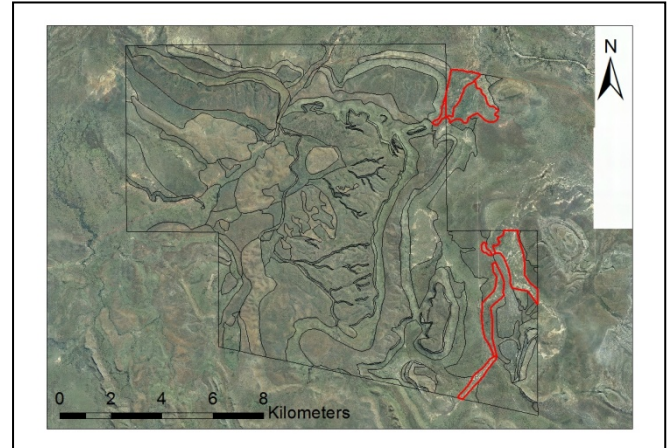


Plate 20. Distribution of the Vegetation Community

Area: 6.6km² and 3.9% of total mapped area

Survey sites sampled: HC06V, HC15V

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus microtheca* +/- *Corymbia confertiflora* Low Open Woodland over *Capparis lasiantha*, *Carissa lanceolata*, *Dichrostachys spicata*, *Maytenus cunninghamii* +/- *Acacia difficilis* Mid Isolated Shrubs over *Chrysopogon fallax*, *Dichanthium fecundum*, *Heteropogon contortus*, *Sorghum plumosum* and *Bergia pedicellaris* Mid Closed Tussock Grassland.

Upper: Low open woodland dominated by *Eucalyptus microtheca* (fq 100%) and *Corymbia confertiflora* (fq 50%).

Mid: Mid isolated shrubs of *Capparis lasiantha* (fq 100%), *Carissa lanceolata* (fq 100%), *Dichrostachys spicata* (fq 100%), *Maytenus cunninghamii* (fq 100%) and *Acacia difficilis* (fq 50%).

Ground: Mid closed tussock grassland dominated by *Chrysopogon fallax* (fq 100%), *Dichanthium fecundum* (fq 100%), *Heteropogon contortus* (fq 100%) and *Sorghum plumosum* (fq 100%). *Bergia pedicellaris* (fq 100%) is a frequent forb.

Other species

Upper: No additional species was recorded.

Mid: *Acacia hammondii* (fq 50%), *Acacia holosericea* (fq 50%), *Atalaya hemiglauc*a (fq 50%), *Dodonaea physocarpa* (fq 50%), *Dolichandrone filiformis* (fq 50%), *Excoecaria parvifolia* (fq 50%), *Flueggea virosa* (fq 50%), *Grewia retusifolia* (fq 50%), *Santalum lanceolatum* (fq 50%), *Strychnos lucida* (fq 50%).

Ground: *Aristida holathera* (fq 50%), *Aristida latifolia* (fq 50%), *Atalaya hemiglauc*a (fq 50%), *Blumea saxatilis* (fq 50%), *Brachyachne convergens* (fq 50%), *Chloris lobata* (fq 50%), *Crotalaria montana* (fq 50%), *Cucumis* sp. (fq 50%), *Dichanthium sericeum* (fq 50%), *Elytrophorus spicatus* (fq 50%), *Eragrostis* sp (fq 50%), *Eragrostis tenellula* (fq 50%), *Eriachne glauca* (fq 50%), *Eriachne obtusa* (fq 50%), *Gossypium australe* (fq 50%), *Hibiscus meraukensis* (fq 50%), *Indigofera linifolia* (fq 50%), *Iseilema vaginiflorum* (fq 50%), *Ludwigia perennis* (fq 50%), *Mnesithea formosa* (fq 50%), *Neptunia monosperma* (fq 50%), *Pterocaulon serrulatum* (fq 50%), *Rotala diandra* (fq 50%), *Schizachyrium fragile* (fq 50%), *Sehima nervosum* (fq 50%), *Sorghum timorense* (fq 50%).

Landform: Plains.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	13.5(12 - 15)	7.5(5 - 11)	T6r
Mid	Shrub	3(1 - 5)	1.85(1 - 4)	S3r
Ground	Tussock Grass	90(85 - 95)	1(0.1 - 1.2)	G2d

General Condition:

The condition of this vegetation community is not known at Deposit C and sorrounds, as this vegetation community was sampled from the area around Hodgson River.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 11.1 and 11.2 (11.1 is on escarpment and 11.2 is on gorges)

Short Description: *Corymbia aspera* +/- *Acacia lamprocarpa*, *Buchanania obovata*, *Eucalyptus miniata* and *Eucalyptus tetradonta* Low Woodland.

NVIS Code: T6i



Plate 21. Vegetation Community Site C2V Community

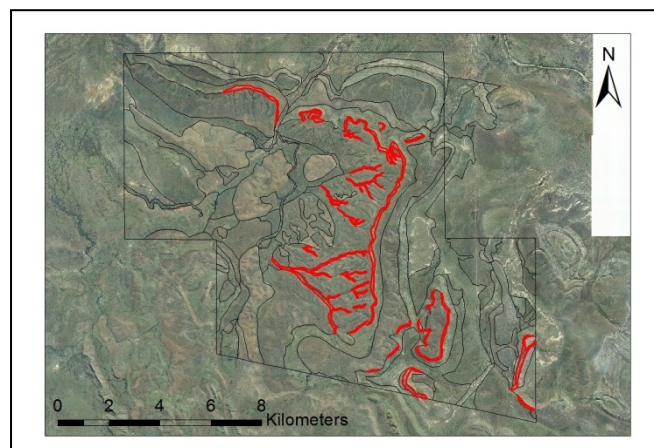


Plate 22. Distribution of the Vegetation

Area: 4km² and 2.4% of total mapped area

Survey sites sampled: BW2VF, C12V, C16V, C4V, C2V

Survey sites sampled within Deposit C: C12V, C16V, C4V, C2V

NVIS Description: *Corymbia aspera* +/- *Acacia lamprocarpa*, *Buchanania obovata*, *Eucalyptus miniata* and *Eucalyptus tetradonta* Low Woodland over +/- *Terminalia carpentariae*, *Alphitonia excelsa*, *Cajanus acutifolius*, *Strychnos lucida* and *Trema tomentosa* Tall Open Shrubland over +/- *Anisomeles malabarica*, *Corchorus sidoides subsp. sidoides*, *Aristida exserta*, *Cymbopogon procerus* and *Cyperus cunninghamii* Mid Open Tussock Grassland.

Upper: Low woodland dominated by *Corymbia aspera* (fq 100%), *Acacia lamprocarpa* (fq 50%), *Buchanania obovata* (fq 33%), *Eucalyptus miniata* (fq 33%). and *Eucalyptus tetradonta* (fq 33%).

Mid: Tall open shrubland of *Terminalia carpentariae* (fq 83%), *Alphitonia excelsa* (fq 67%), *Cajanus acutifolius* (fq 67%), *Strychnos lucida* (fq 67%) and *Trema tomentosa* (fq 67%).

Ground: Mid open tussock grassland of *Anisomeles malabarica* (fq 83%), *Corchorus sidoides subsp. sidoides* (fq 67%), *Aristida exserta* (fq 50%), *Cymbopogon procerus* (fq 50%) and *Cyperus cunninghamii* (fq 50%).

Other species

Upper: No additional species were recorded.

Mid: *Terminalia canescens* (fq 67%), *Bridelia tomentosa* (fq 50%), *Diospyros humilis* (fq 50%), *Ehretia saligna* (fq 50%), *Flueggea virosa* (fq 50%), *Gardenia megasperma* (fq 50%), *Helicteres isora* (fq 50%), *Owenia vernicosa* (fq 50%), *Abrus precatorius* subsp. *precatorius* (fq 33%), *Acacia stigmatophylla* (fq 33%), *Buchanania obovata* (fq 33%), *Dodonaea hispidula* var. *indeterminate* (fq 33%), *Erythroxylum ellipticum* (fq 33%), *Helicteres angustifolia* (fq 33%), *Passiflora foetida* (fq 33%), *Pouteria sericea* (fq 33%), *Premna acuminata* (fq 33%), *Abutilon hannii* subsp. *erect* (fq 17%), *Acacia difficilis* (fq 17%), *Acacia lamprocarpa* (fq 17%), *Acacia shirleyi* (fq 17%), *Atalaya variifolia* (fq 17%), *Breynia cernua* (fq 17%), *Capparis lasiantha* (fq 17%), *Capparis umbonata* (fq 17%), *Cayratia trifolia* (fq 17%), *Clerodendrum floribundum* (fq 17%), *Cochlospermum fraseri* subsp. *fraseri* (fq 17%), *Erythrophleum chlorostachys* (fq 17%), *Ficus aculeata* var. *aculeata* (fq 17%), *Ficus platypoda* (fq 17%), *Grevillea refracta* (fq 17%), *Jacquemontia paniculata* (fq 17%), *Margaritaria dubium-traceyi* (fq 17%), *Marsdenia viridiflora* (fq 17%), *Opilia amentacea* (fq 17%), *Stenocarpus acacioides* (fq 17%), *Tephrosia* sp. *Pentecost river* (fq 17%), *Tephrosia virens* (fq 17%).

Ground: *Anisomeles malabarica* (fq 83%), *Corchorus sidoides* subsp. *sidoides* (fq 67%), *Aristida exserta* (fq 50%), *Cymbopogon procerus* (fq 50%), *Cyperus cunninghamii* (fq 50%), *Eriachne ciliata* (fq 50%), *Abutilon hannii* subsp. *erect* (fq 33%), *Achyranthes aspera* (fq 33%), *Cleome viscosa* (fq 33%), *Glycine tomentella* (fq 33%), *Grewia retusifolia* (fq 33%), *Hibiscus meraukensis* (fq 33%), *Jasminum molle* (fq 33%), *Melhanian oblongifolia* (fq 33%), *Sida* sp. *Mt Bundey* (fq 33%), *Sorghum plumosum* (fq 33%), *Stemodia lythrifolia* (fq 33%), *Tephrosia spechtii* (fq 33%), *Triodia pungens* (fq 33%), *Triumfetta parviflora* (fq 33%), *Wrightia saligna* (fq 33%), *Alphitonia excelsa* (fq 17%), *Antidesma ghesaembilla* (fq 17%), *Aristida* sp. (fq 17%), *Bidens bipinnata* (fq 17%), *Blumea saxatilis* (fq 17%), *Bonamia pannosa* (fq 17%), *Brachychiton paradoxus* (fq 17%), *Buchnera linearis* (fq 17%), *Bulbostylis barbata* (fq 17%), *Cayratia trifolia* (fq 17%), *Cheilanthes brownii* (fq 17%), *Chrysopogon fallax* (fq 17%), *Digitaria bicornis* (fq 17%), *Digitaria nematostachya* (fq 17%), *Digitaria* sp. (fq 17%), *Galactia tenuiflora* (fq 17%), *Gonocarpus leptothecus* (fq 17%), *Heteropogon contortus* (fq 17%), *Hibbertia lepidota* (fq 17%), *Hibbertia* sp. (fq 17%), *Margaritaria dubium-traceyi* (fq 17%), *Maytenus cunninghamii* (fq 17%), *Oldenlandia spermacocoides* (fq 17%), *Panicum effusum* (fq 17%), *Passiflora foetida* (fq 17%), *Petalostigma quadriloculare* (fq 17%), *Phyllanthus carpentariae* (fq 17%), *Pterocaulon sphacelatum* (fq 17%), *Schizachyrium fragile* (fq 17%), *Schizachyrium pachyarthron* (fq 17%), *Senna oligoclada* (fq 17%), *Sida macropoda* (fq 17%), *Sida* sp. (fq 17%), *Sida spinosa* (fq 17%), *Tephrosia leptoclada* (fq 17%), *Terminalia canescens* (fq 17%), *Trachymene microcephala* (fq 17%), *Triodia bitextura* (fq 17%), *Triumfetta* sp. (fq 17%), *Uraria lagopodioides* (fq 17%), *Waltheria indica* (fq 17%).

Landform: Cliffs, cliff footslopes and gorges.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	27 (7 - 80)	9.8 (4 - 13)	T6i
Mid	Shrub	45 (12 - 70)	3.1 (1 - 8)	S4i
Ground	Tussock Grass	40 (5 - 80)	0.6 (0.2 - 1)	G2i

General Condition:

Condition of sites sampled on Deposit C was very good with few weeds and feral herbivores present. Fire impacts were low and sites were generally long unburned.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 14.1

Short Description: *Eucalyptus leucophloia* +/- *Corymbia aspera* Low Open Woodland.

NVIS Code: T6r



Plate 23. Vegetation Community Site C5V Community

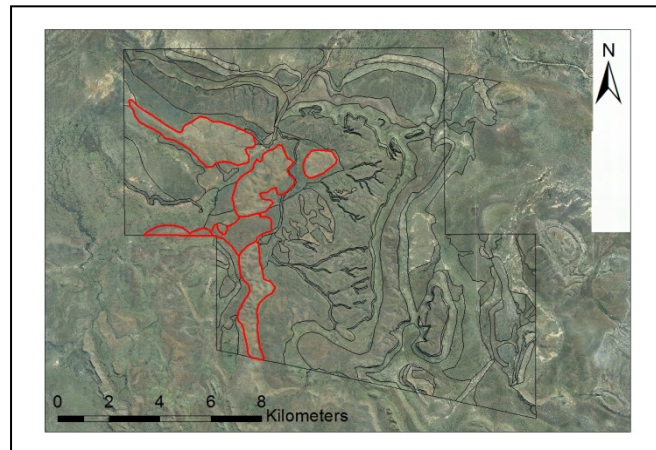


Plate 24. Distribution of the Vegetation Community

Area: 15.6 km² and 9% of total mapped area

Survey sites sampled: WD10V, BW6VF, C5V, HC09V, W7VF, WD11V, WD8V

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus leucophloia* +/- *Corymbia aspera* Low Open Woodland over +/- *Terminalia canescens*, *Acacia hammondii*, *Acacia holosericea*, *Melaleuca citrolens* and *Petalostigma banksii* Mid Isolated shrubs over +/- *Acacia galioides* var. *Galioides*, *Eriachne ciliata*, *Schizachyrium pachyarthron*, *Triodia pungens* and *Blumea saxatilis* Low Open Hummock Grassland.

Upper: Low open woodland dominated by *Eucalyptus leucophloia* (fq 100%) and *Corymbia aspera* (fq 14%).

Mid: Mid isolated shrubs of *Terminalia canescens* (fq 57%), *Acacia hammondii* (fq 43%), *Acacia holosericea* (fq 43%), *Melaleuca citrolens* (fq 29%) and *Petalostigma banksii* (fq 29%).

Ground: Low open hummock grassland of *Acacia galioides* var. *galioides* (fq 71%), *Eriachne ciliata* (fq 71%), *Schizachyrium pachyarthron* (fq 71%), *Triodia pungens* (fq 57 %) and *Blumea saxatilis* (fq 57%).

Other species

Upper: No additional species were recorded.

Mid: *Acacia gonoclada* (fq 29%), *Capparis umbonata* (fq 29%), *Acacia humifusa* (fq 14%), *Brachychiton diversifolius* subsp. *diversifolius* (fq 14%), *Brachychiton paradoxus* (fq 14%), *Buchanania obovata* (fq 14%), *Calotis breviseta* (fq 14%), *Calytrix exstipulata* (fq 14%), *Cochlospermum fraseri* subsp. *fraseri* (fq 14%), *Dodonaea lanceolata* (fq 14%), *Dodonaea physocarpa* (fq 14%), *Dolichandrone filiformis* (fq 14%), *Erythrophleum chlorostachys* (fq 14%), *Erythroxylum ellipticum* (fq 14%), *Helicteres isora* (fq 14%), *Maytenus cunninghamii* (fq 14%), *Mirbelia viminalis* (fq 14%), *Tephrosia spechtii* (fq 14%), *Triodia pungens* (fq 14%), *Triumfetta plumigera* (fq 14%).

Ground: *Evolvulus alsinoides* var. *indeterminate* (fq 57%), *Bulbostylis barbata* (fq 43%), *Corchorus pumilio* (fq 43%), *Dodonaea physocarpa* (fq 43%), *Eulalia aurea* (fq 43%), *Mnesithea formosa* (fq 43%), *Oldenlandia mitrasacmoides* subsp. *mitrasacmoides* (fq 43%), *Phyllanthus exilis* (fq 43%), *Tephrosia leptoclada* (fq 43%), *Triodia inutlis* (fq 43%), *Zornia muriculata* (fq 43%), *Acacia gonoclada* (fq 29%), *Bonamia pannosa* (fq 29%), *Carissa lanceolata* (fq 29%), *Chrysopogon fallax* (fq 29%), *Dolichandrone filiformis* (fq 29%), *Fimbristylis oxystachya* (fq 29%), *Fimbristylis simulans* (fq 29%), *Helicteres cana* (fq 29%), *Maytenus cunninghamii* (fq 29%), *Polygala* sp. *rock lover* var. *angustata* (fq 29%), *Pterocaulon serrulatum* (fq 29%), *Schizachyrium fragile* (fq 29%), *Stemodia lythrifolia* (fq 29%), *Triumfetta plumigera* (fq 29%), *Waltheria indica* (fq 29%), *Alysicarpus vaginalis* (fq 14%), *Aristida holathera* var. *holathera* (fq 14%), *Aristida pruinosa* (fq 14%), *Atalaya hemiglauca* (fq 14%), *Brachyachne convergens* (fq 14%), *Brachyachne tenella* (fq 14%), *Breynia cernua* (fq 14%), *Buchnera linearis* (fq 14%), *Calandrinia uniflora* (fq 14%), *Cassytha capillaris* (fq 14%), *Corchorus sidoides* subsp. *sidoides* (fq 14%), *Desmodium muelleri* (fq 14%), *Dicliptera armata* (fq 14%), *Eleocharis geniculata* (fq 14%), *Eragrostis exigua* (fq 14%), *Eriachne armitii* (fq 14%), *Eriachne obtusa* (fq 14%), *Eriachne semiciliata* (fq 14%), *Fimbristylis dichotoma* (fq 14%), *Fimbristylis pterygosperma* (fq 14%), *Goodenia* sp. (fq 14%), *Grevillea dryandri* (fq 14%), *Heliotropium* sp. (fq 14%), *Indigastrum parviflorum* (fq 14%), *Iseilema vaginiflorum* (fq 14%), *Marsdenia viridiflora* (fq 14%), *Melaleuca viridiflora* (fq 14%), *Merremia* sp. (fq 14%), *Murdannia graminea* (fq 14%), *Neptunia monosperma* (fq 14%), *Polycarpaea breviflora* (fq 14%), *Polygala exsuarrosa* (fq 14%), *Polygala* sp. (fq 14%), *Polygala* sp. *small lobes* (fq 14%), *Polymeria ambigua* (fq 14%), *Portulaca bicolor* (fq 14%), *Pseudopogonatherum contortum* (fq 14%), *Rhynchospora exserta* (fq 14%), *Rhynchospora submarginata* (fq 14%), *Rhynchospora wightiana* (fq 14%), *Sauropus trachyspermus* (fq 14%), *Rhynchospora submarginata* (fq 14%), *Rhynchospora wightiana* (fq 14%), *Sauropus trachyspermus* (fq 14%), *Schizachyrium* sp. (fq 14%), *Scleria rugosa* (fq 14%), *Sida acuta* (fq 14%), *Solanum echinatum* (fq 14%), *Sorghum plumosum* (fq 14%), *Spermacoce leptoloba* (fq 14%), *Spermacoce* sp. (fq 14%), *Sphaeromorphaea australis* (fq 14%), *Stemodia glabella* (fq 14%), *Stylidium* sp. (fq 14%), *Stylosanthes hamata* (fq 14%), *Triodia bitextura* (fq 14%), *Wrightia saligna* (fq 14%).

Landform: Footslopes, hillslopes and crests of low hills.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	10 (5 - 15)	4.9 (2 - 10)	T6r
Mid	Shrub	4.2 (2 - 5)	1.4 (0.5 - 4)	S3r
Ground	Hummock Grass	45 (5 - 70)	0.5 (0.1 - 1)	H1i

General Condition:

Site C5V is close to Deposit C, where vegetation was free of weeds and feral herbivores impact. Fire impacts were low to moderate although the site had not been burned for a number of years.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 16.1

Short Description: *Corymbia dichromophloia* +/- *Corymbia aspera* Low Open Woodland.

NVIS Code: T6r



Plate 25. Vegetation Community Site C13V Community



Plate 26. Distribution of the Vegetation

Area: 1.5 km² and 0.8% of total mapped area

Survey sites sampled: C13V, C14V

Survey sites sampled within Deposit C: C14V

NVIS Description: *Corymbia dichromophloia* +/- *Corymbia aspera* Low Open Woodland over +/- *Acacia multisiliqua*, *Clerodendrum floribundum*, *Corymbia aspera* and *Maytenus cunninghamii* Tall Isolated shrubs over *Acacia gonocarpa*, *Desmodium glareosum*, *Eriachne ciliata*, *Eriachne melicacea* and *Evolvulus alsinoides* var. *Indeterminate* Low Tussock Grassland.

Upper: Low open woodland of *Corymbia dichromophloia* (fq 100%) and *Corymbia aspera* (fq 50%).

Mid: Tall isolated shrubs of *Acacia multisiliqua* (fq 50%), *Clerodendrum floribundum* (fq 50%), *Corymbia aspera* (fq 50%) and *Maytenus cunninghamii* (fq 50%).

Ground: Low tussock grassland of *Acacia gonocarpa* (fq 100%), *Desmodium glareosum* (fq 100%), *Eriachne ciliata* (fq 100%), *Eriachne melicacea* (fq 100%) and *Evolvulus alsinoides* var. *indeterminate* (fq 100%).

Other species

Upper: No additional species were recorded.

Mid: No additional species were recorded.

Ground: *Schizachyrium fragile* (fq 100%), *Acacia galioides* var. *galioides* (fq 50%), *Aristida holathera* var. *holathera* (fq 50%), *Bonamia pannosa* (fq 50%), *Buchanania obovata* (fq 50%), *Calandrinia uniflora* (fq 50%), *Calytrix exstipulata* (fq 50%), *Cheilanthes nitida* (fq 50%), *Fimbristylis dichotoma* (fq 50%), *Fimbristylis pterygosperma* (fq 50%), *Gomphrena canescens* (fq 50%), *Heliotropium* sp. (fq 50%), *Heterachne gulliveri* (fq 50%), *Indigofera linifolia* (fq 50%), *Lindernia lobelioides* (fq 50%), *Lipocarpa microcephala* (fq 50%), *Mnesithea formosa* (fq 50%), *Scaevola revoluta* subsp. *revoluta* (fq 50%), *Sida macropoda* (fq 50%), *Tephrosia leptoclada* (fq 50%), *Terminalia carpentariae* (fq 50%), *Triodia bitextura* (fq 50%), *Triodia pungens* (fq 50%).

Landform: Hillslopes of escarpments.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	4.5 (3 - 6)	8 (4 - 12)	T6r
Mid	Shrub	2.5 (2 - 3)	2.2 (1 - 5)	S4r
Ground	Tussock Grass	57 (55 - 60)	0.5 (0.1 - 0.8)	G1c

General Condition:

The vegetation condition was excellent with no weeds, feral herbivores and low fire impacts. The low stature and sparseness of the vegetation indicates that this vegetation community is unlikely to burn frequently and if it occurs but only at a low intensity.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 17.1

Short Description: *Eucalyptus phoenicea* +/- *Corymbia dichromophloia*, *Eucalyptus tetrodonta*, *Corymbia ferruginea* subsp. *ferruginea* Mid Woodland.

NVIS Code: T7i



Plate 27. Vegetation Community Site C15V Community

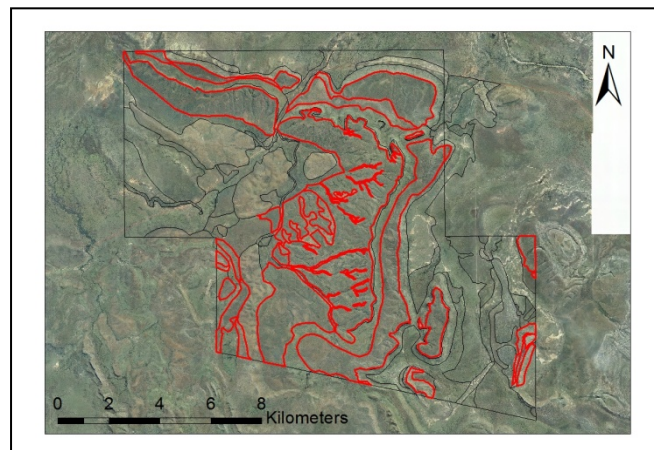


Plate 28. Distribution of the Vegetation Community

Area: 60km² and 35% of total mapped area

Survey sites sampled: C15V, C1V, C3V, HC08V

Survey sites sampled within Deposit C: C15V, C1V, C3V

NVIS Description: *Eucalyptus phoenicea* +/- *Corymbia dichromophloia*, *Eucalyptus tetrodonta*, *Corymbia ferruginea* subsp. *ferruginea* Mid Woodland over *Erythrophleum chlorostachys* +/- *Petalostigma quadriloculare*, *Calytrix exstipulata*, *Terminalia canescens* and *Terminalia carpentariae* Tall Open Shrubland over +/- *Triodia bitextura*, *Triodia pungens*, *Acacia galioides* var. *galioides*, *Eriachne ciliata* and *Sorghum plumosum*.

Upper: Mid woodland dominated by *Eucalyptus phoenicea* (fq 100%), *Corymbia dichromophloia* (fq 75%), *Eucalyptus tetrodonta* (fq 75%) and *Corymbia ferruginea* subsp. *ferruginea* (fq 50%).

Mid: Tall open shrubland of *Erythrophleum chlorostachys* (fq 100%), *Petalostigma quadriloculare* (fq 75%), *Calytrix exstipulata* (fq 50%), *Terminalia canescens* (fq 50%) and *Terminalia carpentariae* (fq 50%).

Ground: Mid hummock grassland dominated by *Triodia bitextura* (fq 75%), *Triodia pungens* (fq 75%), *Acacia galioides* var. *galioides* (fq 75%), *Eriachne ciliata* (fq 75%) and *Sorghum plumosum* (fq 75%).

Other species

Upper: No additional species were recorded.

Mid: *Acacia gonocarpa* (fq 25%), *Acacia holosericea* (fq 25%), *Acacia multisiliqua* (fq 25%), *Cochlospermum fraseri* subsp. *fraseri* (fq 25%), *Dendrophthoe odontocalyx* (fq 25%), *Eucalyptus tetradonta* (fq 25%), *Grevillea heliosperma* (fq 25%), *Hibbertia lepidota* (fq 25%), *Owenia vernicosa* (fq 25%), *Persoonia falcata* (fq 25%).

Ground: *Fimbristylis oxystachya* (fq 75%), *Spermacoce leptoloba* (fq 75%), *Aristida holathera* var. *holathera* (fq 50%), *Desmodium glareosum* (fq 50%), *Phyllanthus* sp. (fq 50%), *Schizachyrium fragile* (fq 50%), *Stackhousia intermedia* (fq 50%), *Tephrosia leptoclada* (fq 50%), *Wrightia saligna* (fq 50%), *Acacia gonocarpa* (fq 25%), *Acacia gonoclada* (fq 25%), *Acacia holosericea* (fq 25%), *Acacia lamprocarpa* (fq 25%), *Buchanania obovata* (fq 25%), *Buchnera linearis* (fq 25%), *Calandrinia uniflora* (fq 25%), *Cheilanthes nitida* (fq 25%), *Cochlospermum fraseri* subsp. *fraseri* (fq 25%), *Corchorus sidoides* subsp. *sidoides* (fq 25%), *Desmodium brownii* (fq 25%), *Eriachne avenacea* (fq 25%), *Eriachne melicacea* (fq 25%), *Evolvulus alsinoides* var. *indeterminate* (fq 25%), *Fimbristylis pterygosperma* (fq 25%), *Gompholobium subulatum* (fq 25%), *Grevillea dryandri* (fq 25%), *Haemodorum coccineum* (fq 25%), *Hibbertia lepidota* (fq 25%), *Petalostigma quadriloculare* (fq 25%), *Polygala* sp. rock lover var. *angustata* (fq 25%), *Ptilotus conicus* (fq 25%), *Santalum lanceolatum* (fq 25%), *Stemodia lythrifolia* (fq 25%), *Tephrosia polyzyga* (fq 25%), *Triodia procera* (fq 25%), *Zornia muriculata* (fq 25%), *Zornia prostrata* (fq 25%).

Landform: Hillslopes and hillcrests of escarpments.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	23 (15 - 45)	10.7 (6 - 13)	T7i
Mid	Shrub	19.2 (5 - 50)	2.2 (0.8 - 5)	S4i
Ground	Hummock Grass	53.7 (45 - 60)	0.5 (0.2 - 1)	H2c

General Condition:

Weeds and feral animals were not recorded on this vegetation community. Fire impacts were low with all site not burned within the last 2 years.

Species of Conservation Significance:

None encountered during surveys.

Vegetation Community 19.1

Short Description: *Eucalyptus miniata* and *Corymbia ferruginea subsp. ferruginea* Low Open Woodland.

NVIS Code: T7i



Plate 29. Vegetation Community Site HC14V Community

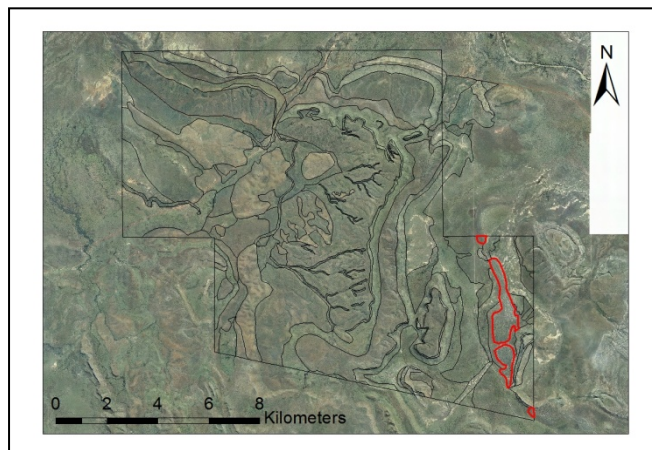


Plate 30. Distribution of the Vegetation

Area: 2.6 km² and 1.5% of total mapped area

Survey sites sampled: HC14V

Survey sites sampled within Deposit C: None

NVIS Description: *Eucalyptus miniata* and *Corymbia ferruginea subsp. ferruginea* Low Open Woodland over *Acacia conspersa*, *Acacia dimidiata*, *Acacia gonoclada*, *Acacia torulosa* and *Alphitonia excelsa* Tall Isolated Shrubs over *Triodia bitextura*, *Aristida holathera*, *Eriachne ciliata*, *Eriachne obtusa* and *Blumea saxatilis* Low Hummock Grassland.

Upper: Low open woodland dominated by *Corymbia ferruginea subsp. ferruginea* (fq 100%) and *Eucalyptus miniata* (fq 100%).

Mid: Tall isolated shrubs of *Acacia conspersa* (fq 100%), *Acacia dimidiata* (fq 100%), *Acacia gonoclada* (fq 100%), *Acacia torulosa* (fq 100%) and *Alphitonia excelsa* (fq 100%).

Ground: Low hummock grassland dominated by *Triodia bitextura* (fq 100%), *Aristida holathera* (fq 100%), *Eriachne ciliata* (fq 100%) and *Eriachne obtusa* (fq 100%). *Blumea saxatilis* (fq 100%) was a common forb.

Other species

Upper: No additional species were recorded.

Mid: *Bossiaea bossiaeoides* (fq 100%), *Breynia cernua* (fq 100%), *Dodonaea hispidula* var. *indeterminate* (fq 100%), *Grevillea pteridifolia* (fq 100%), *Hibbertia lepidota* (fq 100%), *Jacksonia odontoclada* (fq 100%), *Persoonia falcata* (fq 100%), *Petalostigma quadriloculare* (fq 100%), *Verticordia verticillata* (fq 100%).

Ground: *Gonocarpus leptothecus* (fq 100%), *Hyptis suaveolens* (fq 100%), *Oldenlandia spermacoides* (fq 100%), *Tephrosia virens* (fq 100%).

Landform: Slightly sloping plain.

Structural Summary:

Strata	Modal growth form	Mean cover (range) (%)	Mean height (range) (m)	NVIS Code
Upper	Tree	15 (15 - 15)	8 (6 - 11)	T6r
Mid	Shrub	3 (3 - 3)	2 (1 - 4)	S4r
Ground	Tussock Grass	80 (80 - 80)	0.2 (0.1 - 0.6)	H1c

General Condition:

The condition of this vegetation community is not known at Deposit C and surrounds, as this vegetation community was sampled from the area around Hodgson River.

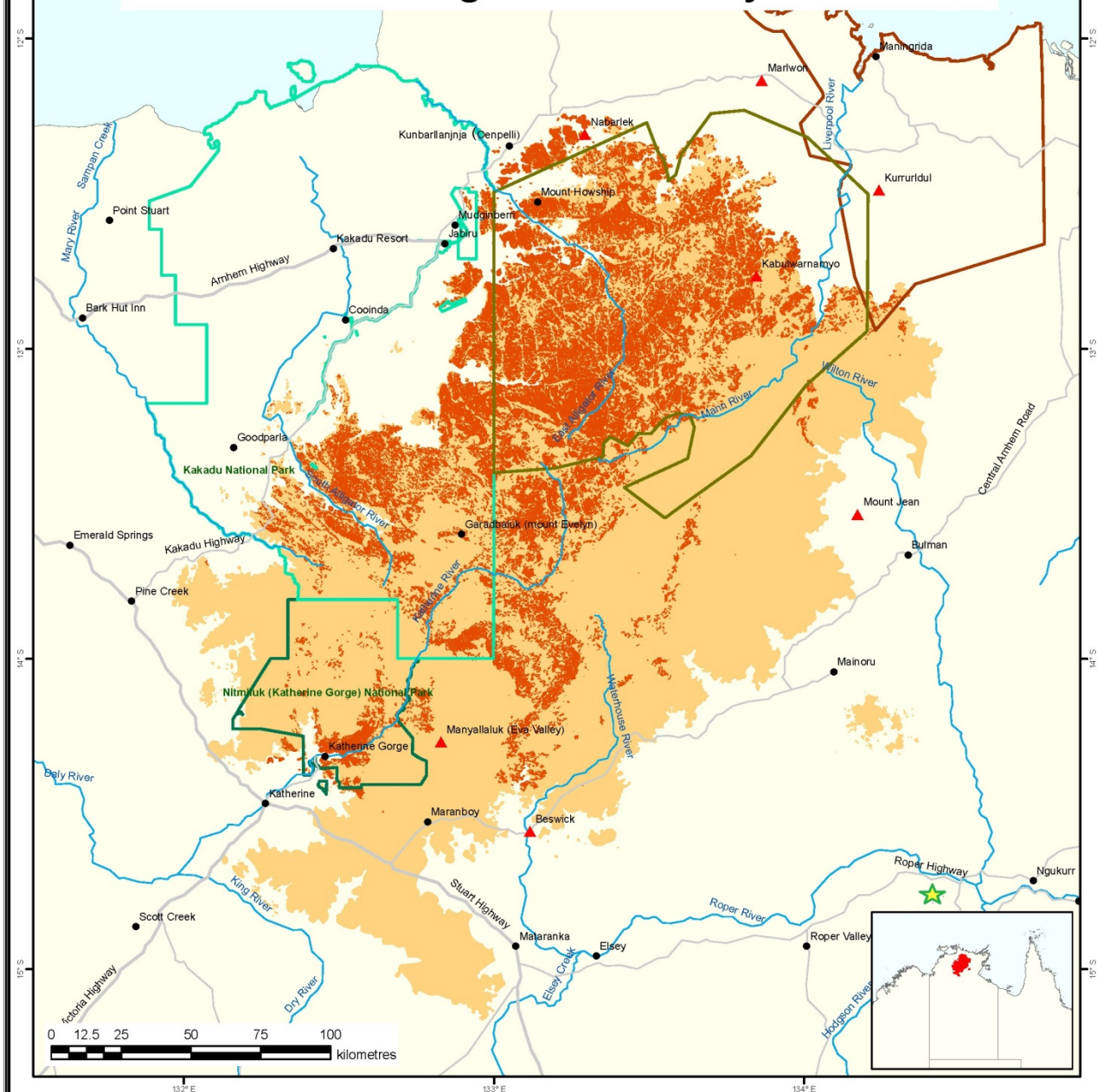
Species of Conservation Significance:

None encountered during surveys.

Appendix 3 – Distribution of Arnhem Plateau Sandstone Shrubland Complex

(sourced from <http://www.environment.gov.au/biodiversity/threatened/communities/maps/pubs/111-map.pdf>)

Arnhem Plateau Sandstone Shrubland Complex Ecological Community



Legend

- ▲ Outstations
- Locality
- Major Roads
- Major Rivers

Declared Indigenous Protected Areas:

- Djelk
- Warrdeken

National Park Name:

- Kakadu National Park
- Nitmiluk (Katherine Gorge) National Park

Arnhem Plateau Sandstone Shrubland Complex Ecological Community:

- May occur
- Likely to occur

This is an indicative map only and it is not intended for fine scale assessment.

Projection: Geographic
Datum: GDA 1984
1:1,380,000



Source

The 'May occur' boundary is based on the Arnhem sandstone plateau, as defined by Blake. The 'Likely to occur' boundary uses Blake's four heath classifications (burnt heath, definite heath, heath/rainforest and heath/woodland).

The Arnhem Plateau Sandstone Sclerophyll Complex Ecological Community equates to Blake's 'Sandstone heath'. Sandstone heath distribution on the Arnhem Plateau, from Blake, G., *An Object-Oriented Approach to Mapping the Distribution of Sandstone Heath Vegetation on the Arnhem Plateau*, Honours Thesis, Charles Darwin University, Northern Territory, 2004.

Roads 1:5milion © Commonwealth of Australia, Geoscience Australia, 2004.

Localities 1:5milion © Commonwealth of Australia, Geoscience Australia, 2004.

Drainage 1:5milion © Commonwealth of Australia, Geoscience Australia, 2004.

Coastline 1:250,000 © Commonwealth of Australia, Geoscience Australia, 2006.

Indigenous Protected Areas, Indigenous Protected Area Program, © Australian Government Department of the Environment, Water, Heritage and the Arts, 2011.

CAPAD (Collaborative Australian Protected Areas Database) 1:250,000, Data contributed by State/Territory nature and conservation agencies also privately funded organisations, version 5, DEWHA, 2004.

Caveat

The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything contained herein. The map has been collated from a range of sources, with data at various resolutions. Data used are assumed to be correct as received from the data suppliers.

Produced by:

ERIN (Environmental Resources Information Network)

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

June 2011

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Appendix 4 – Flora species recorded at Deposit C and surrounds

Family	Botanical Name
AMARANTHACEAE	<i>Achyranthes aspera</i>
	<i>Gomphrena canescens</i>
	<i>Ptilotus conicus</i>
	<i>Ptilotus spicatus</i>
ANACARDIACEAE	<i>Buchanania obovata</i>
APOCYNACEAE	<i>Carissa lanceolata</i>
	<i>Marsdenia viridiflora</i>
	<i>Wrightia saligna</i>
ASTERACEAE	<i>Bidens bipinnata</i>
	<i>Pterocaulon sphacelatum</i>
	<i>Sphaeromorphaea australis</i>
BIGNONIACEAE	<i>Dolichandrone filiformis</i>
BIXACEAE	<i>Cochlospermum fraseri</i> subsp. <i>fraseri</i>
BORAGINACEAE	<i>Ehretia saligna</i>
	<i>Heliotropium</i> sp.
CANNABACEAE	<i>Trema tomentosa</i>
CAPPARACEAE	<i>Capparis lasiantha</i>
CARYOPHYLLACEAE	<i>Polycarpaea breviflora</i>
CELASTRACEAE	<i>Maytenus cunninghamii</i>
	<i>Stackhousia intermedia</i>
CLEOMACEAE	<i>Cleome viscosa</i>
COMBRETACEAE	<i>Terminalia canescens</i>
	<i>Terminalia carpentariae</i>
	<i>Terminalia platyptera</i>
	<i>Terminalia volucris</i>
COMMELINACEAE	<i>Cartonema</i> sp.
	<i>Murdannia graminea</i>
CONVOLVULACEAE	<i>Bonamia pannosa</i>
	<i>Evolvulus alsinoides</i> var. <i>indeterminate</i>
	<i>Ipomoea muelleri</i>
	<i>Jacquemontia paniculata</i>
	<i>Polymeria ambigua</i>
CYPERACEAE	<i>Bulbostylis barbata</i>
	<i>Cyperus cunninghamii</i>
	<i>Fimbristylis dichotoma</i>
	<i>Fimbristylis oxystachya</i>
	<i>Fimbristylis pterygosperma</i>
	<i>Fimbristylis schoenoides</i>
	<i>Fimbristylis simplex</i>
	<i>Fimbristylis simulans</i>

Family	Botanical Name
	<i>Lipocarpa microcephala</i>
	<i>Rhynchospora leae</i>
	<i>Rhynchospora submarginata</i>
	<i>Scleria brownii</i>
DILLENIACEAE	<i>Hibbertia lepidota</i>
DROSERACEAE	<i>Drosera dilatatopetiolaris</i>
EBENACEAE	<i>Diospyros humilis</i>
ERYTHROXYLACEAE	<i>Erythroxylum ellipticum</i>
EUPHORBIACEAE	<i>Excoecaria parvifolia</i>
	<i>Flueggea virosa</i>
	<i>Phyllanthus maderaspatensis</i>
FABACEAE	<i>Abrus precatorius</i> subsp. <i>precatorius</i>
	<i>Acacia galioides</i> var. <i>galioides</i>
	<i>Acacia gonocarpa</i>
	<i>Acacia gonoclada</i>
	<i>Acacia hammondii</i>
	<i>Acacia holosericea</i>
	<i>Acacia lamprocarpa</i>
	<i>Acacia limbata</i>
	<i>Acacia multisiliqua</i>
	<i>Acacia pachyphloia</i>
	<i>Acacia stigmatophylla</i>
	<i>Alysicarpus muelleri</i>
	<i>Bauhinia cunninghamii</i>
	<i>Bossiaea bossiaeioides</i>
	<i>Cajanus acutifolius</i>
	<i>Chamaecrista mimosoides</i>
	<i>Crotalaria montana</i>
	<i>Desmodium brownii</i>
	<i>Desmodium glareosum</i>
	<i>Desmodium muelleri</i>
	<i>Desmodium trichostachyum</i>
	<i>Dichrostachys spicata</i>
	<i>Erythrophleum chlorostachys</i>
	<i>Glycine tomentella</i>
	<i>Gompholobium subulatum</i>
	<i>Indigastrum parviflorum</i>
	<i>Indigofera linifolia</i>
	<i>Neptunia monosperma</i>
	<i>Rhynchosia minima</i>
	<i>Senna oligoclada</i>
	<i>Sesbania cannabina</i>
	<i>Stylosanthes scabra</i> *

Family	Botanical Name
	<i>Tephrosia humifusa</i> ^{nt}
	<i>Tephrosia leptoclada</i>
	<i>Tephrosia polyzyga</i>
	<i>Tephrosia</i> sp. pentecost river
	<i>Tephrosia subpectinata</i>
	<i>Zornia muriculata</i>
	<i>Zornia prostrata</i>
GOODENIACEAE	<i>Goodenia</i> sp. Melville Island
	<i>Scaevola revoluta</i> subsp. <i>revoluta</i>
HAEMODORACEAE	<i>Haemodorum coccineum</i>
HALORAGACEAE	<i>Gonocarpus leptothecus</i>
LAMIACEAE	<i>Anisomeles malabarica</i>
	<i>Clerodendrum floribundum</i>
	<i>Hyptis suaveolens</i> ^B
	<i>Premna acuminata</i>
	<i>Vitex glabrata</i>
LAURACEAE	<i>Cassytha capillaris</i>
LINDERNIACEAE	<i>Lindernia lobelioides</i>
LOGANIACEAE	<i>Mitrasacme connata</i>
	<i>Strychnos lucida</i>
LORANTHACEAE	<i>Dendrophthoe odontocalyx</i>
	<i>Lysiana spathulata</i> subsp. <i>indeterminate</i>
MALVACEAE	<i>Abelmoschus ficulneus</i>
	<i>Abutilon hannii</i> subsp. <i>erect</i>
	<i>Abutilon hannii</i> subsp. <i>prostrate</i>
	<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>
	<i>Brachychiton paradoxus</i>
	<i>Corchorus fascicularis</i>
	<i>Corchorus pumilio</i>
	<i>Corchorus sidoides</i> subsp. <i>sidoides</i>
	<i>Grewia retusifolia</i>
	<i>Helicteres angustifolia</i>
	<i>Helicteres cana</i>
	<i>Helicteres isora</i>
	<i>Hibiscus leptocladus</i>
	<i>Hibiscus meraukensis</i>
	<i>Melhania oblongifolia</i>
	<i>Sida macropoda</i>
	<i>Sida</i> sp. Mt Bundey
	<i>Sida spinosa</i>
	<i>Triumfetta parviflora</i>
	<i>Waltheria indica</i>

Family	Botanical Name
MELIACEAE	<i>Owenia vernicosa</i>
MORACEAE	<i>Ficus aculeata</i> var. <i>aculeata</i>
	<i>Ficus cerasicarpa</i>
MYRTACEAE	<i>Calytrix exstipulata</i>
	<i>Corymbia aspera</i>
	<i>Corymbia bella</i>
	<i>Corymbia dichromophloia</i>
	<i>Corymbia ferruginea</i> subsp. <i>ferruginea</i>
	<i>Corymbia flavescens</i>
	<i>Corymbia latifolia</i>
	<i>Corymbia terminalis</i>
	<i>Eucalyptus leucophloia</i>
	<i>Eucalyptus miniata</i>
	<i>Eucalyptus phoenicea</i>
	<i>Eucalyptus pruinosa</i>
	<i>Eucalyptus tectifica</i>
	<i>Eucalyptus tetrodonta</i>
	<i>Melaleuca citrolens</i>
	<i>Melaleuca viridiflora</i>
OLEACEAE	<i>Jasminum molle</i>
OPILIACEAE	<i>Opilia amentacea</i>
OROBANCHACEAE	<i>Buchnera linearis</i>
PASSIFLORACEAE	<i>Passiflora foetida</i> *
PHYLLANTHACEAE	<i>Bridelia tomentosa</i>
	<i>Margaritaria dubium-traceyi</i>
	<i>Phyllanthus exilis</i>
	<i>Phyllanthus</i> sp.
	<i>Sauropus trachyspermus</i>
PICRODENDRACEAE	<i>Petalostigma banksii</i>
	<i>Petalostigma quadriloculare</i>
PLANTAGINACEAE	<i>Stemodia lythrifolia</i>
	<i>Striga curviflora</i>
POACEAE	<i>Alloteropsis semialata</i>
	<i>Aristida exserta</i>
	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida latifolia</i>
	<i>Brachyachne convergens</i>
	<i>Brachyachne tenella</i>
	<i>Chrysopogon fallax</i>
	<i>Cymbopogon procerus</i>
	<i>Dichanthium fecundum</i>
	<i>Dichanthium sericeum</i>
	<i>Digitaria bicornis</i> *

Family	Botanical Name
	<i>Digitaria nematostachya</i>
	<i>Ectrosia scabrida</i>
	<i>Eriachne armitii</i>
	<i>Eriachne avenacea</i>
	<i>Eriachne ciliata</i>
	<i>Eriachne melicacea</i>
	<i>Eriachne obtusa</i>
	<i>Eulalia aurea</i>
	<i>Heterachne gulliveri</i>
	<i>Heteropogon contortus</i>
	<i>Iseilema fragile</i>
	<i>Iseilema macratherum</i>
	<i>Iseilema vaginiflorum</i>
	<i>Iseilema windersii</i>
	<i>Mnesithea formosa</i>
	<i>Ophiuros exaltatus</i>
	<i>Panicum decompositum</i>
	<i>Panicum mindanaense</i>
	<i>Pseudopogonatherum contortum</i>
	<i>Schizachyrium fragile</i>
	<i>Schizachyrium pachyarthron</i>
	<i>Sehima nervosum</i>
	<i>Sorghum plumosum</i>
	<i>Thaumastochloa major</i>
	<i>Thaumastochloa striata</i>
	<i>Themeda triandra</i>
	<i>Triodia bitextura</i>
	<i>Triodia inutilis</i>
	<i>Triodia pungens</i>
	<i>Whiteochloa semitonsa</i>
POLYGALACEAE	<i>Polygala barbata</i>
	<i>Polygala bifoliata</i>
	<i>Polygala longifolia</i>
	<i>Polygala parviloba</i>
	<i>Polygala petraphila</i> var. <i>angustata</i>
	<i>Polyglala</i> sp. <i>small lobes</i>
PORTULACACEAE	<i>Calandrinia uniflora</i>
	<i>Portulaca bicolor</i>
PROTEACEAE	<i>Grevillea dimidiata</i>
	<i>Grevillea dryandri</i>
	<i>Grevillea heliosperma</i>
	<i>Grevillea parallela</i>
	<i>Grevillea striata</i>

Family	Botanical Name
	<i>Hakea arborescens</i>
	<i>Hakea lorea subsp. lorea</i>
	<i>Persoonia falcata</i>
	<i>Stenocarpus acacioides</i>
PTERIDACEAE	<i>Cheilanthes brownii</i>
	<i>Cheilanthes nitida</i>
RHAMNACEAE	<i>Alphitonia excelsa</i>
RUBIACEAE	<i>Gardenia megasperma</i>
	<i>Oldenlandia mitrasacmoides subsp. mitrasacmoides</i>
	<i>Spermacoce auriculata</i>
	<i>Spermacoce leptoloba</i>
SANTALACEAE	<i>Santalum lanceolatum</i>
SAPINDACEAE	<i>Atalaya variifolia</i>
	<i>Dodonaea hispidula var. indeterminate</i>
	<i>Dodonaea physocarpa</i>
SAPOTACEAE	<i>Pouteria sericea</i>
THYMELAEACEAE	<i>Thecanthes punicea</i>
VIOLACEAE	<i>Hybanthus enneaspermus subsp. enneaspermus</i>
VITACEAE	<i>Cayratia trifolia</i>

Key:

* - introduced plants

B – Class B weed declared under NT *Weed Management Act*

nt – This taxon is listed as 'Near Threatened' under the *TPWC Act*.