

→ Pluton Resources



→ **FLORA AND VEGETATION SURVEY**

→ Irvine Island, October 2010

→ March 2011



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Executive Summary

Pluton Resources is currently undertaking an exploration drilling program for iron ore at Irvine Island, situated approximately 135 km north of Derby at the northern end of the Yampi Peninsula in the Kimberley region of north-west Western Australia. Onshore Environmental Consultants (Onshore Environmental) was commissioned to undertake a two season Level 2 flora and vegetation survey of Irvine Island and selected areas of neighbouring islands during 2010 and early 2011. A three day reconnaissance survey was completed during the wet season of 2010 (April) followed by a 14 field day survey in October 2010 (dry season). It has been proposed that a follow-up wet season survey occur in March 2011.

A total number of 172 plant taxa (including varieties and subspecies) from 55 families and 120 genera were recorded during the three day reconnaissance survey of Hardstaff Peninsula between the 8th and 10th April 2010. The 14 day dry season survey that covered Irvine Island, Flora Island, and parts of Bathurst Island and Kathleen Island between the 13th and 26th October 2010, recorded 202 plant taxa (including varieties and subspecies) from 58 families and 135 genera. Species representation was greatest among the Fabaceae, Malvaceae, Poaceae, Myrtaceae, Convolvulaceae, Proteaceae, Cyperaceae, Apocynaceae, Phyllanthaceae and Euphorbiaceae families. No plant taxa gazetted as Declared Rare Flora pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)*, or listed under the *EPBC Act 1999*, were recorded. However, there were three Priority flora species recorded; *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) (Priority 1), *Phyllanthus aridus* (Priority 3) and *Haemodorum gracile* (Priority 4). Based on current records listed in Florabase eleven plant taxa show range extensions; *Cajanus scarabaeoides* var. *pedunculatus*, *Cullen virens*, *Decaisnina signata* subsp. *cardiophylla*, *Dendrobium affine*, *Fimbristylis leucocolea*, *Fimbristylis schultzii*, *Flemingia parviflora*, *Marsdenia pleiadenia*, *Tephrosia laxa* var. *angustata*, *Tephrosia* sp. E Kimberley Flora (C.A. Gardner 9937) and *Tephrosia subpectinata*. The total flora included two introduced (weed) species; **Melinis repens* (Blanketgrass) and **Passiflora foetida* var. *hispida* (Wild Passionfruit). Neither taxon is listed as a Declared Weed under the *Agriculture and Related Resources Protection Act, 1976* (ARRP Act).

Seventeen vegetation associations were described and mapped from the Irvine Island Study area; none of the vegetation associations described are listed as Threatened Ecological Communities (TECs) or Priority Ecological Community (PECs). The vegetation associations have been classified into nine Broad Floristic Formations on the basis of canopy structure:

Vegetation Association Code	Broad Floristic Formation	Vegetation Association Description
1a	Low Closed Forest	Low Closed Forest of <i>Sonneratia alba</i>
1b	Low Closed Forest	Low Closed Forest of <i>Rhizophora stylosa</i> and <i>Avicennia marina</i>

Vegetation Association Code	Broad Floristic Formation	Vegetation Association Description
1c	Low Closed Forest	Low Closed Forest of <i>Rhizophora stylosa</i>
1d	Low Closed Forest	Low Closed Forest of <i>Pandanus spiralis</i>
2a	Low Open Forest	Low Open Forest (to Low Closed Forest) of <i>Canarium australianum</i> var. <i>australianum</i> , <i>Sersalisia sericea</i> , <i>Mimusops elengi</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> over Very Open Tussock Grassland of <i>Sorghum plumosum</i>
2b	Low Open Forest	Low Open Forest of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus tectifica</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Microstachys chamaelea</i> over Tussock Grassland of <i>Chrysopogon latifolius</i> , <i>Sorghum plumosum</i>
3a	Woodland	Woodland of <i>Eucalyptus miniata</i> over Shrubland of <i>Calytrix extipulata</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> over Closed Hummock Grassland of <i>Triodia bynoei</i>
4a	Open Woodland	Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Low Closed Heath of <i>Acacia hippuroides</i> , <i>Gonocarpus leptothecus</i> , <i>Microstachys chamaelea</i> with Very Open Tussock Grassland of <i>Sorghum plumosum</i>
4b	Open Woodland	Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Low Open Heath of <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> , <i>Gonocarpus leptothecus</i> over Open Hummock Grassland of <i>Triodia bynoei</i>
5a	Low Woodland	Low Woodland of <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i> over Open Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> in saddles of range, with Low Open Shrubland of <i>Calytrix extipulata</i> , <i>Calytrix brownii</i> , <i>Buchanania oblongifolia</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> on peaks
6a	Low Open Woodland	Low Open Woodland of <i>Eucalyptus tectifica</i> , <i>Corymbia confertiflora</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia polycarpa</i> over Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania oblongifolia</i> over Low Open Heath of <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i>

Vegetation Association Code	Broad Floristic Formation	Vegetation Association Description
6b	Low Open Woodland	Low Open Woodland of <i>Corymbia confertiflora</i> , <i>Ficus platypoda</i> over High Open Shrubland of <i>Calytrix exstipulata</i> , <i>Verticordia verticillatus</i> , <i>Buchanania obovata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>
6c	Low Open Woodland	Low Open Woodland of <i>Corymbia confertiflora</i> over Open Shrubland of <i>Buchanania oblongifolia</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> over Low Open Heath of <i>Scaevola macrostachya</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>
6d	Low Open Woodland	Low Open Woodland of <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i> over Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> over Low Open Shrubland of <i>Triumfetta incana</i> , <i>Calytrix brownii</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>
7a	Low Open Heath	Low Open Heath (to Low Closed Heath) of <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>
8a	Scattered Shrubs	Scattered Shrubs of <i>Ficus platypoda</i> over Low Open Shrubland of <i>Cajanus cinereus</i> , <i>Calytrix exstipulata</i> , <i>Corchorus fascicularis</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>
9a	Tussock Grassland	Tussock Grassland of <i>Spinifex longifolius</i>

Vegetation condition for the 100 study sites formally assessed in April and October 2010 ranged from 'Pristine' to 'Very Good', with only minor disturbances recorded. The disturbances noted included access tracks and localised infrastructure dumps remaining from historical BHP exploration activities, and narrow walk tracks and camp laydown established during the current exploration program by Pluton Resources.

Flora and vegetation values of conservation significance within the Study area were restricted to scattered locations supporting the Priority 1 flora *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84), Priority 3 flora *Phyllanthus aridus* and Priority 4 flora *Haemodorum gracile* (State significance), mangrove features described and mapped as Vegetation Associations 1a, 1b and 1c, and small rainforest patches scattered throughout Vegetation Association 2a (Local significance).

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1.0 Introduction

1.1 Preamble

Pluton Resources holds iron ore exploration leases at Irvine Island situated approximately 135 km north of Derby at the northern end of the Yampi Peninsula in the Kimberley region of north-west Western Australia (Figure 1). Irvine Island is one of up to 1,000 rocky islands within the Buccaneer Archipelago (CALM 1994).

In response to an invitation from Strategen Environmental Consultants (Strategen), Onshore Environmental Consultants (Onshore Environmental) was commissioned to undertake a two-season Level 2 flora and vegetation survey of Irvine Island. A reconnaissance field survey of Hardstaff Peninsula occurred over three days during the wet season of 2010 (April), followed by a larger survey effort during the dry season 2010 (October) that included the entire area of Irvine Island and selected areas of neighboring Bathurst, Kathleen and Flora Islands. It is proposed that a follow-up wet season survey occur during March 2011 to ensure maximum capture of the annual flora component.

1.2 Climate

Irvine Island is situated at the western edge of the Fitzgerald Botanical District in the Northern Kimberley bioregion of the Northern Province. The area experiences a hot, tropical, sub-humid climate with long term annual rainfall averaging 761 mm at the nearest Bureau of Meteorology (BOM) weather station at Cape Leveque. Annual rainfall for Irvine Island may be higher than that suggested by the Cape Leveque figures, with records from nearby Koolan Island suggesting a higher annual average of approximately 960 mm. The majority of precipitation occurs between the summer months from December to March (82%), known as the 'wet season'. Summer rainfall is typically associated with cyclone activity. Maximum summer temperatures average 32°C with relatively high humidities also recorded. Mean minimum summer temperature is in the range of 26°C to 27°C.

Rainfall decreases significantly during winter and spring months, with long term monthly averages for the June to November period ranging from 1 mm to 20 mm. Mean maximum temperatures for the same period range from 28°C to 32°C and mean minimum temperatures range from 19°C to 26°C.

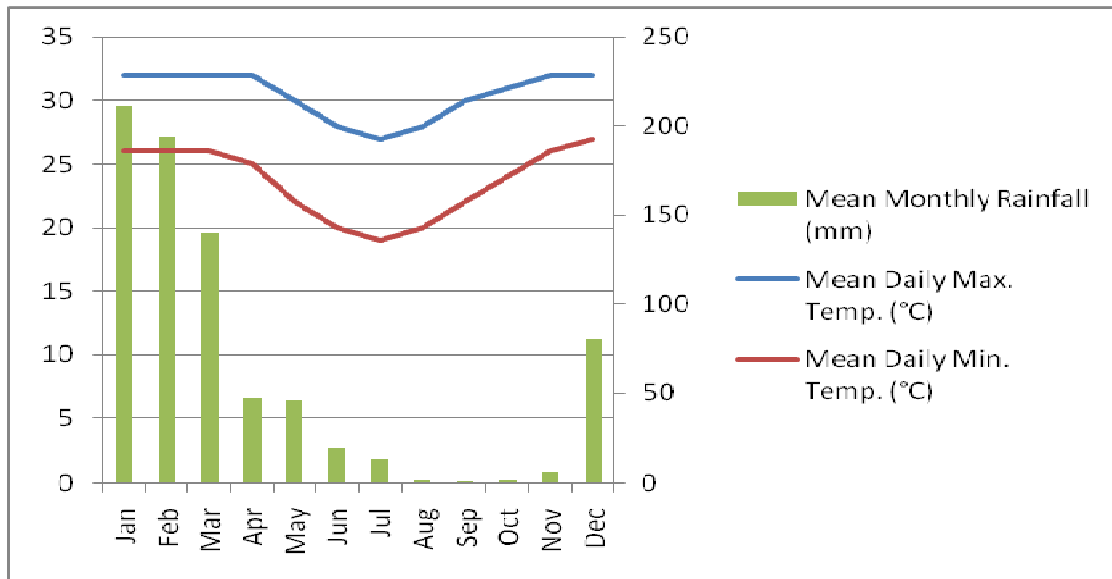


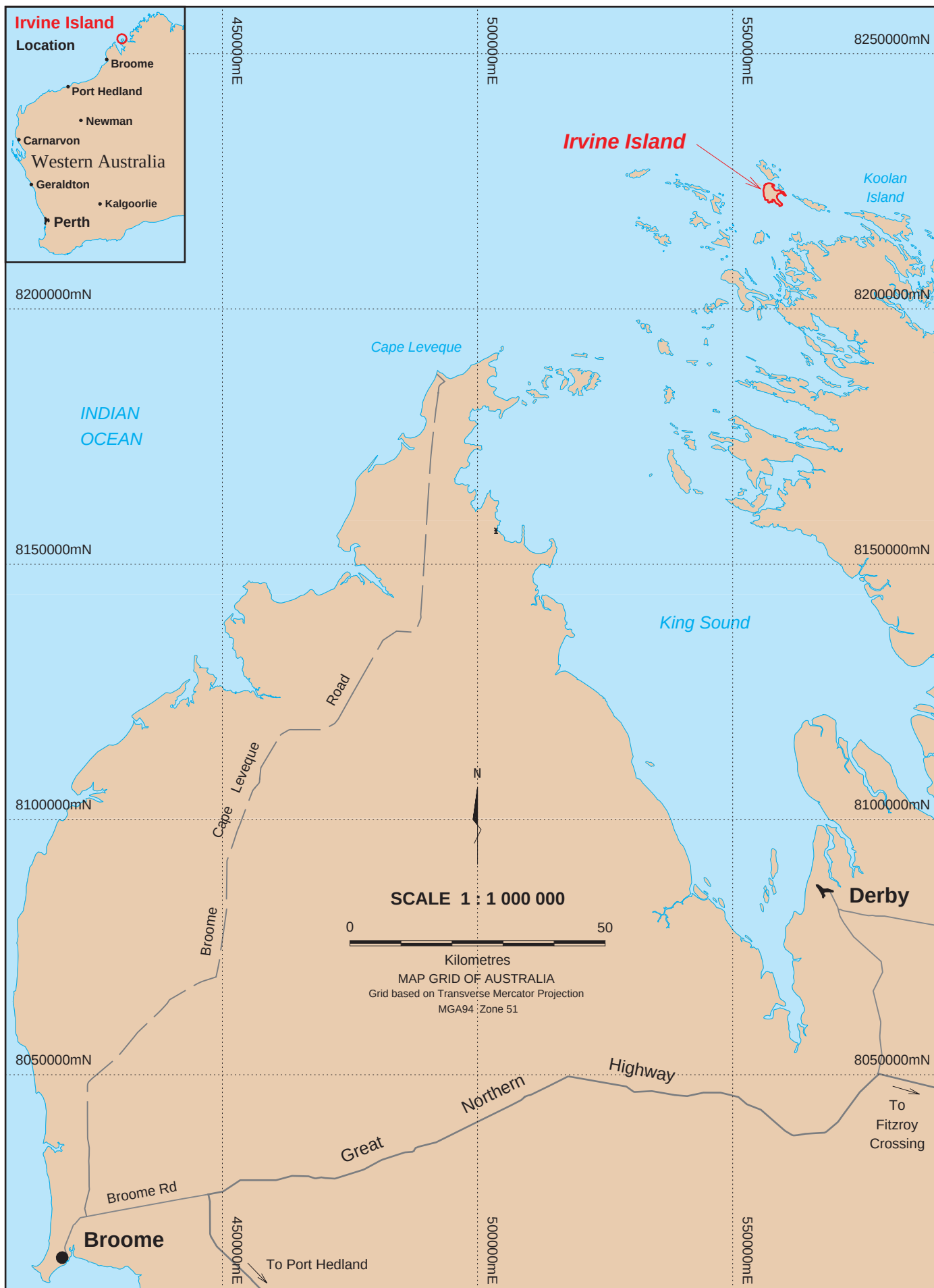
Figure 2 Climatic Data for Cape Leveque (1979-2009) (BOM 2010), the closest BOM weather station to Irvine Island.

1.3 Biogeographic Regions

Thackway and Cresswell (1995) describe a system of 85 'biogeographic regions' (bioregions) and 403 sub-regions covering the entire Australian continent. Bioregions are defined on the basis of climate, geology, landforms, vegetation and fauna. The Irvine Island Study area is located in the Mitchell subregion (NK1) of the Northern Kimberley bioregion (Thackway and Cresswell, 1995), within the Northern Botanical Province (Beard 1990).

The Mitchell subregion (NK1) covers 6,079,985 ha and is described as a dissected plateau of horizontal to gently sloping Proterozoic sandstone within the Kimberley Basin. The sub-region is characterised by the following biogeographic features:

- Savannah woodland over high *Sorghum* grasses and hummock grasses on shallow sandy soils on outcropping Proterozoic siliceous sandstone strata;
- Savannah woodlands over high *Sorghum* grasses on red and yellow earths mantling basic Proterozoic volcanics;
- Riparian closed forests of *Melaleuca* and *Pandanus* along drainage lines;
- Rugged sunken coastline with extensive mangal occurring in estuaries and deep sheltered embayments; and
- Numerous small patches of monsoon rainforest (Graham 2001).



Client: **PLUTON
RESOURCES**

Project: **IRVINE ISLAND
FLORA AND VEGETATION SURVEY (APRIL 2010)**

Date: 11 June 2010

Scale: 1:1 Million

Author: D.Brearley

Drawn: S.Coleman

REGIONAL LOCATION

A4

Figure No. **1**

Plan No. **II-001**

1.4 Existing Land Use

Land tenure in the Kimberley consists of Aboriginal and leasehold reserves, national parks and reserves and crown land which fall under a range of pastoral and mining leases. The dominant landuses in the Kimberley are pastoralism in the form of cattle grazing on native pastures, unallocated crown land and crown reserves, and conservation (Graham 2001).

1.5 Landform & Soils

The Mitchell subregion of the Northern Kimberley has a diverse array of exposed basement strata dissected by rivers, and a rugged sunken coastline with deeply incised embayments. Skeletal sandy soils incompletely mantle the sandstone dominated ranges of the region, and there are significant areas of various volcanic surfaces, as well as lateritised uplands with open forests and alluvial floors along major river valleys (DEC 2009).

Irvine Island (893 ha) occurs on the western fringe of the Mitchell subregion approximately 8 km from the Yampi Peninsula mainland, and adjacent to Cockatoo Island (to the southeast) and Bathurst Island (to the north). Irvine Island has a Proterozoic sandstone lithology that is expressed as a series of parallel flat-topped ridges and uplands mantled with rocky scree and shallow skeletal sandy soils formed from steeply dipping beds of resistant Warton and Pentecost Sandstones. Where the softer Elgee Siltstones have been exposed, a series of deeply incised creeks have been created throughout the island. The coast has typically steep cliffs with narrow gullies and frequent embayments, but with few beaches.

1.6 Geology

The Kimberley Basin is a large structural basin occupying most of the Kimberley region with sediments of Lower to Mid Proterozoic age dominant. The Yampi ore bodies lie at the western end of the NW - SE trending King Leopold Mobile Zone which forms the south western border of the Kimberley Basin. Haematite concentration occurs in the basal Yampi member of the Pentecost Sandstone in the Kimberley group. The Kimberley Group comprises essentially a succession of sandstones, quartzites and siltstones, with some interbedded phyllite, unconformably overlying the Speewah Group. The stratigraphy on Irvine Island comprises the Warton Sandstone, Elgee Siltstone and Yampi Member of the Pentecost Sandstone (distinguished by its haematite).

The adjacent Cockatoo and Koolan Islands and mainland have essentially similar geology and geomorphology. The basal part of the Penetecost Sandstone on Irvine Island is composed of high grade haematite (iron ore).

1.7 Flora and Vegetation

Beard (1979) placed Irvine Island at the western edge of the Fitzgerald Botanical District in the Central Kimberley Natural Region of the Northern Province (also referred to as the Yampi Peninsula unit). The area is described broadly as 'Tree savanna on sandstone ranges' and mapped as '*Eucalyptus dichromophloia* (bloodwood) and *Eucalyptus miniata* (woollybutt) Low Trees over *Plectrachne pungens* Hummock Grass and *Chrysopogon* Bunch Grass'.

Beard (1979) notes that the Yampi Peninsula is extremely inaccessible and was not surveyed during his study, nor was it previously surveyed by CSIRO scientists as part of the Land Research Survey (Speck *et al.* 1964). Hence, vegetation mapping presented by Beard (1979) is largely presumptive from aerial photo-interpretation. The geological survey memoir (Gellatly and Sofoulis 1973) states "The typical vegetation of low-lying ground is grassy open eucalyptus woodland. Sandstone ridges support only stunted wattle and curly spinifex. Low hills, especially near the coast, have a heavy cover of tall cane grass." Beard (1979) mapped the sandstone ridges as 'curly-spinifex low tree savanna', with the trees being *Eucalyptus dichromophloia* and *Eucalyptus miniata*. On granite it is assumed that the trees change to *Eucalyptus brevifolia*. On basalt and dolerite in the valleys vegetation changes to a high-grass, low tree, savanna woodland with *Eucalyptus tectifica* and *Eucalyptus grandifolia* but somewhat stunted, and a grass layer of *Chrysopogon* spp., *Heteropogon contortus* and annual *Sorghum* (probably the 'Cane grass' grass' noted by Gellatly and Sofoulis 1973). *Eucalyptus perfoliata* is said to be very common on ridges. Numerous patches of mangrove occur in the sheltered bays and inlets.

Beard (1990) described vegetation of the region as 'curly spinifex with low trees of *Eucalyptus phoenicea* and *Eucalyptus ferruginea* or *Eucalyptus brevifolia* and *Eucalyptus dichromophloia* on sandstones; and ribbon grass (*Chrysopogon*) with *Eucalyptus tectifica* on basalt'.

More recent work on the Interim Biogeographic Regionalisation for Australia (IBRA) has placed the survey area within the Northern Kimberley Region of the Northern Botanical Province (Thackway & Cresswell 1995). The Northern Kimberley region is described as 'savanna *Eucalyptus* and *Corymbia* woodlands over grasses and hummock grasses; closed forests along drainage lines, mangroves in estuaries and sheltered bays and patches of monsoon rainforest'.

2.0 Objectives

2.1 Purpose

The purpose of this report was to undertake a dry season Level 2 flora and vegetation survey of Irvine Island and selected areas of neighbouring islands in October 2010. Reporting would incorporate results from a reconnaissance wet-season flora and vegetation survey of Hardstaff Peninsula completed over three days in April 2010.

2.2 Scope of Works

1. Flora and vegetation database review for the survey area and incorporating the following components:

- Threatened Flora listed under the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act);
- Declared Rare and Threatened Flora listed under the WA Wildlife Conservation (Rare Flora) Notice 2010;
- Priority Flora recognised by the DEC - as per current listing;
- Threatened Ecological Communities (TECs) listed under State and Federal legislation;
- Priority Ecological Communities (PECs) recognised by DEC; and
- Environmentally Sensitive Areas (ESAs) recognised by DEC.

2. Provide a summary of previous flora and vegetation surveys at Irvine Island and surrounding islands in the Buccaneer Archipelago.

3. Conduct a targeted survey of Irvine Island for:

- Threatened Flora listed under the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act 1999);
- Declared Rare and Threatened Flora listed under the WA Wildlife Conservation (Rare Flora) Notice 2010;
- Priority Flora recognised by Department of Environment and Conservation (DEC);
- TECs listed under the Commonwealth EPBC Act 1999;
- TECs endorsed by the Minister of the Environment;
- PECs recognised by DEC; and
- Declared weeds listed under the Agriculture and Related Resources Protection Act, 1976 and other environmental weed species. Co-ordinate locations and photographs of the above are to be provided.

4. Provide descriptions for vegetation associations present in the Study area, according to a recognised classification system (Specht as modified by Aplin);

5. Preparation of a vegetation association map for the Study area;

6. Describe condition of the vegetation associations or areas using a published rating scale;

7. Preparation of a vegetation condition map for the Study area; and

8. Describe the representation in a regional context of each vegetation association.

3.0 Methodology

3.1 Background

3.1.1 Legislation and Guidance Statements

The flora and vegetation survey was designed to meet requirements of the following State and Commonwealth legislation, and carried out in a manner that was compliant with EPA requirements for the environmental surveying and reporting of flora and vegetation in Western Australia:

- *Environmental Protection Act 1986 (WA)* (“EP Act 1986”);
- *Wildlife Conservation Act 1950 (WA)*;
- *EPBC Act 1999 (Cth)* (“EPBC Act 1999”);
- *Environmental Protection of Native Vegetation in Western Australia: Clearing of Native Vegetation with Particular Reference to Agricultural Areas. Position Statement No. 2* (EPA 2000);
- *Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3* (EPA 2002); and
- *EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51* (EPA 2004a).

There are two formal levels of flora survey delineated by the EPA:

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

Where the scale and nature of the proposed impact is moderate to high, a Level 2 survey will be required in most areas of the State, and is typically required for resource development projects. The expectations of the EPA are set out in *Guidance Statement No. 51* (EPA 2004), which details the extent, design and intensity of field surveys for environmental assessments in Western Australia.

The high level of disturbance to the flora proposed for Irvine Island requires that a Level 2 flora and vegetation survey is completed.

3.2 Desktop Searches

The desktop assessment of vegetation and flora values included a literature search, database searches and review of regional mapping. The literature search involved a review of historical reports and past surveys undertaken in the area where available. Database searches were undertaken for information relating to rare flora, Threatened Ecological Communities (TEC) and Priority Ecological Communities (PEC) previously collected or described within, or in close proximity to, Irvine Island. The database searches were extended beyond the immediate survey limits to place flora and vegetation values into a local and regional context. The search co-ordinates

given were for a 100 km radial search of the Irvine Island exploration camp at 16° 05' 26"S 123° 32' 59"E.

The State database search investigated three DEC databases:

1. The DEC Threatened (Declared Rare) Flora Data-base;
2. The DEC Declared Rare and Priority Flora List - this list contains species that are declared rare (Conservation Codes R, X), poorly known (Conservation Codes 1, 2, 3), or require monitoring (Conservation Code 4); and
3. The Western Australian Herbarium Specimen Database for priority species opportunistically collected in the area of interest.

The Federal database search investigated the EPBC database.

3.3 Survey Methodology

3.3.1 Field Assessment

Prior to the field survey a variety of topographic, vegetation, and land system maps were used to provide preliminary vegetation classification of the Study area. The survey comprised a 14 day effort by two qualified botanists to ground truth the Study area and selected areas on surrounding islands, record identifiable changes in vegetation composition and structure, collect voucher specimens, and assess vegetation classification. The field survey was undertaken from the 13th to 26th October 2010.

Vegetation type, life-form strata, percentage cover, surface soil type, litter cover and disturbance details were recorded intensively from a total of 84 formal study sites¹ and numerous releve plots². At each study site flora and vegetation occurring within 50 m x 50 m quadrats was assessed in detail. Description of vegetation structure follows the height, life form and density classes of Specht as modified by Aplin (see Appendix 1). This is largely a structural classification suitable for broader scale mapping, but taking all ecologically significant strata into account. Vegetation condition for each of the 84 sampling sites was determined using a recognised rating scale (based on Keighery 1994, see Appendix 2).

At least one voucher specimen was taken for each species collected to verify identification. Specimen identifications were confirmed at the Western Australian State Herbarium. Nomenclature follows Green (1985 & 1987), Paczkowska and Chapman (2000) and the Western Australian State Herbarium.

3.3.2 Field Survey Constraints

The EPA Guidance Statement for Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2004) list twelve

¹ An additional 16 formal study sites were previously established at Hardstaff Peninsula during the April 2010 (wet season) reconnaissance survey.

² A releve is a vegetation description taken within a delimited plot of vegetation. The description summarises dominant plant species, based on cover values, and stratified into height categories chosen to describe vertical structure.

potential constraints that field surveys may encounter. These constraints are addressed in Table 1.

Table 1 **Relevance of constraints, as identified by EPA (2004), to the Irvine Island flora and vegetation survey.**

Constraint	Relevance
Scope	The scope was established by Strategen and Onshore Environmental in consultation with Pluton Resources, and is in compliance with relevant EPA Guidance Statements.
Proportion of flora collected and identified	It is anticipated that a significant proportion of the total flora present at Irvine Island has been recorded from the Study area between the April and October 2010 field assessments. It is anticipated that total flora may increase slightly following the proposed wet season survey planned for March 2011. Total flora has been increased by opportunistic post-fire plant taxa recorded by Onshore Environmental in the early stages of regeneration following the February 2009 wildfire at Irvine Island. These taxa are absent in long unburnt vegetation. The total flora at Irvine Island by Onshore Environmental during 2010 compares favourably with previous surveys completed at Irvine Island by Mattiske and Associates (2008), and at neighbouring Cockatoo and Koolan Islands.
Sources of information	A flora and vegetation survey of Hardstaff Peninsula at Irvine Island was completed in 2007 (Mattiske and Associates 2008). There have also been a number of flora surveys completed at neighbouring islands (Ecologia 2004a, b; Keighery <i>et al.</i> 1995).
The proportion of the task achieved and further work which might be needed	The majority of identified tasks for Level 2 flora and vegetation of the Irvine Island Study area have been completed. A full wet season survey proposed for March 2011 will be the final requirement. Additional work has been undertaken on neighbouring smaller islands including Bathurst, Kathleen and Flora. The availability of high resolution aerial photography would be beneficial for extending vegetation association mapping.
Timing / weather / season / cycle	A short wet-season reconnaissance survey was completed in April 2010 followed by a 15 day dry season survey in October 2010. The 2010 wet season was relatively dry and it is anticipated that a proposed follow-up wet season survey in March 2011 will be beneficial to results.
Disturbances, e.g. fire, flood	The majority of vegetation is in the early stages of regeneration following an extensive wildfire in February 2009. Minor historical ground disturbance has also resulted from BHP exploration activities in the south-east corner of Irvine Island, where current exploration by Pluton Resources is also occurring.
Intensity	The entire Study area was ground truthed on a 200 m by 200 m grid as part of targeted searches and vegetation mapping during the current flora and vegetation survey. The survey intensity ensured appropriate coverage and replication within the vegetation associations described and mapped.

Constraint	Relevance
Completeness	Low rainfall during the 2010 wet season and early regeneration stage following the February 2009 wildfire reduced the completeness of the survey. A 2011 wet season survey is proposed to ensure this current gap is filled.
Resources	Appropriate resources have been applied to the survey, with two qualified botanists completing field assessments over a 17 field day period to date.
Access problems	The majority of the Study area was able to be accessed on foot from helicopter drop off points. A 200m by 200m grid pattern has been covered on foot, with access restricted to only a few excessively steep landforms where safety concerns reduced access. Three heritage sites were covered with support from the Traditional Owners who accompanied botanists into the sites.
Availability of contextual information	A number of flora and vegetation surveys have been completed by private consultants and government agencies along the chain of islands where iron ore exploration and mining has occurred, including Koolan, Cockatoo and Irvine Islands. Other broader studies have also occurred in recent years that address issues relating to flora and vegetation of islands in the Buccaneer Archipelago.
Experience levels	The two Senior Botanists working on this project have extensive experience in the Pilbara and Kimberley. Both botanists have been involved in flora and vegetation surveys on neighbouring Cockatoo and Koolan Islands in recent years (between 2004 and 2009).

3.3.3 Assessment of Conservation Significance

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

Commonwealth Level:

- *EPBC Act 1999*: The Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC) lists Threatened Flora and Ecological Communities, which are determined by the Threatened Species Scientific Committee according to criteria set out in the Act (DSEWPAC 2006). The Act lists flora that are considered to be of conservation significance under one of six categories (Appendix 3).

State Level:

- *Wildlife Conservation Act 1950*: At a State level, native flora species are protected under the *Wildlife Conservation Act 1950 - Wildlife Conservation (Rare Flora) Notice*. A number of plant species are assigned an additional level of conservation significance based on a limited number of known populations and the perceived threats to these locations. Species of the highest conservation significance are gazetted Declared Rare Flora (DRF) under subsection 2 of section 23F of the *Wildlife Conservation Act 1950*. It is an offence to take or damage DRF without Ministerial approval. Section 23F of the *Wildlife Conservation Act (1950)* defines 'to take' as "to gather, pick, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means".

- DEC Priority list: DEC produces a list of Priority species and ecological communities (PEC's) that have not been assigned statutory protection under the *Wildlife Conservation Act 1950*. Priority Flora are under consideration for declaration as 'Rare Flora', classified as in urgent need of further survey (Priority One to Three) or require monitoring every 5-10 years (Priority Four, see Appendix 4). The list of Priority Ecological Communities identifies those that need further investigation before nomination for Threatened Ecological Community status.

Local Level:

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

4.0 Results

4.1 Desktop Review

4.1.1 Database Searches

A 100 km radial search from Irvine Island Study area was undertaken utilising databases maintained by EPBC and DEC to identify rare flora previously collected or identified.

There was no plant records listed on the Federal search of the EPBC database.

There were no DRF identified by the State DEC search. However, 34 Priority flora taxa were listed within a 100 km radius of Irvine Island including eight Priority 1 flora, eight Priority 2 flora, 17 Priority 3 flora, and one Priority 4 flora (Table 2).

Table 2 Rare flora previously recorded from a 100 km radial search of Irvine Island.

SCC - State Conservation Code (*Wildlife Conservation Act 1999*) and DEC (2008)

Genus	Species	SCC	Site
<i>Acacia</i>	<i>kenneallyi</i>	P3	Behind coastal dunes.
<i>Acrostichum</i>	<i>aureum</i>	P1	Wet drainage sumps within spring mound.
<i>Alysicarpus</i>	<i>major</i>	P3	Brown loam over basalt.
<i>Alysicarpus</i>	<i>suffruticosus</i>	P2	Valley in sandstone.
<i>Aphyllodium</i>	<i>glossocarpum</i>	P3	
<i>Cleome</i>	<i>kenneallyi</i>	P2	Rear of foredune.
<i>Colocasia</i>	<i>esculenta</i> var. <i>aquatis</i>	P3	In wet seepage area.
<i>Cullen</i>	<i>candidum</i>	P1	
<i>Cyperus</i>	<i>haspan</i> subsp. <i>haspan</i>	P1	In peat bank at edge of spring.
<i>Cyperus</i>	<i>victoriensis</i>	P1	
<i>Dendrolobium</i>	<i>cheelii</i>	P2	On top of waterfall above creek.
<i>Eragrostis</i>	<i>petraea</i>	P1	Permanent spring flowing slowly down slope from base of a sandstone hill
<i>Eragrostis</i>	<i>spartinoides</i>	P3	Sandy clay. Creek bank.
<i>Eriachne</i>	<i>semiciliata</i>	P3	On ridge and slope areas, in shallow soil amongst massive sandstone, in shallow soils close to mangroves.
<i>Eucalyptus</i>	<i>fitzgeraldii</i>	P2	On skeletal sandy soil over massive sandstone.
<i>Gardenia</i>	<i>gardneri</i>	P3	Hills, deep gully, SW aspect. Skeletal sandy soil on quartzite.
<i>Glycine</i>	<i>albicans</i>	P2	Undulating basalt rise.
<i>Glycine</i>	<i>pindanica</i>	P1	
<i>Goodenia</i>	<i>sepalosa</i> var. <i>glandulosa</i>	P3	
<i>Haemodorum</i>	<i>gracile</i>	P4	Sandy soil. Burnt area - sandstone.
<i>Helminthostachys</i>	<i>zeylanica</i>	P3	Margin of permanent running creek.
<i>Ipomoea</i>	sp. A Kimberley Flora (L.J. Penn 84)	P1	
<i>Jacquemontia</i>	sp. Keep River (J.L. Egan 5051)	P1	Hilltop, black sand over sandstone near watertank.
<i>Lepturus</i>	<i>repens</i>	P3	
<i>Minuria</i>	<i>macrorrhiza</i>	P2	Sandstone gullies. sandstone gullies
<i>Nymphoides</i>	<i>beaglsensis</i>	P2	Fresh water pools.

Genus	Species	SCC	Site
<i>Phragmites</i>	<i>karka</i>	P3	Margin of permanently wet springs on coastal plain.
<i>Phyllanthus</i>	<i>aridus</i>	P3	
<i>Pterocaulon</i>	sp. A Kimberley Flora (B.J. Carter 599)	P2	Behind salt marsh at interzone with pindan.
<i>Solanum</i>	<i>leopoldense</i>	P3	In crevices of massive King Leopold Sandstone.
<i>Spermacoce</i>	sp. Berthier Dunes (R.L. Barrett RLB 5753)	P3	In sand on beach.
<i>Stylidium</i>	<i>costulatum</i>	P3	On plain in grey-white fine sand.
<i>Trachymene</i>	<i>dusenii</i>	P3	On rocky ridge.
<i>Triodia</i>	<i>acutispicula</i>	P3	On rocky sandstone cliff top.

4.1.2 Previous Surveys in the Irvine Island Area

Despite a long history of mining at neighbouring Cockatoo Island information on flora and vegetation of the island is limited to two brief surveys, the first by Martinick and Associates (1990) referred to in a Notice of Intent for mining completed by Dames and Moore (1999), and the second by ENV Australia (2007). Martinick and Associates (1990) did not record any Declared Rare Flora (DRF) or Priority flora during the 1990 field survey. ENV Australia (2007) completed a rare flora search for an exploration program proposed immediately east of the mining operation and west of the decommissioned tailings storage facility. Two Priority flora species were recorded from four locations during the survey; *Phyllanthus aridus* (P3) and *Minuria macrorrhiza* (P3).

As with Cockatoo Island, nearby Koolan Island also has a long history of iron ore mining dating to the late 1940s when BHP commenced open-pit operations. However until recently, flora and vegetation survey work at Koolan Island was restricted to a single study completed over one week in February 1993 (Keighery, Gibson, Kenneally and Mitchell 1995). The 1993 survey concentrated on the eastern two thirds of Koolan Island along existing roads, formerly inhabited areas and nearby creek lines. A total of 282 plant taxa were recorded, with 43 taxa being introduced weeds principally occurring around the old settlement. Three of the weed taxa were 'Declared Weeds' listed under the *Agricultural and Related Resources Protection Act 1976 (ARRP Act)*; **Jatropha gossypifolia* (Bellyache Bush), **Senna alata* (Candle Bush) and **Cryptostegia madagascariensis* (Rubber Vine). The 1993 report was supplemented by herbarium records and collections made during an investigation of Kimberley Rainforests by Kenneally, Keighery and Hyland (1991). There was no DRF or Priority flora identified on the island at the time.

With increasing iron ore prices Aztec Resources commenced a program to re-open mining at Koolan Island in the early 1990s. As part of the approval process, baseline flora and vegetation surveys and targeted rare flora and weed surveys were completed (*ecologia* Environment 2004a, 2004b). A total of 208 plant taxa including 23 introduced weeds were recorded from three field visits in October 2003, December 2003 and February 2004. Three flora species of conservation significance were identified from Koolan Island; *Phyllanthus aridus* was widespread throughout the central part of the island; *Gymnanthera cunninghamii* was recorded from a single location; and *Brachychiton xanthophyllus* was recorded from two locations.

Corymbia aff. *cadophora* and *Eucalyptus kenneallyi* were identified as species of interest, but were not collected during baseline or targeted surveys.

The vegetation of Koolan Island has been mapped into nine different communities (ecologia Environment, 2005b):

1. Open woodland;
2. Very open woodland;
3. *Eucalyptus miniata* woodland along stony ridges;
4. *Eucalyptus miniata* / *Corymbia cadophora* woodland along moderate gullies;
5. *Callitris intratropica* forest;
6. Vine forest;
7. Mangroves;
8. Previously disturbed areas; and
9. Beaches.

The majority of the island is vegetated by open woodland in which *Eucalyptus miniata* occurs as a taller canopy, with the lower bloodwoods *Corymbia confertiflora* and *Corymbia cadophora* subsp. *cadophora* occurring at variable densities below with a mixed herb ground cover. Very small areas of rainforest or vine thickets occur in limited locations. Rainforest and vine thickets intergrade into *Callitris intratropica* forest at the bases of several deep gullies. The *Callitris intratropica* forest is restricted to the more deeply incised gullies and often occurs in sporadic stands. Mangroves occur extensively at the intertidal zone but are largely restricted to narrow strips of vegetation, with only a few of the larger inlets supporting substantive areas. There are twelve small beaches that predominantly occur adjacent to mangrove communities but with some mobile sands. The overstorey consists of scattered shrubs and the rest of the complex is mainly comprised of grasses and creepers.

Formal flora and vegetation assessment of Irvine Island is restricted to surveys commissioned by Strategen Environmental Consultants on behalf of Pluton Resources, in June 2007 and September 2007 (Mattiske 2008). However, it is noted that records for 44 plant taxa were held by the Western Australian State Herbarium from Irvine Island prior to the 2007 survey (DEC 2008). Mattiske (2008) recorded a total of 86 plant taxa from drill site locations at Hardstaff Peninsula, Isthmus Point, adjacent areas and opportunistic collections. One introduced (weed) species was recorded during the survey; **Passiflora foetida*. There were no DRF or Priority flora located during the survey. Fourteen vegetation associations were described from the Study area, with vegetation condition rated as 'Pristine' to 'Excellent'. No Threatened Ecological Communities (TEC's) or Priority Ecological Communities (PEC's) were observed in the survey area (Mattiske 2008).

4.2 Flora Species

A total number of 172 plant taxa (including varieties and subspecies) from 55 families and 120 genera were recorded from Hardstaff Peninsula during the three day reconnaissance survey between the 8th and 10th April 2010 (see Appendix 5). Species representation was greatest among the Fabaceae, Poaceae, Malvaceae, Myrtaceae, Cyperaceae, Convolvulaceae, Euphorbiaceae and Proteaceae families (Table 3).

The 14 day dry season survey that covered Irvine Island, Flora Island, and parts of Bathurst Island and Kathleen Island between the 13th and 26th October 2010, recorded 204 plant taxa (including varieties and subspecies) from 62 families and 142 genera. Species representation was greatest among the Fabaceae, Malvaceae, Poaceae, Myrtaceae, Convolvulaceae, Proteaceae, Cyperaceae, Apocynaceae, Phyllanthaceae and Euphorbiaceae families (Table 3).

Table 3 Statistics for total flora recorded from the Irvine Island Study area - April and October 2010 assessments completed by Onshore Environmental.

Parameter	April 2010	October 2010
No. Families	55	58
No. Genera	120	135
No. Species (incl. subspecies and varieties)	172	202
No. Native Species (incl. subspecies and varieties)	170	200
Priority Flora	2	2
No. Introduced Species	2	2
Range Extensions	4	10
Speciose Families		
FABACEAE	29	35
POACEAE	18	23
MALVACEAE	17	19
MYRTACEAE	9	9
CONVOLVULACEAE	7	9
PROTEACEAE	6	8
CYPERACEAE	8	8
PHYLLANTHACEAE	6	8
APOCYNACEAE	4	6
EUPHORBIACEAE	6	6
Speciose Genera		
<i>Acacia</i> (Mimosaceae)	6	7
<i>Euphorbia</i> (Euphorbiaceae)	4	4
<i>Fimbristylis</i> (Cyperaceae)	4	5
<i>Grevillea</i> (Proteaceae)	4	5
<i>Triumfetta</i> (Malvaceae)	4	4
<i>Brachychiton</i> (Malvaceae)	3	3
<i>Buchnera</i> (Orobanchaceae)	3	3
<i>Corymbia</i> (Myrtaceae)	3	3
<i>Crotalaria</i> (Fabaceae)	3	3
<i>Indigofera</i> (Fabaceae)	3	3
<i>Ipomoea</i> (Convolvulaceae)	3	4
<i>Phyllanthus</i> (Phyllanthaceae)	3	4
<i>Tephrosia</i> (Fabaceae)	3	8
<i>Terminalia</i> (Combretaceae)	3	4
<i>Triodia</i> (Poaceae)	1	4
Priority Flora		
<i>Ipomoea</i> sp. A Kimberley Flora (L.J. Penn 84) (Convolvulaceae)	P1	P1
<i>Phyllanthus aridus</i> (Phyllanthaceae)	P3	P3
<i>Haemodorum gracile</i> (Haemodoraceae)	P4	P4

Introduced Flora		
* <i>Melinis repens</i> (Poaceae)	*	*
* <i>Passiflora foetida</i> ssp. <i>hispida</i> (Passifloraceae)	*	*

4.3 Conservation Significant Flora Species

Following intensive quadrat sampling and extensive ground truthing of the Study area by two experienced botanists, no plant taxa gazetted as Declared Rare Flora pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)*, or listed under the *EPBC Act 1999*, were recorded.

There were three Priority flora species recorded during the April and October 2010 field surveys; *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84), *Phyllanthus aridus* and *Haemodorum gracile*.

Ipomoea sp. A Kimberley Flora (L.J. Penn 84) is a Priority 1 flora taxon recorded from a single location within the Study area (Study Site 12) in April 2010; it could not be re-located during the October 2010 survey owing to the dry conditions. It was growing in light brown loam soils amongst sandstone outcropping on middle hill slopes, occurring as regrowth to 25 cm in height and described as a minor component of the vegetation. *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) is a perennial with creeping or twining stems and simple leaves, previously recorded from pindan woodland north of Broome. A targeted search for *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) will be undertaken during the proposed wet season survey in March 2011, aimed at increasing the known distribution of this taxon on Irvine Island and potentially on neighbouring islands.

Phyllanthus aridus is a Priority 3 flora taxon recorded from four closely occurring points on the central western fringe of Irvine Island in October 2011 (Figure 4). It was growing on moderately steep hill slopes above a minor gully and ephemeral drainage channel. Soil was a dark brown sandy loam amongst outcropping sandstone. *Phyllanthus aridus* is an erect, much-branched shrub that grows to 0.5 m high (Plate 1). It is characterised by small, inconspicuous cream and green coloured, male and female flowers. It flowers and fruits from March to August. The species is often found on sandstones, occurring from the King Edward River and Cockburn Range southwards to Camballin. It is also found on Augustus, Cockatoo and Koolan Islands.

Haemodorum gracile is a Priority 4 flora taxon recorded from four sites on Hardstaff Peninsula in April 2010, and a further 22 sites from the larger Irvine Island Study area in October 2010 (Figure 3, Appendix 6). A further eleven sites were recorded from Bathurst, Kathleen and Flora Islands. *Haemodorum gracile* occurred as scattered plants on sandstone ridges and upper slopes. It occurred predominantly within Vegetation Association 7a 'Low Open Heath (to Low Closed Heath) of *Scaevola macrostachya*, *Grevillea wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*' but was never a common or dominant component of the vegetation. *Haemodorum gracile* is a bulbaceous perennial herb growing to between 0.4 m and 0.65 m in height (Plate 2). It is apparently endemic to the Kimberley Region occurring from the Mitchell Plateau south west to the Dampier Peninsula (Wheeler *et*

al. 1992). It has previously been recorded in white or red sand or sandy clay, and flowers between August and November.

Management of Priority flora identified at Irvine Island may include the following strategies:

- The location of Priority flora species and their habitat will be recorded on a GIS database and incorporated into mine planning. These records will be updated as necessary and awareness of these records will be promoted at mine planning and operational levels;
- The layout of infrastructure and mine landforms will be designed to minimise impact of Priority flora;
- Specific training in Priority flora management will be provided to all Pluton Resources personnel and contractors through the site induction;
- 'Enviro Alert' information sheets outlining management of Priority flora species (and weeds) will be prepared and distributed to increase awareness amongst employees and contractors;
- Research into propagation techniques for Priority flora species will be initiated and may include collection of seed and/or cuttings and root divisions from site;
- Translocation of plants will occur into similar habitats where Priority flora species are situated within areas where disturbance cannot be avoided; and
- There will be a regular review of development of State and Commonwealth flora management strategies and action plans, and developments in flora management methods in the Mineral Resources Industry, by keeping abreast of relevant literature and consultation with the DEC.



Plate 1 *Phyllanthus aridus* (Priority 3).



Plate 2 *Haemodorum gracile* (Priority 4).

Range Extensions

Based on current records listed in Florabase eleven plant taxa recorded from the Irvine Island Study area show range extensions (Table 4).

Table 4 Range extensions noted for flora recorded from the Irvine Island Study area in April and October 2010.

Taxon	Status
<i>Cajanus scarabaeoides</i> var. <i>pedunculatus</i> (Fabaceae)	Small range extension to the north-west
<i>Cullen virens</i> (Fabaceae)	Range extension to the west
<i>Decaisnina signata</i> subsp. <i>cardiophylla</i> (Loranthaceae)	Range extension to the south-west
<i>Dendrobium affine</i> (Orchidaceae)	Range extension to the south-west
<i>Fimbristylis leucocolea</i> (Cyperaceae)	Range extension to the north-west
<i>Fimbristylis schultzei</i> (Cyperaceae)	Range extension to the west
<i>Flemingia parviflora</i> (Fabaceae)	Range extension to the west
<i>Marsdenia pleiadenia</i> (Apocynaceae)	Range extension to the west
<i>Tephrosia laxa</i> var. <i>angustata</i> (Fabaceae)	Range extension to the north-west
<i>Tephrosia</i> sp. E Kimberley Flora (C.A. Gardner 9937) (Fabaceae)	Range extension to the west
<i>Tephrosia subpectinata</i> (Fabaceae)	Range infill to the north west

Legend

- *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) Priority 1
- *Phyllanthus aridus* Priority 3
- *Haemodorum gracile* Priority 4



SCALE 1 : 20 000



Kilometres
MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
MGA94 Zone 51



4.4 Introduced Flora

There was two introduced (weed) species recorded from the Irvine Island Study area in April and October 2010 (Figure 4, Appendix 7); **Passiflora foetida* var. *hispida* (Wild Passionfruit) and **Melinis repens* (Blanketgrass). Neither taxon is listed as a Declared Weed under the *Agriculture and Related Resources Protection Act, 1976* (ARRP Act).

**Passiflora foetida* var. *hispida* (Wild Passionfruit, see Plate 1) was recorded from 117 sites in April and October 2010, distributed across the entire Irvine Island Study area (Figure 4, Appendix 7). **Passiflora foetida* var. *hispida* (Mossy Passion Flower; Love in a Mist Passion Flower; Wild Passionfruit) is a woody climber / vine (with an unpleasant smell) growing to 9 m high. The flower colour ranges from cream to white to blue, with flowering occurring between February and November. It grows in disturbed native vegetation amongst medium sized trees, or less commonly in herblands and vine thickets. Its seeds are believed to be spread by birds. Wild Passionfruit occurs in a range of coastal habitats including coastal dunes, river and creek banks, gorges, rocky slopes, hill slopes and valley plains. The preferred soil types range from rocky or stony soil, gravelly soil, sand, loam and clay. **Passiflora foetida* var. *hispida* is native to the West Indies and South America. It has been introduced to Western Australia, Northern Territory, Queensland and New South Wales.

**Melinis repens* (Blanketgrass, Holme's Grass, Natal Grass, Natal Redtop, Red Natal Grass, Ruby Grass) was recorded from five collection locations distributed along the western and central sectors of Irvine Island (Figure 4), preferring larger ephemeral drainage lines. Blanketgrass was recorded as scattered plants to approximately 0.8 m in height. It is a tufted annual or perennial grass / herb up to 1.2 m in height and flowering (red, purple) between July and April. **Melinis repens* originates from South Africa, parts of the Mediterranean, India, and North Africa. In its native range it occurs in disturbed open habitats, often forming large stands. It is widely distributed outside its native range, germinating and growing under a wide range of temperature conditions. It is becoming increasingly common along road and rail verges in the southwest of Western Australian, with other confirmed locations around Geraldton in the mid west, and extending north of Broome into the Kimberley.



Plate 2 **Passiflora foetida* var. *hispida* (Stinking Passion Flower).



Plate 1 **Melinis repens* (Blanketgrass).

Legend

- **Melinis repens*
- **Passiflora foetida* var. *hispida*



SCALE 1 : 20 000



Kilometres
MAP GRID OF AUSTRALIA
Grid based on Transverse Mercator Projection
MGA94 Zone 51



4.5 Vegetation Communities of Interest

A vegetation association is considered a Threatened Ecological Community (TEC) if it is found to fit into one of the following categories:

- Presumed Totally Destroyed;
- Critically Endangered;
- Endangered; or
- Vulnerable.

Threatened species and ecological community conservation is coordinated by DEC's Nature Conservation Division, primarily through the Western Australian Threatened Species and Associations Unit (WATSCU). No State legislation deals specifically with TECs. However, TECs can be listed as nationally threatened and are protected under the EPBC Act (1999).

A search of the EPBC database confirmed there were no Federal listed TEC's previously recorded within a 100 km radius of Irvine Island. A search of the State database completed by DEC confirmed there was one State-listed TEC recorded from the mainland between 60 km and 100 km southwest of the Study area; 'Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula', listed as Vulnerable. Field assessment confirmed that the TEC did not occur within the Irvine Island Study area. The rainforest patches noted within Vegetation Association 2a are dissimilar to the 'Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula'.

In addition to TEC's, DEC has generated a list of Priority Ecological Communities (PEC) occurring in the Kimberley. The list identifies communities that require further investigation prior to nomination for TEC status. A search completed by the DEC identified one PEC previously recorded on the mainland between 60 km and 100 km to the southwest of Irvine Island; 'Assemblages of Lolly Well Springs wetland complex (Priority 3)'. Field assessment confirmed that the PEC did not occur within the Irvine Island Study area.

In addition to TEC's and PEC's the DEC (2009) identify mangroves, riparian forests and rainforest patches as 'special landscapes and ecosystems', with the ability to act as resource centres for distinct faunas, including wide-ranging vagile species that are dependent on the archipelago of patches, e.g. rainbow pittas, fruit pigeons, and flying foxes. They also provide dry season refuges for a variety of savanna animals, and have numerous endemic species. Laterite rainforests are of particular interest. Mangrove and rainforest patches were recorded on Irvine Island, and are discussed in more detail below.

- There were three mangrove associations recorded and mapped around the coastal fringe of Irvine Island; Vegetation Associations 1a, 1b and 1c (described in Section 4.6). The species composition of the three associations was controlled largely by subtle changes in landscape position which influenced the level of salinity and inundation. Species richness for the mangrove associations was low and none of the plant taxa were determined to be of conservation significance. Similar mangrove associations have previously been recorded at neighbouring Cockatoo and Koolan Islands (Ecologia Environment 2004b).

- Small rainforest patches were recorded on steep sided valleys along a large ephemeral drainage line associated with Vegetation Association 2a at Irvine Island. These 'patches' were often difficult to differentiate from surrounding vegetation owing to their small size, and the impact of recent wildfire. None of the associated flora was determined to be of conservation significance. Similar rainforest patches have previously been recorded at nearby Koolan Island (Ecologia Environment 2004b).

4.6 Vegetation

Wildfire resulting from lightning strike occurred at Irvine Island in February 2009 following an extended absence of fire for approximately 20 years. Heavy fuel loads resulted in a hot burn that extended across the majority of the island and impacted all vegetation strata except mangrove communities and a small peninsula separated from the main island by an intertidal zone. In April 2010 the canopy layer supported a flush of new growth that was fast approaching pre-burn foliage cover, and there was dense regeneration of the <1m understorey stratum in most parts of the island. A small peninsula located directly west of the exploration camp and separated from the mainland by mangroves (intertidal zone) remained unburnt in April 2010, and was surveyed to provide a comparison with the larger (burnt) Study area. While the wildfire did alter vegetation structure and composition in the short to medium term, it also provided the opportunity to record opportunistic annual and ephemeral plant taxa that may only occur in the early growing seasons following fire.

By October 2010 the post-burn canopy foliage cover had reestablished across the majority of Irvine Island and provided similar ground cover to corresponding long unburnt vegetation associations on neighbouring islands. The midstorey stratum had also increased in cover since the April 2010 assessment, and was generally comparable or in some cases provided higher ground coverage than corresponding long unburnt vegetation associations on neighbouring islands. While regeneration of the hummock grassland was evident at Irvine Island coverage remained lower in comparison to neighbouring long unburnt vegetation. It is anticipated that hummock grasses will become a progressively more dominant component of the vegetation in future years if fire is excluded.

In October 2010, a total of 17 vegetation associations were described and mapped from the Irvine Island Study area (Figures 5a-5g). The vegetation associations have been classified into nine Broad Floristic Formations on the basis of canopy structure (Table 5). Raw data for the 100 study sites (quadrats) is presented in Appendix 8.

Table 5 **Vegetation descriptions for 17 vegetation associations (from nine Broad Floristic Formations) mapped within the Irvine Island Study area, October 2010.**

BROAD FLORISTIC FORMATION		Landform
Vegetation Association		
1	LOW CLOSED FOREST	
1a	Low Closed Forest of <i>Sonneratia alba</i>	Mangrove - ocean side
1b	Low Closed Forest of <i>Rhizophora stylosa</i> and <i>Avicennia marina</i>	Mangrove - mixed
1c	Low Closed Forest of <i>Rhizophora stylosa</i>	Mangrove - landward side
1d	Low Closed Forest of <i>Pandanus spiralis</i>	Freshwater Seepage
2	LOW OPEN FOREST	
2a	Low Open Forest (to Low Closed Forest) of <i>Canarium australianum</i> var. <i>australianum</i> , <i>Sersalisia sericea</i> , <i>Mimusops elengi</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> over Very Open Tussock Grassland of <i>Sorghum plumosum</i>	Large Ephemeral Drainage Line
2b	Low Open Forest of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus tectifica</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Microstachys chamaelea</i> over Tussock Grassland of <i>Chrysopogon latifolius</i> , <i>Sorghum plumosum</i>	Moderate to Steep Hill Slope, Ridge
3	WOODLAND	
3a	Woodland of <i>Eucalyptus miniata</i> over Shrubland of <i>Calytrix exstipulata</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> over Closed Hummock Grassland of <i>Triodia bynoei</i>	Unburnt Hill Slope
4	OPEN WOODLAND	
4a	Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Low Closed Heath of <i>Acacia hippuroides</i> , <i>Gonocarpus leptothecus</i> , <i>Microstachys chamaelea</i> with Very Open Tussock Grassland of <i>Sorghum plumosum</i>	Plateau
4b	Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Low Open Heath of <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> , <i>Gonocarpus leptothecus</i> over Open Hummock Grassland of <i>Triodia bynoei</i>	Upper Hill Slope, Ridge Crest

5	LOW WOODLAND	
5a	Low Woodland of <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i> over Open Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> in saddles of range, with Low Open Shrubland of <i>Calytrix exstipulata</i> , <i>Calytrix brownii</i> , <i>Buchanania oblongifolia</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> on peaks	Mosaic - Ironstone Peak & Saddle
6	LOW OPEN WOODLAND	
6a	Low Open Woodland of <i>Eucalyptus tectifica</i> , <i>Corymbia confertiflora</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia polycarpa</i> over Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania oblongifolia</i> over Low Open Heath of <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	Mid to Upper Hill Slope
6b	Low Open Woodland of <i>Corymbia confertiflora</i> , <i>Ficus platypoda</i> over High Open Shrubland of <i>Calytrix exstipulata</i> , <i>Verticordia verticillatus</i> , <i>Buchanania obovata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>	Moderate to Steep Hill Slope
6c	Low Open Woodland of <i>Corymbia confertiflora</i> over Open Shrubland of <i>Buchanania oblongifolia</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> over Low Open Heath of <i>Scaevola macrostachya</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>	Hill Slope
6d	Low Open Woodland of <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i> over Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> over Low Open Shrubland of <i>Triumfetta incana</i> , <i>Calytrix brownii</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>	Exposed Sandstone Ridge, Narrow Ephemeral Drainage Line
7	LOW OPEN HEATH	
7a	Low Open Heath (to Low Closed Heath) of <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>	Sandstone Hill crest, Hill slope, Peninsula
8	SCATTERED SHRUBS	
8a	Scattered Shrubs of <i>Ficus platypoda</i> over Low Open Shrubland of <i>Cajanus cinereus</i> , <i>Calytrix exstipulata</i> , <i>Corchorus fascicularis</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>	Cliff Face
9	TUSsock GRASSLAND	
9a	Tussock Grassland of <i>Spinifex longifolius</i>	Foredune

1 Low Closed Forest

1a Low Closed Forest of *Sonneratia alba*

Quadrats Sampled: 22

Location and Landform

Three mangrove associations were differentiated along the coastline of Irvine Island. These were associated with localised areas of accumulated silt within the intertidal zone of small embayments.

Vegetation Association 1a primarily occupied the low intertidal zone of small enclaves and estuaries, generally where the habitat was exposed to the open ocean. Mangrove species that inhabit this association characteristically have their lower trunks, roots and pneumatophores regularly inundated more than 45 times a month (Duke 2006). They are generally constricted by salinity levels (inland, midstream, and downstream) and inundation levels (high, mid and low). The mangroves at Irvine Island are considered to be downstream, or high salinity, populations.

Vegetation Association 1a was dominated by a single species; *Sonneratia alba* (Family Sonneratiaceae), which occurs in the 'low' intertidal zone, provided approximately 80% cover and reached between 7m to 15m in height. Other associated mangrove species included *Avicennia marina*, *Rhizophora stylosa* and *Aegiceras corniculatum*, though these were minor components of the vegetation. Vegetation condition was rated as 'pristine' to 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum: *Sonneratia alba*

Minor tree components: *Avicennia marina*, *Rhizophora stylosa*, *Aegiceras corniculatum*



1b Low Closed Forest of *Rhizophora stylosa* and *Avicennia marina*

Quadrats Sampled: 82

Location and Landform

Vegetation Association 1b was described as a mixed species mangrove community occurring between the more distinctive units occurring on the ocean-side (Vegetation Association 1a) and landward side (Vegetation Association 1c) of large embayments.

Vegetation Association 1b comprised a mosaic of mangrove species with the most common species typically being *Rhizophora stylosa*, *Sonneratia alba* and *Avicennia marina* forming a Low Closed Forest, with less common taxa including *Aegiceras corniculatum*, *Aegialitis annulata* and *Camptostemon schultzei*. Vegetation condition was rated as 'pristine' to 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum	<i>Rhizophora stylosa</i> , <i>Avicennia marina</i> , <i>Sonneratia alba</i> <i>Aegiceras corniculatum</i> , <i>Aegialitis annulata</i> ,
Minor tree components:	<i>Camptostemon schultzei</i>



1c Low Closed Forest of *Rhizophora stylosa*

Quadrats Sampled: 31, 43

Location and Landform

Vegetation Association 1c was mapped as the distinctive landward band of mangroves occurring within the mid intertidal zone of larger embayments. Vegetation Association 1c was dominated by a single species, *Rhizophora stylosa*, which provided up to 98% cover. *Avicennia marina* was recorded as a minor component in the vegetation. Vegetation condition was rated as 'pristine' to 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum: *Rhizophora stylosa*

Minor tree components: *Avicennia marina*



1d Low Closed Forest of *Pandanus spiralis*

Quadrats Sampled: 8, 19, 35, 70

Area: 5.5 ha or 0.6%

Location and Landform

Vegetation Association 1d was habitat-specific associated with areas supporting a freshwater source close to the surface including swales at the base of hills and gullies, water holes, and fissures in steep cliff lines. The unit was restricted to the coastal fringe of the Study area. Soils were a brown sandy loam, with basement sandstone represented as surface boulders and cobbles. Vegetation was dominated by *Pandanus spiralis* occurring as a tree or tall shrub up to 12 m in height, with and without *Canarium australianum* var. *australianum* and *Corymbia confertiflora*. Minor components of the vegetation typically included species represented in surrounding associations. Vegetation condition was rated as 'excellent' with minor disturbances related to recent fire and presence of **Passiflora foetida*.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Pandanus spiralis</i> , <i>Canarium australianum</i> var. <i>australianum</i> , <i>Corymbia confertiflora</i> , <i>Sersalisia sericea</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>
Tallest shrub layer:	<i>Ficus aculeata</i> , <i>Hakea arborescens</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> , <i>Acacia multisiliqua</i> , <i>Brachychiton viridiflorus</i>
Next Shrub Layer:	<i>Microstachys chamaelea</i> , <i>Distichostemon hispidulus</i>
Tallest ground species:	<i>Sorghum plumosum</i> , <i>Cenchrus elymoides</i> var. <i>elymoides</i>
Climbers:	<i>Asparagus racemosus</i> , <i>*Passiflora foetida</i> var. <i>hispidula</i> , <i>Flagellaria indica</i>
Creepers:	<i>Xenostegia tridentata</i> , <i>Galactia tenuiflora</i>



2 Low Open Forest

2a Low Open Forest (to Low Closed Forest) of *Canarium australianum* var. *australianum*, *Sersalisia sericea*, *Mimusops elengi*, *Brachychiton diversifolius* subsp. *diversifolius* over Very Open Tussock Grassland of *Sorghum plumosum*

Quadrats Sampled: 13, 49, 52, 58, 65, 71, 74, 99

Area: 53.4 ha or 5.6%

Location and Landform

Vegetation Association 2a occurred along a major unincised drainage line (and adjacent steep sided valleys) extending north-west to south-east through the entire central sector of Irvine Island. It was also recorded in localised gullies and steep hill slope habitats to the south and east of this drainage line. Localised areas within this association were defined as rainforest patches. The brown loam soils were of sandstone origin, with outcropping and surface cobbles and pebbles present. The Low Open Forest (to Low Closed Forest) canopy defined Vegetation Association 2a, with *Canarium australianum* var. *australianum*, *Sersalisia sericea*, *Mimusops elengi* and *Brachychiton diversifolius* subsp. *diversifolius* common tree taxa occurring with a suite of other tree species. The understorey strata were generally sparse under the dense canopy cover, however, climbers were well represented; *Tinospora smilacina*, *Asparagus racemosus*, **Passiflora foetida* var. *hispida*, *Flagellaria indica*. Vegetation condition was rated as 'excellent' with disturbance restricted to impacts from recent fire and the introduction of **Passiflora foetida* var. *hispida*.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Canarium australianum</i> var. <i>australianum</i> , <i>Sersalisia sericea</i> , <i>Mimusops elengi</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> , <i>Eucalyptus miniata</i> , <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifera</i> , <i>Corymbia polycarpa</i> , <i>Hakea arborescens</i> , <i>Melochia umbellata</i>
Tallest shrub layer:	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i> , <i>Microstachys chamaelea</i> , <i>Melhania oblongifolia</i>
Tallest ground species:	<i>Sorghum plumosum</i> , <i>*Melinis repens</i> , <i>Cenchrus elymoides</i> var. <i>elymoides</i> , <i>Panicum seminudum</i> , <i>Chrysopogon latifolius</i>
Climbers:	<i>Tinospora smilacina</i> , <i>Asparagus racemosus</i> , <i>*Passiflora foetida</i> var. <i>hispida</i> , <i>Flagellaria indica</i>
Creepers:	<i>Ipomoea eriocarpa</i> , <i>Galactia tenuiflora</i> , <i>Ampelocissus acetosa</i>
Herbs:	<i>Trachymene didiscoides</i> , <i>Chrystia australasica</i> , <i>Dicliptera armata</i>



2b Low Open Forest of *Eucalyptus* cf. *miniata*, *Eucalyptus tectifica*, *Corymbia cadophora* subsp. *cadophora* over Low Shrubland of *Acacia wickhamii* subsp. *wickhamii*, *Scaevola macrostachya*, *Microstachys chamaelea* over Tussock Grassland of *Chrysopogon latifolius*, *Sorghum plumosum*

Quadrats Sampled: 21, 25, 39, 41, 42, 78, R2, R3

Area: 103.0 ha or 10.8%

Location and Landform

Vegetation Association 2b occurred predominantly at the northern and southern sectors of the Study area, with smaller areas also recorded to the east and west. Vegetation was typically associated with grey brown sandy loam soils on moderate to steep hill slopes (and associated ridges) located at the edge of the extensive plateau supporting Vegetation Association 4a. Vegetation was characterised by the occurrence of *Eucalyptus tectifica* with *Eucalyptus* cf. *miniata* forming Low Open Forest, and *Chrysopogon latifolius* and/or *Sorghum plumosum* forming Tussock Grassland. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus tectifica</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia polycarpa</i> , <i>Canarium australianum</i> var. <i>australianum</i> , <i>Corymbia confertiflora</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>
Tallest shrub layer:	<i>Calytrix exstipulata</i> , <i>Santalum lanceolatum</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> , <i>Buchanania oblongifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Brachychiton viscidulus</i>
Next Shrub Layer:	<i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Microstachys chamaelea</i> , <i>Templetonia hookeri</i> , <i>Distichostemon hispidulus</i> , <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Triumfetta incana</i>
Tallest ground species:	<i>Chrysopogon latifolius</i> , <i>Sorghum plumosum</i> , <i>Triodia bynoei</i>
Herbs:	<i>Gonocarpus leptothecus</i> , <i>Trachymene didiscoides</i> , <i>Cleome viscosa</i>



3 Woodland

3a Woodland of *Eucalyptus miniata* over Shrubland of *Calytrix exstipulata*, *Acacia wickhamii* subsp. *wickhamii*, *Flueggea virosa* subsp. *melanthesoides* over Closed Hummock Grassland of *Triodia bynoei*

Quadrats Sampled: 10

Area: 7.9 ha or 0.8%

Location and Landform

Vegetation Association 3a was associated with a long unburnt peninsula in the central southern sector of the Study area, separated from the larger island by mangroves. Soil was a light brown loam derived from sandstone, with sandstone boulders outcropping extensively across the entire unit. Bare ground was less than 2% owing to the 'very old' fire age and prominence of the Closed Hummock Grassland. Vegetation condition was rated as 'excellent', although there was evidence of historical BHP exploration activities at the northern extent of the peninsula.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Eucalyptus miniata</i> , <i>Eucalyptus tectifica</i>
Tallest shrub layer:	<i>Buchanania oblongifolia</i> , <i>Mimusops elengi</i> , <i>Eucalyptus tectifica</i> , <i>Exocarpos latifolius</i> , <i>Canarium australianum</i> var. <i>australianum</i>
Next Shrub Layer:	<i>Calytrix exstipulata</i> , <i>Acacia wickhamii</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> , <i>Templetonia hookeri</i> , <i>Grevillea wickhamii</i> , <i>Distichostemon hispidulus</i> , <i>Clerodendrum floribundum</i> var. <i>coriaceum</i>
Tallest ground species:	<i>Triodia bynoei</i>



4 Open Woodland

4a Open Woodland of *Eucalyptus* cf. *miniata* over Low Woodland of *Eucalyptus* cf. *miniata*, *Corymbia cadophora* subsp. *cadophora* over Low Closed Heath of *Acacia hippuroides*, *Gonocarpus leptothecus*, *Microstachys chamaelea* with Very Open Tussock Grassland of *Sorghum plumosum*

Quadrats Sampled: 14, 24, 45, 51, 55, 56, 57, 62, 63, 64, 66, 68, 75, 76, 77, R5

Area: 270.4 ha or 28.5%

Location and Landform

Vegetation Association 4a was the most extensive unit represented at Irvine Island, covering 270.4 ha or 28.5% of the Study area. Vegetation was associated with grey / brown sandy loam soils extending over an expansive elevated plateau. The sandstone baserock outcropped prominently, with small boulders and cobbles present throughout. Vegetation was characterised by the dominance of the low to mid shrub *Acacia hippuroides*, which formed the dominant vegetation stratum Low Closed Heath. Bare ground was estimated at <10%. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Eucalyptus miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i>
Tallest shrub layer:	<i>Calytrix exstipulata</i> , <i>Buchanania oblongifolia</i> , <i>Hakea arborescens</i> , <i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>
Next Shrub Layer:	<i>Acacia hippuroides</i> , <i>Microstachys chamaelea</i> , <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> , <i>Cajanus cinereus</i> , <i>Goodenia sepalosa</i> var. <i>sepalosa</i> , <i>Acacia oligoneura</i> , <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Templetonia hookeri</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i>
Tallest ground species:	<i>Sorghum plumosum</i> , <i>Triodia bynoei</i>
Climbers:	<i>Ampelocissus acetosa</i>
Herbs:	<i>Gonocarpus leptothecus</i> , <i>Stackhousia intermedia</i> , <i>Trachymene didisoides</i>



4b Open Woodland of *Eucalyptus* cf. *miniata* over Low Woodland of *Eucalyptus* cf. *miniata*, *Corymbia cadophora* subsp. *cadophora* over Open Shrubland of *Grevillea wickhamii* subsp. *wickhamii*, *Buchanania oblongifolia*, *Grevillea refracta* subsp. *refracta* over Low Open Heath of *Distichostemon hispidulus* var. *aridus*, *Scaevola macrostachya*, *Gonocarpus leptothecus* over Open Hummock Grassland of *Triodia bynoei*

Quadrats Sampled: 4, 5, 12, 28, 29, 32, 72

Area: 125.1 ha or 13.2%

Location and Landform

Vegetation Association 4b was mapped across the southern sector of the Study area, including Hardstaff Peninsula and Isthmus Point. Vegetation was associated with grey / brown loam soils on mid and upper hill slopes and ridges. The base rock was sandstone with outcropping evident and surface cobbles and pebbles common. Bare ground was estimated at between 10% and 25%. Vegetation was differentiated from Vegetation Association 4a by the composition of understorey strata, particularly the reduced dominance of the low shrub *Acacia hippuroides* replaced by a variety of cosmopolitan low and mid shrub taxa; *Distichostemon hispidulus* var. *aridus*, *Scaevola macrostachya*, *Acacia multisiliqua*, *Grevillea agrifolia* subsp. *agrifolia*, *Templetonia hookeri*. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Eucalyptus miniata</i> , <i>Eucalyptus tectifica</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i>
Tallest shrub layer:	<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Calytrix exstipulata</i>
Next Shrub Layer:	<i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> , <i>Acacia multisiliqua</i> , <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Acacia hippuroides</i> , <i>Templetonia hookeri</i> , <i>Gompholobium subulatum</i>
Tallest ground species:	<i>Triodia bynoei</i> , <i>Eriachne ciliata</i>
Climbers:	<i>Ampelocissus acetosa</i> , <i>Galactia tenuiflora</i>
Herbs:	<i>Cleome viscosa</i> , <i>Gonocarpus leptothecus</i> , <i>Trachymene didisoides</i> , <i>Stackhousia intermedia</i>
Sedges:	<i>Fimbristylis cymosa</i>



5 Low Woodland

- 5a Low Woodland of *Corymbia confertiflora*, *Eucalyptus tectifica* over Open Shrubland of *Grevillea agrifolia* subsp. *agrifolia*, *Flueggea virosa* subsp. *melanthesoides* over Very Open Hummock Grassland of *Triodia bynoei* in saddles of range, with Low Open Shrubland of *Calytrix exstipulata*, *Calytrix brownii*, *Buchanania oblongifolia* over Very Open Hummock Grassland of *Triodia bynoei* on peaks

Quadrats Sampled: 33

Area: 3.8 ha or 0.4%

Location and Landform

Vegetation Association 5a was mapped as a mosaic comprising a mixture of steep rocky hill slopes and peaks, and saddles along the range crest. The unit was restricted to the black ironstone range aligned east west along the southern shores of Isthmus Point. Vegetation was associated with skeletal pockets of soil along the majority of the range, with deeper brown loams present in the swales. Vegetation of the rocky slopes and peaks was characterized by a Low Open Shrubland of *Calytrix exstipulata*, *Calytrix brownii* and *Buchanania oblongifolia* over Very Open Hummock Grassland of *Triodia bynoei*. The swales supported a taller and denser vegetation unit comprising Low Woodland of *Corymbia confertiflora* and *Eucalyptus tectifica* over Open Shrubland of *Grevillea agrifolia* subsp. *agrifolia* and *Flueggea virosa* subsp. *melanthesoides* and Very Open Hummock Grassland of *Triodia bynoei*. Vegetation condition was rated as 'excellent' over the majority of the area, with recent exploration activities evident in parts.

Vegetation Structure and Floristics - Swales

Tallest tree stratum:	<i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i>
Tallest shrub layer:	<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i>
Tallest ground species:	<i>Triodia bynoei</i>

Vegetation Structure and Floristics - Hill Slopes and Peaks

Tallest shrub layer:	<i>Calytrix exstipulata</i> , <i>Calytrix brownii</i> , <i>Buchanania oblongifolia</i>
Tallest ground species:	<i>Triodia bynoei</i>



6 Low Open Woodland

- 6a Low Open Woodland of *Eucalyptus tectifica*, *Corymbia confertiflora*, *Corymbia cadophora* subsp. *cadophora*, *Corymbia polycarpa* over Shrubland of *Grevillea agrifolia* subsp. *agrifolia*, *Grevillea refracta* subsp. *refracta*, *Buchanania oblongifolia* over Low Open Heath of *Scaevola macrostachya*, *Distichostemon hispidulus* var. *aridus*, *Acacia wickhamii* subsp. *wickhamii*

Quadrats Sampled: 2, 6, 10, 16, 18, 86

Area: 23.7 ha or 2.5%

Location and Landform

Vegetation Association 6a occurred at the northern end of Hardstaff Peninsula and on the south-east corner of Isthmus Point in skeletal brown loam soils on mid to upper hill slopes. A feature of the geology was the visual evidence of mineralised iron within the outcropping sandstone. Vegetation was characterised by the occurrence of *Eucalyptus tectifica* and *Corymbia polycarpa* in the canopy. The dense understorey strata, particularly the Low Open Heath layer, were reflective of the adjacent vegetation association (7a). Bare ground was estimated at less than 30%. Vegetation condition was rated as 'very good' to 'excellent', with disturbance restricted to narrow walk trails and drill pads constructed as part of the current exploration program.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Eucalyptus tectifica</i> , <i>Corymbia confertiflora</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia polycarpa</i> , <i>Eucalyptus</i> cf. <i>miniata</i>
Tallest shrub layer:	<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania oblongifolia</i> , <i>Calytrix extipulata</i> , <i>Acacia tumida</i> , <i>Verticordia verticillatus</i> , <i>Hakea arborescens</i>
Next Shrub Layer:	<i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Desmodium brownii</i> , <i>Indigastrum parviflorum</i> , <i>Tephrosia subpectinata</i>
Tallest ground species:	<i>Sorghum plumosum</i> , <i>Triodia bynoei</i>
Climbers:	<i>Ampelocissus acetosa</i> , <i>Vigna lanceolata</i> var. <i>filiformis</i>
Herbs:	<i>Cleome viscosa</i> , <i>Trachymene didiscoides</i> , <i>Gonocarpus leptothecus</i>



- 6b Low Open Woodland of *Corymbia confertiflora*, *Ficus platypoda* over High Open Shrubland of *Calytrix exstipulata*, *Verticordia verticillatus*, *Buchanania obovata*, *Grevillea refracta* subsp. *refracta* over Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens***

Quadrats Sampled: 30, 36, 38, 48, 54

Area: 56.3 ha or 5.9%

Location and Landform

Vegetation Association 6b was associated with moderate to steep hill-slopes occurring on outer limits of the Irvine Island Study area. The skeletal soils were variable ranging from grey brown loams and loamy sands, to cream brown clay loams and sandy clays. Vegetation was characterized by the Low Open Woodland of *Corymbia confertiflora* and *Ficus platypoda*, High Open Shrubland of *Calytrix exstipulata*, *Verticordia verticillatus*, *Buchanania obovata* and *Grevillea refracta* subsp. *refracta* and Open Hummock Grassland of *Triodia bynoei* and *Triodia pungens*. Bare ground was estimated at 15%. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Corymbia confertiflora</i> , <i>Ficus platypoda</i>
Tallest shrub layer:	<i>Calytrix exstipulata</i> , <i>Verticordia verticillatus</i> , <i>Buchanania obovata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i>
Next Shrub Layer:	<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>
Tallest ground species:	<i>Triodia bynoei</i> , <i>Triodia pungens</i>



6c Low Open Woodland of *Corymbia confertiflora* over Open Shrubland of *Buchanania oblongifolia*, *Grevillea wickhamii* subsp. *wickhamii* over Low Open Heath of *Scaevola macrostachya*, *Acacia wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*

Quadrats Sampled: 11, R8

Area: 19.8 ha or 2.1%

Location and Landform

Vegetation Association 6c occurred on stony mid slopes situated west of the current exploration camp on Hardstaff Peninsula. Surface soil was a brown loam and basement rock sandstone, with outcropping boulders and cobbles common throughout. Vegetation was closely affiliated with Vegetation Association 7a, differentiated by the development of a sparse canopy stratum of *Corymbia confertiflora* forming Low Open Woodland. Vegetation condition was rated as 'excellent' with minor disturbance related to the current exploration program.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Corymbia confertiflora</i>
Tallest shrub layer:	<i>Buchanania oblongifolia</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>
Next Shrub Layer:	<i>Scaevola macrostachya</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Triufetta incana</i> , <i>Calytrix exstipulata</i> , <i>Hybanthus aurantiacus</i>
Tallest ground species:	<i>Sorghum plumosum</i> , <i>Triodia bynoei</i>
Climbers:	<i>Ampelocissus acetosa</i>
Herbs:	<i>Cleome viscosa</i> , <i>Gonocarpus leptothecus</i>
Sedges:	<i>Fimbristylis cymosa</i>



6d Low Open Woodland of *Corymbia cadophora* subsp. *cadophora*, *Corymbia confertiflora* over Open Shrubland of *Grevillea wickhamii* subsp. *wickhamii*, *Buchanania oblongifolia* over Low Open Shrubland of *Triumfetta incana*, *Calytrix brownii* over Very Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens*

Quadrats Sampled: 15, 23, 40, 44, 50

Area: 59.3 ha or 6.2%

Location and Landform

Vegetation Association 6d was associated with narrow ephemeral drainage lines (with exposed sandstone along drainage channels) and sandstone outcrops occurring predominantly through central parts of the Study area. Soils were skeletal brown loams and clay loams. Vegetation was characterised by sparse vegetation strata, as reflected by the high bare ground estimate range of between 40% and 90%. The low shrub taxa *Triumfetta incana* and *Calytrix brownii* were also characteristic of Vegetation Association 6d. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i> , <i>Acacia oligoneura</i>
Tallest shrub layer:	<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i>
Next Shrub Layer:	<i>Triumfetta incana</i> , <i>Calytrix brownii</i> , <i>Xenostegia tridentata</i> , <i>Tephrosia rosea</i> , <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Corchorus pumilio</i> , <i>Crotalaria montana</i> var. <i>angustifolia</i> , <i>Helicteres rhynchocarpa</i>
Tallest ground species:	<i>Triodia bynoei</i> , <i>Triodia pungens</i> , <i>Sorghum plumosum</i> , <i>Chrysopogon latifolius</i> , <i>Eriachne ciliata</i>
Herbs:	<i>Cleome viscosa</i>
Sedges:	<i>Bulbostylis barbata</i>



7 Low Open Heath

7a Low Open Heath (to Low Closed Heath) of *Scaevola macrostachya*, *Grevillea wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*

Quadrats Sampled: 1, 3, 7, 9, 17, 20, 26, 27, 37, 46, 47, 53, 67, 69, 84, 85, 93, 94, 95, 96

Area: 133.3 ha or 14.0%

Location and Landform

Vegetation Association 7a was associated with exposed sandstone ridges, hill crests and hill slopes occurring along the coastal fringes of the Study area. Soil was a skeletal grey brown sandy loam, with heavy outcropping of the basement sandstone rock. Vegetation was characterized by the dominant low shrub stratum (shrubs <1 m in height) forming Low Open Heath (to Low Closed Heath). Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest shrub layer: *Calytrix exstipulata*, *Acacia tumida*, *Grevillea refracta* subsp. *refracta*

Next Shrub Layer: *Scaevola macrostachya*, *Grevillea wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*, *Acacia wickhamii* subsp. *wickhamii*, *Grevillea agrifolia* subsp. *agrifolia*, *Buchanania oblongifolia*, *Acacia hippuroides*, *Cajanus cinereus*, *Grevillea pyramidalis* subsp. *pyramidalis*, *Terminalia canescens*, *Hibiscus leptocladus*, *Solanum echinatum*, *Corchorus pumilio*, *Phyllanthus exilis*, *Hybanthus aurantiacus*

Tallest ground species: *Triodia bynoei*, *Eriachne ciliata*

Sedges: *Fimbristylis cardiocarpa*

Creepers: *Bonamia pannosa*

Herbs: *Trachymene didiscoides*, *Cleome viscosa*, *Gonocarpus leptothecus*, *Stackhousia intermedia*



8 Scattered Shrubs

8a Scattered Shrubs of *Ficus platypoda* over Low Open Shrubland of *Cajanus cinereus*, *Calytrix exstipulata*, *Corchorus fascicularis* over Very Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens*

Quadrats Sampled: 100, R9

Area: 42.9 ha or 4.5%

Location and Landform

Vegetation Association 8a was associated with very steep to vertical cliff lines occurring around the outer perimeter of a large proportion of the Irvine Island Study area. Soils were skeletal sandy loams often occurring on cliff ledges or within narrow rock crevices. Vegetation was characterized by Scattered Shrubs of *Ficus platypoda* which often occurred above a Low Open Shrubland of *Cajanus cinereus*, *Calytrix exstipulata* and *Corchorus fascicularis*. When present, the ground cover comprised a Very Open Hummock Grassland of *Triodia bynoei* and/or *Triodia pungens*. Vegetation condition was rated as 'excellent'.

Vegetation Structure and Floristics

Tallest tree stratum:	<i>Ficus platypoda</i> , <i>Hakea arborescens</i> , <i>Ficus aculeata</i> var. <i>indecora</i> , <i>Brachychiton viscidulus</i>
Tallest shrub layer:	<i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Terminalia canescens</i> , <i>Verticordia verticillatus</i>
Next Shrub Layer:	<i>Cajanus cinereus</i> , <i>Calytrix exstipulata</i> , <i>Corchorus fascicularis</i> , <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Triumfetta incana</i>
Tallest ground species:	<i>Triodia bynoei</i> , <i>Triodia pungens</i>



9 Tussock Grassland

9a Tussock Grassland of *Spinifex longifolius*

Quadrats Sampled: 34, Rel.a

Area: 0.2 ha or <0.1%

Location and Landform

Vegetation Association 9a was associated with narrow linear foredunes situated behind small beaches located at the south-west corner of Hardstaff Peninsula (adjacent to the desalination plant), and at the south-west limit of Isthmus. *Spinifex longifolius* formed a Tussock Grassland in white beach sand. Vegetation condition was rated as 'very good'.

Vegetation Structure and Floristics

Tallest shrub layer: *Crotalaria medicaginea* var. *neglecta*

Tallest ground species: *Spinifex longifolius*, *Salsola* cf. *tragus*, *Dactyloctenium radulans*

Creepers: *Ipomoea pes-caprae* ssp. *brasiliensis*



Vegetation Legend

Low Closed Forest

- 1a**  Low Closed Forest of *Sonneratia alba*.
- 1b**  Low Closed Forest of *Rhizophora stylosa* and *Avicennia marina*.
- 1c**  Low Closed Forest of *Rhizophora stylosa*.
- 1d**  Low Closed Forest of *Pandanus spiralis*.

Low Open Forest

- 2a**  Low Open Forest (to Low Closed Forest) of *Canarium australicum* var. *australicum*, *Sersalisia sericea*, *Mimusops elengi*, *Brachychiton diversifolius* subsp. *diversifolius* over Very Open Tussock Grassland of *Sorghum plumosum*.
- 2b**  Low Open Forest of *Eucalyptus* cf. *miniata*, *Eucalyptus tectifica*, *Corymbia cadophora* subsp. *cadophora* over Low Shrubland of *Acacia wickhamii* subsp. *wickhamii*, *Scaevola macrostachya*, *Microstachys chamaelea* over Tussock Grassland of *Chrysopogon latifolius*, *Sorghum plumosum*.

Woodland

- 3a**  Woodland of *Eucalyptus miniata* over Shrubland of *Calytrix exstipulata*, *Acacia wickhamii* subsp. *wickhamii*, *Flueggea virosa* subsp. *melanthesoides* over Closed Hummock Grassland of *Triodia bynoei*.

Open Woodland

- 4a**  Open Woodland of *Eucalyptus* cf. *miniata* over Low Woodland of *Eucalyptus* cf. *miniata*, *Corymbia cadophora* subsp. *cadophora* over Low Closed Heath of *Acacia hippuroides*, *Gonocarpus leptothecus*, *Microstachys chamaelea* with Very Open Tussock Grassland of *Sorghum plumosum*.
- 4b**  Open Woodland of *Eucalyptus* cf. *miniata* over Low Woodland of *Eucalyptus* cf. *miniata*, *Corymbia cadophora* subsp. *cadophora* over Open Shrubland of *Grevillea wickhamii* subsp. *wickhamii*, *Buchanania oblongifolia*, *Grevillea refracta* subsp. *refracta* over Low Open Heath of *Distichostemon hispidulus* var. *aridus*, *Scaevola macrostachya*, *Gonocarpus leptothecus* over Open Hummock Grassland of *Triodia bynoei*.

Low Woodland

- 5a**  Low Woodland of *Corymbia confertiflora*, *Eucalyptus tectifica* over Open Shrubland of *Grevillea agrifolia* subsp. *agrifolia*, *Flueggea virosa* subsp. *melanthesoides* over Very Open Hummock Grassland of *Triodia bynoei* in saddles of range, with Low Open Shrubland of *Calytrix exstipulata*, *Calytrix brownii*, *Buchanania oblongifolia* over Very Open Hummock Grassland of *Triodia bynoei* on peaks.

Low Open Woodland

- 6a**  Low Open Woodland of *Eucalyptus tectifica*, *Corymbia confertiflora*, *Corymbia cadophora* subsp. *cadophora*, *Corymbia polycarpa* over Shrubland of *Grevillea agrifolia* subsp. *agrifolia*, *Grevillea refracta* subsp. *refracta*, *Buchanania oblongifolia* over Low Open Heath of *Scaevola macrostachya*, *Distichostemon hispidulus* var. *aridus*, *Acacia wickhamii* subsp. *wickhamii*.
- 6b**  Low Open Woodland of *Corymbia confertiflora*, *Ficus platypoda* over High Open Shrubland of *Calytrix exstipulata*, *Verticordia verticillatus*, *Buchanania obovata*, *Grevillea refracta* subsp. *refracta* over Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens*.
- 6c**  Low Open Woodland of *Corymbia confertiflora* over Open Shrubland of *Buchanania oblongifolia*, *Grevillea wickhamii* subsp. *wickhamii* over Low Open Heath of *Scaevola macrostachya*, *Acacia wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*.
- 6d**  Low Open Woodland of *Corymbia cadophora* subsp. *cadophora*, *Corymbia confertiflora* over Open Shrubland of *Grevillea wickhamii* subsp. *wickhamii*, *Buchanania oblongifolia* over Low Open Shrubland of *Triumfetta incana*, *Calytrix brownii* over Very Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens*.

Low Open Heath

- 7a**  Low Open Heath (to Low Closed Heath) of *Scaevola macrostachya*, *Grevillea wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus*.

Scattered Shrubs

- 8a**  Scattered Shrubs of *Ficus platypoda* over Low Open Shrubland of *Cajanus cinereus*, *Calytrix exstipulata*, *Corchorus fascicularis* over Very Open Hummock Grassland of *Triodia bynoei*, *Triodia pungens*.

Tussock Grassland

- 9a**  Tussock Grassland of *Spinifex longifolius*.



Beach (Bare).



Client: **PLUTON
RESOURCES**

Project: **IRVINE ISLAND FLORA AND
VEGETATION SURVEY (OCTOBER 2010)**

Date: 24 March 2011

Scale: NTS

Author: D.Brearley

Drawn: S.Coleman

VEGETATION LEGEND

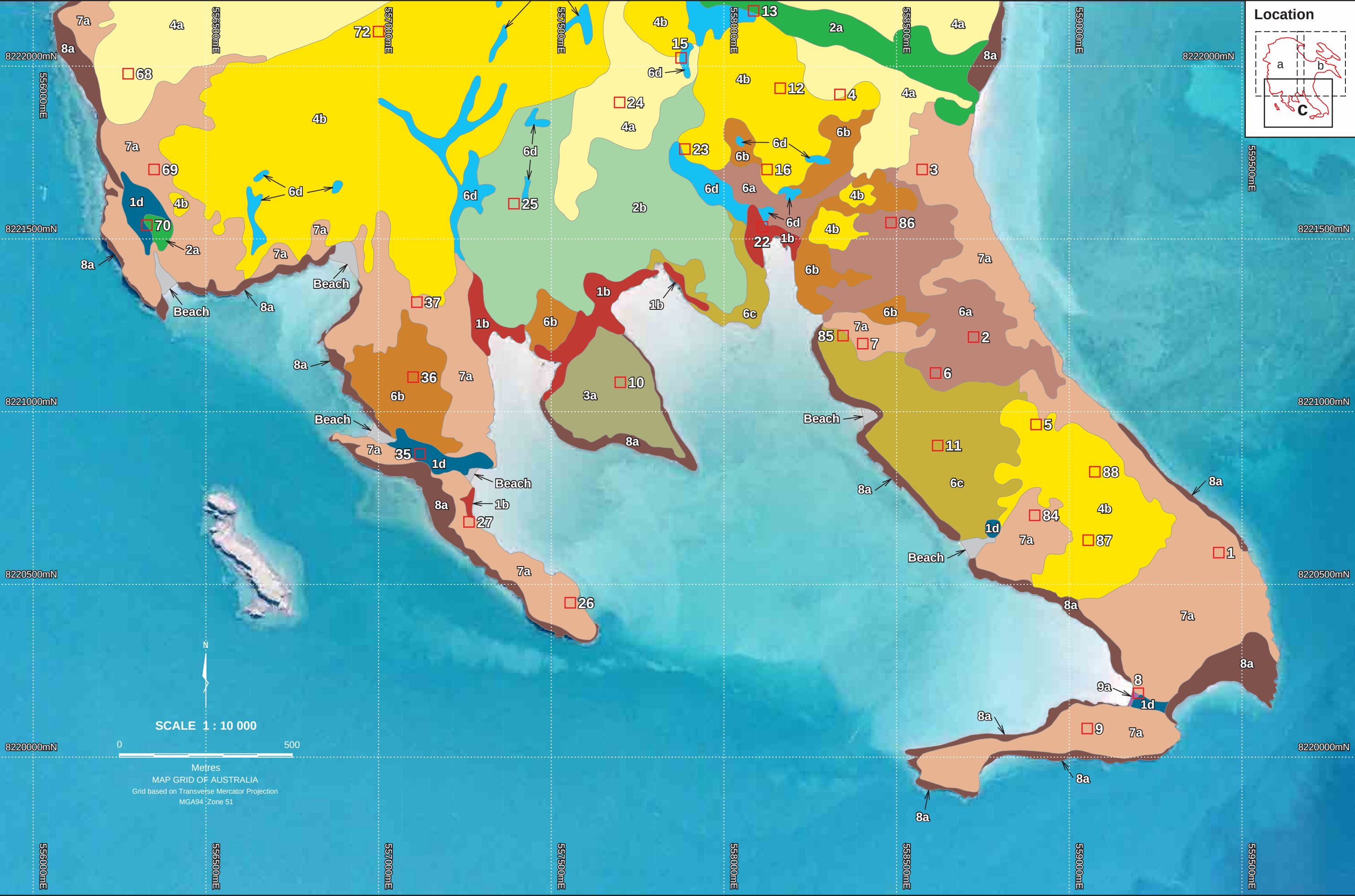
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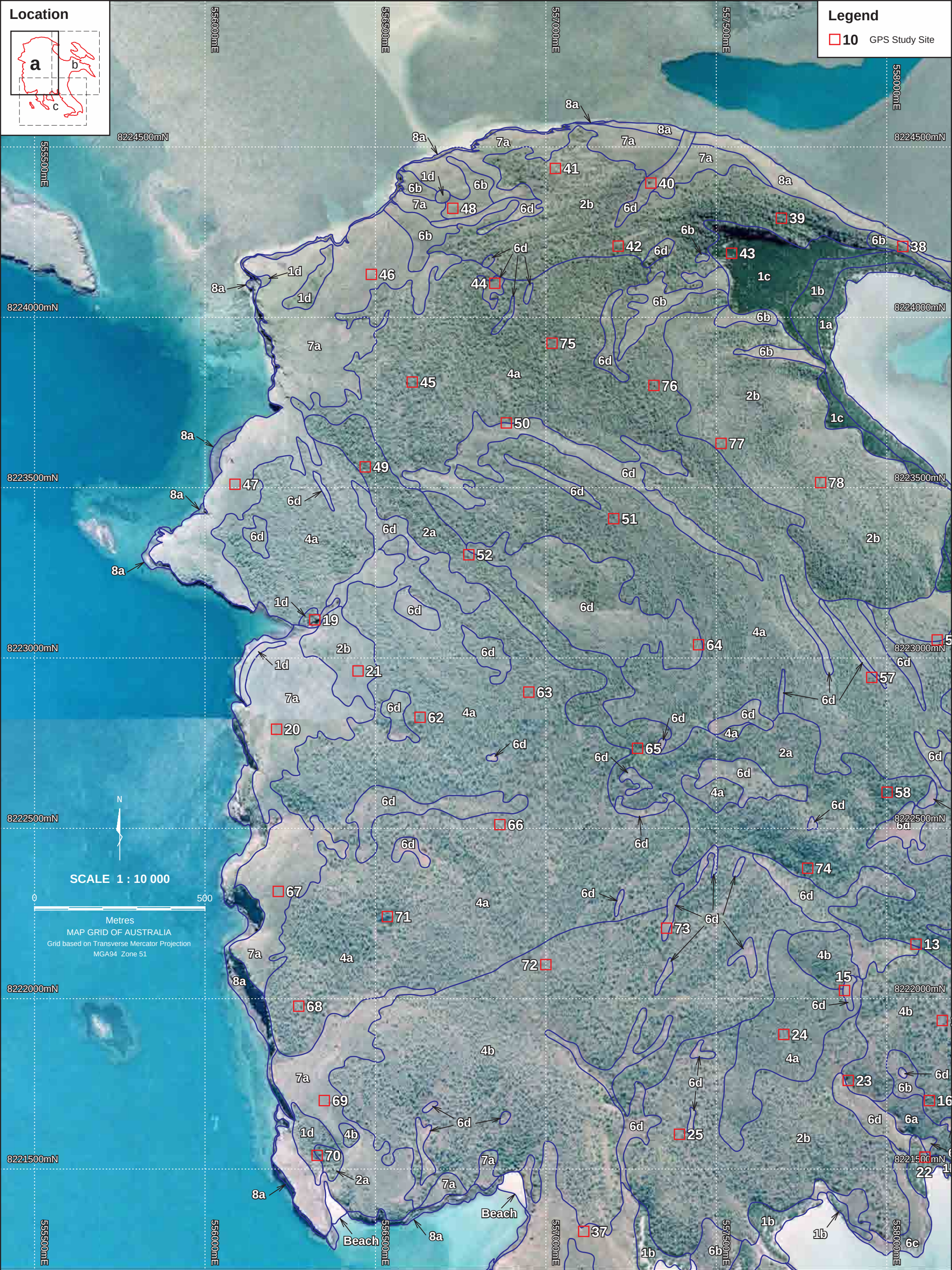
Plan No. **II-005**

A4

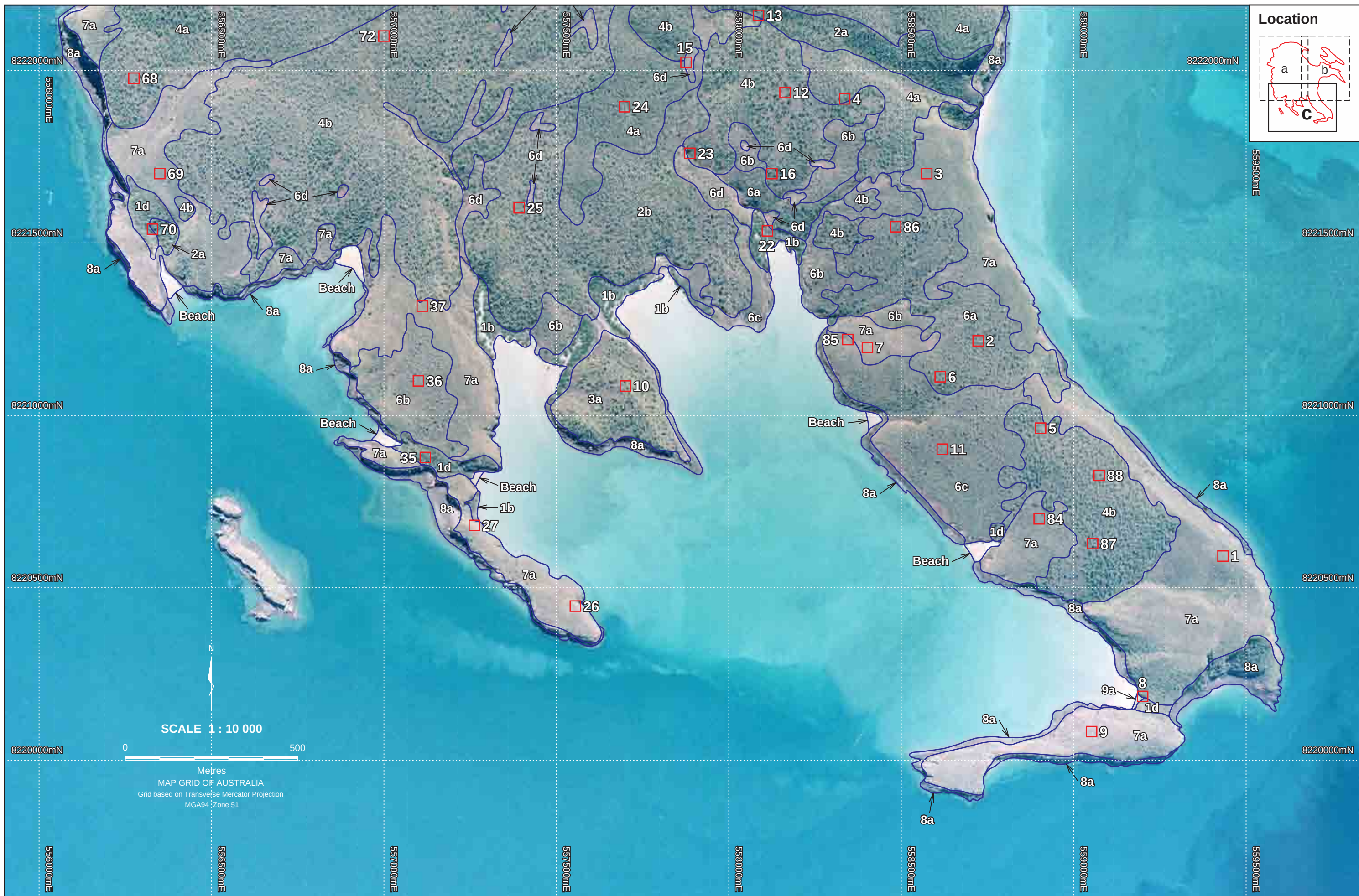












4.7 Vegetation Condition

The DEC (2009) report a continuing general deterioration in the condition of the Northern Kimberley bioregion's main savanna ecosystems, rainforests and riverine forests, mainly due to fire and grazing. Most of the important wetlands recognised (river systems, riverine floodplains, swamp rainforests, freshwater lakes and swamps) are in good condition, but deteriorating. The primary threatening processes for all these wetlands are changed fire regimes, grazing pressure from feral herbivores and changed hydrology. Although no feral vertebrates have colonised the coastal islands, and they are virtually weed-free, hot dry-season fires are becoming increasingly frequent (DEC 2009).

Vegetation condition for the 100 study sites formally assessed at Irvine Island in April and October 2010 ranged from 'Pristine' to 'Very Good', with only minor disturbances recorded. The disturbances noted included access tracks and localised infrastructure dumps remaining from historical BHP exploration activities, and narrow walk tracks and camp laydown established during the current exploration program by Pluton Resources. While the impact of the recent February 2009 wildfire was recorded as a disturbance, it is noted that the cause was by natural means (lightning strike) and a major contributing factor was the long interval between fires and resultant heavy fuel loads in the ground cover. Future management must ensure that fire on the island does not occur in quick succession, and that fire at the end of the dry season in particular is discouraged.

4.8 Conservation Significance of Flora and Vegetation

There are 2.3 million hectares of conservation estate (national parks, nature reserves, conservation parks) in the Kimberley, including 14.6% of the North Kimberley Region (DEC 2009). DEC (2009) lists twelve known special landscape, ecosystems and species for the North Kimberley Region, and three of these parameters have relevance or are represented at Irvine Island (Table 6).

Table 6 Special landscape, ecosystems and species identified by DEC (2009) for the North Kimberley Region (modified from May and McKenzie 2003).
NR = Not Relevant

Special landscape, ecosystems and species for the North Kimberley Region (modified from May and McKenzie 2003)		Relevance to the Irvine Island Study area, April 2010
1	A drowned coastline with extensive coastal archipelagos from the Buccaneer Archipelago to Sir Graham Moore Island that form a virtually feral- and weed-free microcosm of the Mitchell Subregion and present an opportunity to protect intact ecosystems. In particular Augustus Island (17 952 ha) and Bigge Island (17 190 ha) are large, near-coastal, uninhabited islands with no known feral animals and a diverse intact terrestrial fauna.	Irvine Island is one of 200 islands that form the Buccaneer Archipelago. The island is significantly smaller (893 ha) than Augustus Island (17,952 ha) and Bigge Island (17,190 ha).

Special landscape, ecosystems and species for the North Kimberley Region (modified from May and McKenzie 2003)		Relevance to the Irvine Island Study area, April 2010
2	Off-shore islands such as Pelican, Troughton, Sterna, Browse, Bedwell (Rowley Shoals), Booby, Lacepede Islands, and Adele for turtle nesting, migrating shorebirds and seabird breeding.	NR
3	Mound springs and swamp rainforest.	NR
4	There is tropical laterite flora. In particular the <i>Livistona eastonii</i> palm community of the Mitchell Plateau, a palm dominated landscape, is unique in Western Australia.	NR
5	The flora and fauna of north-western margin appears to be still intact. Critical weight range mammal fauna persist in this region, such as golden bandicoot, scaly-tailed possum, monjon, nabarlek, goldenbacked tree-rat and Kimberley rock-rat. None of the region's original mammals are regionally extinct yet, or are known to have disappeared from more than half of their former ranges across the region.	NR
6	The Cape Bougainville rainforest on laterite and volcanics has no hoofed feral animals and is the largest single patch of rainforest in the Kimberley.	NR
7	Airfield Swamp on the Mitchell Plateau is a large perched paperbark forest wetland.	NR
8	The Prince Regent Lineament encompassing the Prince Regent River.	NR
9	There are many endemic invertebrates, vertebrates and plants. All the rainforest patches studied to date have endemic earthworm species associated with them. Endemic plants include <i>Cycas basaltica</i> and <i>Cycas lane-poolei</i> , <i>Acacia kenneallyi</i> , <i>Acacia smeringa</i> , <i>Gossypium londonderriense</i> , <i>Grevillea cravenii</i> , <i>Grevillea donaldiana</i> , <i>Grevillea maherae</i> , <i>Grevillea microstyla</i> , <i>Hibiscus peralbus</i> , <i>Typhonium peltandroides</i> , <i>Auranticarpa resinosa</i> and <i>Hibbertia ledifolia</i> .	NR
10	Sandstone ecosystems include areas of high species and ecosystem diversity and endemism. Rugged sandstone environments can provide fire protection to obligate seeders which are amongst the most vulnerable savanna plants. Regeneration is by seed only and soil seed stores can be eliminated by successive fires.	Sandstone ecosystems were recorded at Irvine Island, but none are listed as being of conservation significance, i.e. PECs, TECs. Until recently, the island has provided long-term protection from fire.

Special landscape, ecosystems and species for the North Kimberley Region (modified from May and McKenzie 2003)		Relevance to the Irvine Island Study area, April 2010
11	Mangroves, riparian forests and rainforest patches are resource centres for distinct faunas, including wide-ranging vagile species that dependent on the archipelago of patches, e.g. rainbow pittas, fruit pigeons, and flying foxes. They also provide dry season refuges for a variety of savanna animals, and have numerous endemic species. Laterite rainforests are of particular interest.	There were three mangrove associations recorded and mapped around the coastal fringe of Irvine Island. Small rainforest patches were recorded within Vegetation Association 2a.
12	Significant wetlands include the Mitchell River System, Prince Regent River System, Yampi Peninsula #WA115, Walcott Inlet System including Munja Lagoon and the lower reaches of the Isdell and the Charnley Rivers, and Airfield Swamp and Glauerts Lagoon on Mitchell Plateau.	NR

The overall conservation significance of the Irvine Island Study area can be determined on the basis of criteria listed within Commonwealth and State Acts and Agreements detailed in Section 3.2.3 (see Table 7). Within the Irvine Island Study area flora and vegetation values of conservation significance are restricted to locations supporting the Priority 1 flora *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) and Priority 4 flora *Haemodorum gracile*, mangroves described and mapped as Vegetation Associations 1a, 1b and 1c, and small rainforest patches occurring with Vegetation Association 2a.

Table 7 Status of conservation significance for flora and vegetation recorded within the Irvine Island Study area.

Criteria for Conservation Significance	Status
Species listed as Threatened Flora under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i>	None
Species listed as Declared Rare Flora by the DEC under the <i>Wildlife and Conservation Act 1950</i>	None
Species listed as Priority Flora by DEC - Noting these species are not protected by the <i>Wildlife and Conservation Act 1950</i> , but are considered to be of conservation importance at a State level	<i>Ipomoea</i> sp. A Kimberley Flora (L.J. Penn 84) (P1); <i>Phyllanthus aridus</i> (P3); <i>Haemodorum gracile</i> (P4)
Vegetation associations listed as Threatened Ecological Communities under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth level)	None
Vegetation associations listed as Priority Ecological Communities (PEC) as per the DEC Priority list (State level)	None
Species not formally identified, yet considered of conservation importance on a local level because of their patterns of distribution and abundance - this status includes regionally endemic species and species with specific landform requirements that are in decline	None

<i>Criteria for Conservation Significance</i>	Status
Vegetation associations that are not directly threatened, but in need of increased reservation	Mangroves (Vegetation Associations 1a, 1b, 1c) Small rainforest patches were recorded within Vegetation Association 2a.

5.0 Discussion

The only formal baseline flora and vegetation survey previously completed at Irvine Island was conducted by Mattiske Consulting over eleven days in June and September 2007. The survey concentrated on the Hardstaff Peninsula and Isthmus Point areas. A total of 86 plant taxa from 40 families were recorded including one introduced (weed) species **Passiflora foetida*. There was no flora of Federal or State conservation significance recorded. Vegetation was described and mapped as 14 vegetation associations, with none of the associations being of conservation significance.

The three day survey of Hardstaff Peninsula completed by Onshore Environmental in April 2010 recorded 172 plant taxa from 55 families including two Priority flora species determined to be of State conservation significance; *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84) (Priority 1) and *Haemodorum gracile* (Priority 4), and two introduced (weed) species; **Melinis repens* and **Passiflora foetida* var. *hispida*. Vegetation was described and mapped as twelve vegetation associations. The discrepancy in the number of plant taxa recorded at Irvine Island during the Mattiske (2007) and Onshore Environmental (2010) surveys, 86 plant taxa in 2007 compared to 172 plant taxa in 2010, can be attributed to the different burn regimes. Approximately 30% of the flora recorded in 2010 (14 months post-fire) was annual or ephemeral species. In comparison, only 15% of the flora recorded in 2007 (long unburnt) comprised annual or ephemeral species.

The 14 day dry season survey completed by Onshore Environmental between the 13th and 26th October 2010 covered Irvine Island, Flora Island, and parts of Bathurst Island and Kathleen Island. A total of 204 plant taxa (including varieties and subspecies) from 62 families and 142 genera were recorded. Species representation was greatest among the Fabaceae, Malvaceae, Poaceae, Myrtaceae, Convolvulaceae, Proteaceae, Cyperaceae, Apocynaceae, Phyllanthaceae and Euphorbiaceae families. No plant taxa gazetted as Declared Rare Flora pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)*, or listed under the *EPBC Act 1999*, were recorded. Two Priority taxa were recorded; *Phyllanthus aridus* (Priority 3) and *Haemodorum gracile* (Priority 4). *Phyllanthus aridus* occurred as scattered plants at one locality on the central western fringe of Irvine Island. *Haemodorum gracile* was recorded from a number of areas around Irvine Island, as well as from neighbouring Kathleen, Flora and Bathurst Islands. A second Priority 1 flora recorded from a single location at the northern end of Hardstaff Peninsula (on Irvine Island) in April 2010, *Ipomoea* sp. A Kimberley Flora (L.J. Penn 84), could not be relocated in October 2010. A targeted survey for this taxon will be completed during the proposed wet season survey in March 2011. The total flora recorded in October 2010 included two introduced (weed) species; **Melinis repens* (Blanketgrass) and **Passiflora foetida* var. *hispida* (Wild Passionfruit). Neither taxon is listed as a Declared Weed under the *Agriculture and Related Resources Protection Act, 1976* (ARRP Act). Seventeen vegetation associations were described and mapped from Irvine Island; none of the vegetation associations described are listed as Threatened Ecological Communities (TECs) or Priority Ecological Community (PECs). DEC (2009) identify mangroves, riparian forests and rainforest

patches as 'special landscapes and ecosystems'. Mangrove and rainforest patches were both recorded on Irvine Island. There were three mangrove associations recorded and mapped around the coastal fringe as Vegetation Associations 1a, 1b and 1c. Species richness for the mangrove associations was low and none of the plant taxa were determined to be of conservation significance. Similar mangrove associations have previously been recorded at neighbouring Cockatoo and Koolan Islands (Ecologia Environment 2004b). Small rainforest patches were recorded on steep sided valleys along a large ephemeral drainage line associated with Vegetation Association 2a at Irvine Island. These 'patches' were often difficult to differentiate from surrounding vegetation owing to their small size, and the impact of recent wildfire. None of the associated flora was determined to be of conservation significance. Similar rainforest patches have previously been recorded at nearby Koolan Island (Ecologia Environment 2004b).

Irvine Island is one of 2,633 islands that occur along the Kimberley coast and one of 423 islands with an area greater than 20 ha (DEC 2009). The Kimberley islands may be of importance in providing refuge for flora and fauna under pressure from threatening processes affecting mainland ecosystems, including introduction of weeds and feral animals, and changes in the frequency and seasonality of fire (both arson and wildfire). The April and October 2010 flora and vegetation surveys confirmed the occurrence of two introduced (weed) flora at Irvine Island. It is likely that seed for both weed species was introduced by birds from neighbouring Cockatoo or Koolan Islands where a suite of introduced plant taxa have previously been recorded.

The vegetation of Irvine Island was long unburnt until February 2009 when wildfire resulting from lightning strike removed heavy fuel loads across the majority of the island. While the wildfire has altered the short-term vegetation structure, it has also stimulated a number of opportunistic annual and ephemeral plant taxa that are only seen in the early growing seasons following fire. It will be important that fire at Irvine Island is discouraged in the short to medium term, particularly late in the dry season when fire intensity can be extreme. Vegetation mapping of the entire island will contribute to fire management strategies aimed at protecting vulnerable associations.

A selection of Kimberley islands have been proposed for reservation since the 1970s (Burbidge *et al.* 1991). Much of the conservation planning is based on the vegetation association mapping of Beard (1979). Beard's mapping was completed at a relatively coarse scale, and based solely on photo interpretation for the Yampi Peninsula unit. Vegetation communities identified as being of high conservation significance such as rainforest patches and mound springs require high resolution mapping and confirmation by ground truthing to confirm distribution owing to their small size. Survey of the Irvine Island Study area in April and October 2010 did not identify any vegetation associations listed to be of State or Federal conservation significance.

6.0 Study Team

The Level 2 flora and vegetation survey of the Irvine Island Study area was planned, co-ordinated and executed by the following personnel:

Level 2 Flora & Vegetation Survey

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Project Staff

Dr Darren Brearley	PhD	Project Manager / Senior Botanist
Dr Jerome Bull	PhD	Senior Botanist / Taxonomist
Dr Eleanor Bennett	PhD	Taxonomist

Licences

The field survey was conducted under the authorisation of the following licences issued by the Department of Environment & Conservation:

- Darren Brearley, Onshore Environmental Consultants 'Licence to take flora for scientific & other prescribed purposes' Licence No. SL007775
- Jerome Bull, Onshore Environmental Consultants 'Licence to take flora for scientific & other prescribed purposes' Licence No. SL007739

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APPENDIX 1 Vegetation Classifications based on Specht (1970), as modified by Aplin (1979).

Life form & height of tallest stratum	Projected % foliage cover of tallest stratum	Description
Trees over 30 metres	70-100 30-70 10-30 2-10 <2	High closed forest High open forest High woodland High open woodland Scattered tall trees
Trees 10-30 metres	70-100 30-70 10-30 2-10 <2	Closed forest Open forest Woodland Open woodland Scattered trees
Trees under 10 metres	70-100 30-70 10-30 2-10 <2	Low closed forest Low open forest Low woodland Low open woodland Scattered low trees
Shrubs over 2 metres	70-100 30-70 10-30 2-10 <2	Closed scrub Open scrub High shrubland High open shrubland Scattered tall shrubs
Shrubs 1-2 metres	70-100 30-70 10-30 2-10 <2	Closed heath Open heath Shrubland Open shrubland Scattered shrubs
Shrubs under 1 metre	70-100 30-70 10-30 2-10 <2	Low closed heath Low open heath Low shrubland Low open shrubland Low scattered shrubs
Herbs, sedges, grasses	70-100 30-70 10-30 2-10 <2	Closed herb, sedge, grassland Herb, sedge, grassland Open herb, sedge, grassland Very open herb, sedge, grassland Scattered herbs, sedges, grasses

Grasslands then divided into:

Tussock grasslands (perennial tussock species, e.g. *Eragrostis* spp.)

Annual tussock grasslands (e.g. *Sorghum* spp.)

Hummock grasslands (i.e. *Triodia* spp. that form hummocks)

Curly spinifex grasslands (i.e. *Triodia* spp. that do not form hummocks)

APPENDIX 2 Vegetation condition scale (as developed by Keighery 1994).

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

APPENDIX 3 Conservation categories for flora described under the EPBC Act.

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

APPENDIX 4 Conservation Codes for Western Australian Flora (see Atkins 2006).

R: Declared Rare Flora - Extant Taxa

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

1: Priority One - Poorly Known Taxa

Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farm land, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need for further survey.

2: Priority Two - Poorly Known Taxa

Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need for further survey.

3: Priority Three - Poorly Known Taxa

Taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need for further survey.

4: Priority Four - Rare Taxa

Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

APPENDIX 5 **Total flora recorded from the Irvine Island Study area by Onshore Environmental Consultants, 8th-10th April 2010 and 13th to 26th October 2010.**

FAMILY	SPECIES	Apr '10	Oct '10
ACANTHACEAE	<i>Avicennia marina</i>	+	+
	<i>Dicliptera armata</i>	+	+
	<i>Rostellularia adscendens</i> var. <i>clementii</i>	+	+
AIZOACEAE	<i>Sesuvium portulacastrum</i>		+
AMARANTHACEAE	<i>Gomphrena</i> cf. <i>leptoclada</i>		+
	<i>Ptilotus capitatus</i>	+	+
	<i>Ptilotus polystachyus</i> var. <i>longistachyus</i>	+	+
ANACARDIACEAE	<i>Buchanania oblongifolia</i>	+	+
APIACEAE	<i>Trachymene didiscoides</i>	+	+
APOCYNACEAE	<i>Cynanchum pedunculatum</i>	+	+
	<i>Cynanchum puberulum</i>		+
	<i>Cynanchum</i> sp. <i>indet.</i>		+
	<i>Marsdenia pleiadenia</i>	+	
	<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	+	+
	<i>Sarcostemma viminale</i> ssp. <i>australe</i>		+
	<i>Wrightia saligna</i>	+	+
ASPARAGACEAE	<i>Asparagus racemosus</i>	+	+
ASTERACEAE	<i>Pentalepis ecliptoides</i>	+	+
	<i>Peripleura spechtii</i> var. <i>kimberleyensis</i>		+
	<i>Pterocaulon sphacelatum</i>		+
	<i>Vittadinia</i> sp. A Kimberley Flora (R.J. Cranfield 6527)		+
BIXACEAE	<i>Cochlospermum fraseri</i>	+	+
BORAGINACEAE	<i>Heliotropium glabellum</i>	+	+
	<i>Heliotropium</i> sp. <i>indet.</i>		+
	<i>Trichodesma zeylanicum</i> var. <i>latisepalum</i>		+
BURSERIACEAE	<i>Canarium australicum</i> var. <i>australianum</i>	+	+
BYBLIDACEAE	<i>Byblis filifolia</i>	+	
CAPPARACEAE	<i>Capparis spinosa</i> var. <i>nummularia</i>		+

FAMILY	SPECIES	Apr '10	Oct '10
CARYOPHYLLACEAE	<i>Polycarpaea involucrata</i>	+	+
CELASTRACEAE	<i>Stackhousia intermedia</i>	+	
CHENOPODIACEAE	<i>Salsola tragus ssp. tragus</i>	+	+
CLEOMACEAE	<i>Cleome viscosa</i>	+	+
COMBRETACEAE	<i>Terminalia canescens</i>	+	+
	<i>Terminalia cf. latipes</i>	+	
	<i>Terminalia ferdinandiana</i>	+	+
	<i>Terminalia hadleyana</i>		+
	<i>Terminalia sp. indet.</i>		+
COMMELINACEAE	<i>Cartonema spicatum var. humile</i>	+	
	<i>Commelina ensifolia</i>	+	
	<i>Murdannia graminea</i>	+	
CONVOLVULACEAE	<i>Bonamia pannosa</i>	+	+
	<i>Evolvulus alsinoides var. decumbens</i>	+	+
	<i>Ipomoea eriocarpa</i>	+	+
	<i>Ipomoea macrantha</i>		+
	<i>Ipomoea pes-caprae ssp. brasiliensis</i>	+	+
	<i>Ipomoea sp. A Kimberley Flora (L.J. Penn 84)</i>	+	
	<i>Ipomoea sp. indet.</i>		+
	<i>Jacquemontia paniculata</i>	+	+
	<i>Operculina brownii</i>		+
	<i>Xenostegia tridentata</i>	+	+
CUCURBITACEAE	<i>Cucumis sp. Gunlom (J.L. McKean 864 b)</i>	+	
CYPERACEAE	<i>Bulbostylis aff. barbata</i>	+	
	<i>Bulbostylis barbata</i>	+	+
	<i>Cyperus microcephalus ssp. microcephalus</i>	+	+
	<i>Fimbristylis cardiocarpa</i>	+	
	<i>Fimbristylis cymosa</i>	+	+
	<i>Fimbristylis ferruginea</i>		+
	<i>Fimbristylis leucocolea</i>	+	+
	<i>Fimbristylis schultzei</i>	+	+
	<i>Fimbristylis cf. trigastrocarya</i>		+
	<i>Scleria brownii</i>	+	+
DILLENIACEAE	<i>Hibbertia sp. A Kimberley Flora (T.E.H. Aplin et al. 898)</i>		+

FAMILY	SPECIES	Apr '10	Oct '10
EBENACEAE	<i>Diospyros maritima</i>		+
ERYTHROXYLACEAE	<i>Erythroxylum ellipticum</i>	+	+
EUPHORBIACEAE	<i>Euphorbia bifida</i>	+	
	<i>Euphorbia distans</i>	+	+
	<i>Euphorbia kimberleyensis</i>	+	+
	<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	+	+
	<i>Excoecaria ovalis</i>		+
	<i>Microstachys chamaelea</i>	+	+
FABACEAE	<i>Abrus precatorius</i> ssp. <i>precatorius</i>	+	+
	<i>Acacia hippuroides</i>	+	+
	<i>Acacia multisiliqua</i>	+	+
	<i>Acacia neurocarpa</i>	+	+
	<i>Acacia oligoneura</i>	+	+
	<i>Acacia plectocarpa</i> ssp. <i>plectocarpa</i>		+
	<i>Acacia tumida</i> var. <i>tumida</i>	+	+
	<i>Acacia wickhamii</i> ssp. <i>wickhamii</i>	+	+
	<i>Alysicarpus muelleri</i>	+	
	<i>Cajanus cinereus</i>	+	+
	<i>Cajanus scarabaeoides</i> var. <i>pedunculatus</i>		+
	<i>Canavalia rosea</i>		+
	<i>Chamaecrista mimosoides</i>	+	+
	<i>Christia australasica</i>	+	+
	<i>Crotalaria alata</i>	+	+
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	+	+
	<i>Crotalaria montana</i> var. <i>angustifolia</i>	+	+
	<i>Cullen virens</i>		+
	<i>Desmodium brownii</i>	+	
	<i>Desmodium filiforme</i>	+	
	<i>Fabaceae</i> sp. 'tri leaf'		+
	<i>Flemingia parviflora</i>		+
	<i>Galactia tenuiflora</i>	+	+
	<i>Glycine tomentella</i>		+
	<i>Gompholobium subulatum</i>		+
	<i>Indigastrium parviflorum</i>	+	
	<i>Indigofera colutea</i>	+	+
	<i>Indigofera haplophylla</i>	+	+
	<i>Indigofera trita</i>	+	+
	<i>Senna goniodes</i>	+	+
	<i>Templetonia hookeri</i>	+	+
	<i>Tephrosia laxa</i> var. <i>angustata</i>		+

FAMILY	SPECIES	Apr '10	Oct '10
	<i>Tephrosia leptoclada</i>	+	+
	<i>Tephrosia macrocarpa</i>		+
	<i>Tephrosia rosea</i> var. <i>clementii</i>		+
	<i>Tephrosia rosea</i> var. <i>rosea</i>	+	+
	<i>Tephrosia simplicifolia</i>		+
	<i>Tephrosia</i> sp. E Kimberley Flora (C.A. Gardner 9937)		+
	<i>Tephrosia subpectinata</i>	+	+
	<i>Uraria lagopodioides</i>		+
	<i>Vigna lanceolata</i> var. <i>filiformis</i>	+	+
	<i>Vigna radiata</i> cf. var. <i>sublobata</i>		+
FLAGELLARIACEAE	<i>Flagellaria indica</i>	+	+
GOODENIACEAE	<i>Goodenia sepalosa</i> var. <i>sepalosa</i>	+	+
	<i>Scaevola macrostachya</i>	+	+
HAEMODORACEAE	<i>Haemodorum gracile</i>	+	+
HALORAGACEAE	<i>Gonocarpus leptothecus</i>	+	+
LAMIACEAE	<i>Callicarpa candicans</i>		+
	<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	+	+
	<i>Clerodendrum floribundum</i> var. <i>floribundum</i>	+	
LAURACEAE	<i>Cassytha capillaris</i>	+	+
	<i>Cassytha filiformis</i>		+
LECYTHIDACEAE	<i>Planchonia careya</i>		+
LOGANIACEAE	<i>Mitrasacme connata</i>	+	
	<i>Mitrasacme nudicaulis</i> var. <i>nudicaulis</i>	+	
LORANTHACEAE	<i>Amyema bifurcata</i>	+	+
	<i>Amyema sanguinea</i> var. <i>sanguinea</i>	+	
	<i>Decaisnina angustata</i>		+
	<i>Decaisnina signata</i> ssp. <i>cardiophylla</i>		+
LYTHRACEAE	<i>Sonneratia alba</i>	+	+
MALVACEAE	<i>Abutilon indicum</i> var. <i>australiense</i>		+
	<i>Brachychiton diversifolius</i> ssp. <i>diversifolius</i>	+	+
	<i>Brachychiton viridiflorus</i>	+	+
	<i>Brachychiton viscidulus</i>	+	+
	<i>Camptostemon schultzei</i>		+

FAMILY	SPECIES	Apr '10	Oct '10
	<i>Corchorus fascicularis</i>	+	+
	<i>Corchorus pumilio</i>	+	+
	<i>Grewia breviflora</i>	+	+
	<i>Grewia retusifolia</i>	+	+
	<i>Helicteres rhynchocarpa</i>	+	
	<i>Hibiscus fryxellii</i> var. <i>mollis</i>	+	+
	<i>Hibiscus leptocladus</i>	+	+
	Malvaceae sp. indet. 1	+	+
	Malvaceae sp. indet. 2		+
	<i>Melhania oblongifolia</i>	+	+
	<i>Melochia umbellata</i>		+
	<i>Thespesia populneoides</i>		+
	<i>Triumfetta albida</i>		+
	<i>Triumfetta carteri</i>		+
	<i>Triumfetta incana</i>	+	
	<i>Triumfetta plumigera</i>	+	+
	<i>Triumfetta ryeae</i> ssp. <i>brevipetala</i>	+	
	<i>Triumfetta triandra</i>	+	+
	<i>Waltheria indica</i>	+	+
MELIACEAE	<i>Owenia vernicosa</i>		+
MENISPERMACEAE	<i>Tinospora smilacina</i>	+	+
MORACEAE	<i>Ficus aculeata</i> var. <i>indecora</i>	+	+
	<i>Ficus platypoda</i>	+	+
	<i>Ficus virens</i>		+
MYRTACEAE	<i>Calytrix brownii</i>	+	+
	<i>Calytrix exstipulata</i>	+	+
	<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	+	+
	<i>Corymbia confertiflora</i>	+	+
	<i>Corymbia polycarpa</i>	+	+
	<i>Eucalyptus miniata</i>	+	+
	<i>Eucalyptus obconica</i>		+
	<i>Eucalyptus tectifera</i>	+	+
	<i>Osbornia octodonta</i>	+	
	<i>Verticordia verticillata</i>	+	+
NYCTAGINACEAE	<i>Boerhavia dominii</i>		+
OLEACEAE	<i>Jasminum didymum</i> ssp. <i>didymum</i>	+	+
ORCHIDACEAE	<i>Dendrobium affine</i>		+

FAMILY	SPECIES	Apr '10	Oct '10
OROBANCHACEAE	<i>Buchnera asperata</i>	+	
	<i>Buchnera linearis</i>	+	
	<i>Buchnera urticifolia</i>	+	+
PANDANACEAE	<i>Pandanus spiralis</i>	+	+
PASSIFLORACEAE	<i>Adenia heterophylla ssp. australis</i>	+	+
	* <i>Passiflora foetida var. hispida</i>	+	+
PHYLLANTHACEAE	<i>Breynia cernua</i>		+
	<i>Flueggea virosa ssp. melanthesoides</i>	+	+
	<i>Leptopus decaisnei var. decaisnei</i>	+	+
	<i>Phyllanthus aridus</i>		+
	<i>Phyllanthus exilis</i>	+	+
	<i>Phyllanthus maderaspatensis</i>	+	+
	<i>Phyllanthus reticulatus</i>	+	
	<i>Sauropus trachyspermus</i>	+	+
PLANTAGINACEAE	<i>Stemodia lythrifolia</i>		+
PLUMBAGINACEAE	<i>Aegialitis annulata</i>		+
POACEAE	<i>Alloteropsis semialata</i>	+	+
	<i>Aristida cf. sciurodes</i>		+
	<i>Aristida holathera var. holathera</i>		+
	<i>Cenchrus elymoides var. elymoides</i>	+	+
	<i>Chrysopogon latifolius</i>	+	+
	<i>Cymbopogon cf. ambiguus</i>		+
	<i>Cymbopogon procerus</i>	+	+
	<i>Dactyloctenium radulans</i>	+	
	<i>Digitaria brownii</i>	+	+
	<i>Eragrostis cumingii</i>	+	
	<i>Eriachne avenacea</i>		+
	<i>Eriachne ciliata</i>	+	+
	<i>Eriachne obtusa</i>	+	+
	<i>Eulalia aurea</i>		+
	<i>Heteropogon contortus</i>		+
	* <i>Melinis repens</i>	+	+
	<i>Mnesithea formosa</i>	+	
	<i>Panicum mindanense</i>	+	+
	<i>Panicum seminudum</i>	+	+
	<i>Schizachyrium pseudeulalia</i>	+	
	<i>Sehima nervosum</i>	+	
	<i>Sorghum plumosum</i>	+	+
	<i>Spinifex longifolius</i>	+	+

FAMILY	SPECIES	Apr '10	Oct '10
	<i>Triodia cf. aeria</i>		+
	<i>Triodia bynoei</i>	+	+
	<i>Triodia pungens</i>		+
	<i>Triodia sp 'stinky'</i>		+
POLYGALACEAE	<i>Polygala linearifolia</i>	+	
	<i>Polygala sp. Kimberley (R.A. Kerrigan 1111)</i>	+	
PRIMULACEAE	<i>Aegiceras corniculatum</i>	+	+
PROTEACEAE	<i>Grevillea agrifolia ssp. agrifolia</i>	+	+
	<i>Grevillea heliosperma</i>		+
	<i>Grevillea pyramidalis ssp. pyramidalis</i>	+	+
	<i>Grevillea refracta ssp. refracta</i>	+	+
	<i>Grevillea wickhamii ssp. wickhamii</i>	+	+
	<i>Hakea arborescens</i>	+	+
	<i>Persoonia falcata</i>	+	+
	<i>Stenocarpus acacioides</i>		+
RHIZOPHORACEAE	<i>Ceriops australis</i>		+
	<i>Rhizophora stylosa</i>	+	+
RUBIACEAE	<i>Morinda citrifolia</i>		+
	<i>Pavetta kimberleyana</i>		+
	<i>Spermacoce cf. dolichosperma</i>	+	
SANTALACEAE	<i>Exocarpos latifolius</i>	+	+
	<i>Santalum lanceolatum</i>	+	+
SAPINDACEAE	<i>Distichostemon hispidulus var. aridus</i>	+	+
SAPOTACEAE	<i>Mimusops elengi</i>	+	+
	<i>Sersalisia sericea</i>	+	+
SOLANACEAE	<i>Solanum echinatum</i>	+	+
STYLIDACEAE	<i>Stylidium semipartitum</i>	+	+
VIOLACEAE	<i>Hybanthus aurantiacus</i>	+	+
VITACEAE	<i>Ampelocissus acetosa</i>	+	+
ZYGOPHYLLACEAE	<i>Tribulopsis sp. Koolan Island (K.F. Kenneally 8278)</i>	+	

APPENDIX 6 **Locations for Priority flora recorded from the Irvine Island Study area by Onshore Environmental Consultants, 8th-10th April 2010 and 13th to 26th October 2010.**

Priority Flora	Cons Code	Number Plants	Easting	Northing
<i>Ipomoea</i> sp. A Kimberley Flora (L.J. Penn 84)	P1	3	558163	8221936
<i>Phyllanthus aridus</i>	P3	1	556448	8222962
<i>Phyllanthus aridus</i>	P3	1	556315	8223030
<i>Phyllanthus aridus</i>	P3	1	556290	8223058
<i>Phyllanthus aridus</i>	P3	1	556313	8223035
<i>Haemodorum gracile</i>	P4	2	556215	8222831
<i>Haemodorum gracile</i>	P4	1	559265	8222976
<i>Haemodorum gracile</i>	P4	8	559946	8223550
<i>Haemodorum gracile</i>	P4	2	558346	8222379
<i>Haemodorum gracile</i>	P4	13	558317	8226355
<i>Haemodorum gracile</i>	P4	1	558975	8220932
<i>Haemodorum gracile</i>	P4	1	558919	8220928
<i>Haemodorum gracile</i>	P4	1	559062	8220913
<i>Haemodorum gracile</i>	P4	1	559072	8220914
<i>Haemodorum gracile</i>	P4	1	559074	8220910
<i>Haemodorum gracile</i>	P4	1	559098	8220807
<i>Haemodorum gracile</i>	P4	1	559097	8220807
<i>Haemodorum gracile</i>	P4	1	559412	8220417
<i>Haemodorum gracile</i>	P4	1	559408	8220414
<i>Haemodorum gracile</i>	P4	1	559396	8220420
<i>Haemodorum gracile</i>	P4	1	559428	8220553
<i>Haemodorum gracile</i>	P4	1	559413	8220557
<i>Haemodorum gracile</i>	P4	1	559412	8220556
<i>Haemodorum gracile</i>	P4	1	559124	8220841
<i>Haemodorum gracile</i>	P4	1	558884	8220962
<i>Haemodorum gracile</i>	P4	1	558677	8221574
<i>Haemodorum gracile</i>	P4	1	558345	8221914
<i>Haemodorum gracile</i>	P4	1	558673	8221515
<i>Haemodorum gracile</i>	P4	1	558723	8221394
<i>Haemodorum gracile</i>	P4	18	554895	8224453
<i>Haemodorum gracile</i>	P4	9	554904	8224443
<i>Haemodorum gracile</i>	P4	1	555141	8224431
<i>Haemodorum gracile</i>	P4	3	560023	8222614
<i>Haemodorum gracile</i>	P4	4	559997	8222632
<i>Haemodorum gracile</i>	P4	5	559964	8222634
<i>Haemodorum gracile</i>	P4	3	559959	8222645
<i>Haemodorum gracile</i>	P4	1	559945	8223548
<i>Haemodorum gracile</i>	P4	6	544927	8224431
<i>Haemodorum gracile</i>	P4	1	559433	8220592
<i>Haemodorum gracile</i>	P4	1	558574	8221701

Priority Flora	Cons Code	Number Plants	Easting	Northing
<i>Haemodorum gracile</i>	P4	1	558336	8221918
<i>Haemodorum gracile</i>	P4	1	558904	8220963
<i>Haemodorum gracile</i>	P4	1	560020	8222612
<i>Haemodorum gracile</i>	P4	1	556152	8222824
<i>Haemodorum gracile</i>	P4	1	557722	8221235
<i>Haemodorum gracile</i>	P4	2	559946	8223550
<i>Haemodorum gracile</i>	P4	3	559960	8223534
<i>Haemodorum gracile</i>	P4	1	560012	8223484
<i>Haemodorum gracile</i>	P4	2	558346	8222376
<i>Haemodorum gracile</i>	P4	2	558181	8220909
<i>Haemodorum gracile</i>	P4	1	558570	8221718
<i>Haemodorum gracile</i>	P4	1	558716	8221453
<i>Haemodorum gracile</i>	P4	7	554894	8224456
<i>Haemodorum gracile</i>	P4	30	554910	8224437

APPENDIX 7 **Locations for introduced (weed) species recorded from the Irvine Island Study area by Onshore Environmental Consultants, 8th-10th April 2010 and 13th to 26th October 2010.**

Species	No. Plants / % Cover	Easting	Northing
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	559844	8222717
<i>*Passiflora foetida</i> var. <i>hispida</i>	2	556289	8223080
<i>*Passiflora foetida</i> var. <i>hispida</i>	15	556313	8223035
<i>*Passiflora foetida</i> var. <i>hispida</i>	>100	557905	8221747
<i>*Passiflora foetida</i> var. <i>hispida</i>	5%	557877	8221789
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557627	8221744
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557530	8221687
<i>*Passiflora foetida</i> var. <i>hispida</i>	>50	558796	8222509
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557769	8224325
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557524	8224366
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557433	8224362
<i>*Passiflora foetida</i> var. <i>hispida</i>	12	557084	8224336
<i>*Passiflora foetida</i> var. <i>hispida</i>	15	557055	8224267
<i>*Passiflora foetida</i> var. <i>hispida</i>	15	556638	8224285
<i>*Passiflora foetida</i> var. <i>hispida</i>	5	557198	8223450
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556612	8223342
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556588	8223328
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556533	8223149
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	558186	8222903
<i>*Passiflora foetida</i> var. <i>hispida</i>	11	558012	8222905
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	558347	8226502
<i>*Passiflora foetida</i> var. <i>hispida</i>	2	556835	8222841
<i>*Passiflora foetida</i> var. <i>hispida</i>	12	557225	8223036
<i>*Passiflora foetida</i> var. <i>hispida</i>	2	556832	8222507
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556333	8221898
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556326	8221735
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556350	8221701
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556373	8222224
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556459	8222178
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556610	8222211
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	556784	8222163
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557172	8222152
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557585	8222237
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557723	8222381
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	559485	8220471
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557188	8223882
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557465	8223662
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	558257	8221957
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	558151	8221919
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	558673	8221515

Species	No. Plants / % Cover	Easting	Northing
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	558794	8221159
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	557608	8226215
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	557688	8226132
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	557907	8226001
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	557861	8225917
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	558702	8220763
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	558607	8220832
* <i>Passiflora foetida</i> var. <i>hispida</i>	5	559064	8220648
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555782	8229003
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555254	8228825
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555268	8228741
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555287	8228727
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555493	8228665
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555608	8228510
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555651	8228321
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555550	8228108
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555617	8228148
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	555141	8224431
* <i>Passiflora foetida</i> var. <i>hispida</i>	30	557793	8221837
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	556322	8223112
* <i>Passiflora foetida</i> var. <i>hispida</i>	7%	557887	8221760
* <i>Passiflora foetida</i> var. <i>hispida</i>	2%	557698	8221895
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	557392	8221602
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	557262	8220681
* <i>Passiflora foetida</i> var. <i>hispida</i>	3%	558807	8222471
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	556850	8224100
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	556727	8224320
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	556470	8223561
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	556884	8223690
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	557199	8223409
* <i>Passiflora foetida</i> var. <i>hispida</i>	2%	556774	8223303
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	558148	8223053
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	557956	8222943
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	558001	8222606
* <i>Passiflora foetida</i> var. <i>hispida</i>	15	558943	8225811
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	558829	8225982
* <i>Passiflora foetida</i> var. <i>hispida</i>	1.50%	556631	8222826
* <i>Passiflora foetida</i> var. <i>hispida</i>	1.50%	557269	8222735
* <i>Passiflora foetida</i> var. <i>hispida</i>	2	556275	8221978
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	556350	8221701
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	557768	8222383
* <i>Passiflora foetida</i> var. <i>hispida</i>	1%	557018	8223924
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1%	557317	8223800
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.50%	557514	8223630

Species	No. Plants / % Cover	Easting	Northing
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	557806	8223515
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	557688	8226132
<i>*Passiflora foetida</i> var. <i>hispida</i>	1%	557841	8225934
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558231	8225883
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558900	8220700
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558484	8221547
<i>*Passiflora foetida</i> var. <i>hispida</i>	5%	559055	8220628
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	555885	8229048
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	555525	8228729
<i>*Passiflora foetida</i> var. <i>hispida</i>	2%	555632	8228165
<i>*Passiflora foetida</i> var. <i>hispida</i>	3%	555795	8228156
<i>*Passiflora foetida</i> var. <i>hispida</i>	1.50%	558266	8226347
<i>*Passiflora foetida</i> var. <i>hispida</i>	1%	558098	8226283
<i>*Passiflora foetida</i> var. <i>hispida</i>	0.50%	558745	8222697
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	556088	8223510
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	559200	8220185
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558163	8221936
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	557876	8222024
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558007	8221963
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558110	8222153
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558115	8222205
<i>*Passiflora foetida</i> var. <i>hispida</i>	<1%	558264	8222452
<i>*Passiflora foetida</i> var. <i>hispida</i>	2%	558183	8221567
<i>*Passiflora foetida</i> var. <i>hispida</i>	2	558183	8221567
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	559196	8223126
<i>*Passiflora foetida</i> var. <i>hispida</i>	2-10%	559182	8222702
<i>*Passiflora foetida</i> var. <i>hispida</i>	10%	557136	8221139
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	557284	8224166
<i>*Passiflora foetida</i> var. <i>hispida</i>	2-10%	556309	8224063
<i>*Passiflora foetida</i> var. <i>hispida</i>	2	558174	8223029
<i>*Passiflora foetida</i> var. <i>hispida</i>	2-10%	557979	8222711
<i>*Passiflora foetida</i> var. <i>hispida</i>	3	559483	8220474
<i>*Passiflora foetida</i> var. <i>hispida</i>	1	559462	8220520
<i>*Melinis repens</i>	<1%	557793	8221837
<i>*Melinis repens</i>	<1%	556470	8223561
<i>*Melinis repens</i>	2%	556535	8222241
<i>*Melinis repens</i>	0.50%	557768	8222383
<i>*Melinis repens</i>	<1%	556322	8223112
<i>*Melinis repens</i>	<1%	557876	8222024

APPENDIX 8 **Raw data recorded on site sheets for 16 quadrats (50 m × 50 m) assessed within the Irvine Island Study area, 8th-10th April 2010 (1-16), and additional 84 quadrats from 10th-23rd October 2010 (17-100).**

Site	II 1
Date	7/04/2010
Recorder	DB
Photo	JB 7692
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559433
Northing	8220572
Habitat	Upper slope/ ridge
Aspect	South west
Soil	Grey/ brown loam - skeletal
Rock Type	Ironstone/ sandstone - outcropping/ boulders/ cobbles
% Bare Ground	35
% Logs:Twigs:Leaves	<1:3:1
Vegetation Condition	Excellent
Disturbance Type	Walk track
Fire Age	Burnt April 2009
Vegetation	<i>Calytrix exstipulata</i> Open Shrubland over <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> and <i>Acacia wickhamii</i> ssp. <i>wickhamii</i> Low Shrubland over <i>Triodia bynoei</i> Very Open Hummock Grassland over <i>Cleome viscosa</i> and <i>Gonocarpus leptothecus</i> Open Herbland

Species	% Cover	Height	No.
<i>Cleome viscosa</i>	20	<150	1.19
<i>Scaevola macrostachya</i>	5	30	1.20
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	<100	1.10
<i>Triodia bynoei</i>	4	70	1.03
<i>Calytrix exstipulata</i>	3	170	1.06
<i>Acacia wickhamii</i> ssp. <i>wickhamii</i>	3	20	1.28
<i>Solanum echinatum</i>	2	10	1.18
<i>Hibiscus leptocladus</i>	2	50	1.45
<i>Fimbristylis cardiocarpa</i>	2	20	1.14
<i>Eriachne ciliata</i>	2	30	1.08
<i>Buchanania oblongifolia</i>	2	<100	1.17
<i>Grevillea wickhamii</i> ssp. <i>wickhamii</i>	1.5	30	1.21
<i>Gonocarpus leptothecus</i>	1.5	10	1.09
<i>Tribulopsis</i> cf. sp. Koolan Island (K.F. Kenneally 8278)	<1	15	1.43
<i>Trachymene didiscoides</i>	<1	80	1.24
<i>Tinospora smilacina</i>	<1	Cr	1.39
<i>Terminalia canescens</i>	1	30	1.15

<i>Tephrosia subpectinata</i>	<1	25	1.40	
<i>Templetonia hookeri</i>	<1	30	1.33	
<i>Schizachyrium pseudeulalia</i>	<1	40	1.48	
<i>Sauropus trachyspermus</i>	<1	40	1.44	
<i>Ptilotus polystachyus</i> var. <i>longistachyus</i>	<1	130	1.25	
<i>Polygala linearifolia</i>	<1	10	1.05	
<i>Microstachys chamaelea</i>	<1	50	1.26	
<i>Jacquemontia paniculata</i>	<1	Cr	1.41	
<i>Indigofera trita</i>	<1	30	1.35	
<i>Hybanthus aurantiacus</i>	<1	20	1.11	
<i>Heliotropium glabellum</i>	<1	15	1.02	
<i>Haemodorum gracile</i>	<1	30	1.31	P4
<i>Grevillea refracta</i> ssp. <i>refracta</i>	<1	50	1.46	
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	1	<100	1.30	
<i>Fimbristylis schultzei</i>	<1	20	1.13	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	180	1.27	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	15	1.12	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	15	1.01	
<i>Eucalyptus tectifica</i>	<1	500	1.34	
<i>Crotalaria montana</i> var. <i>angustifolia</i>	<1	80	1.32	
<i>Corymbia confertiflora</i>	1	350	1.36	
<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	<1	60	1.23	
<i>Cassytha filiformis</i>	<1	Cl	1.07	
<i>Bulbostylis barbata</i>	<1	20	1.49	
<i>Buchnera linearis</i>	<1	30	1.47	
<i>Brachychiton viscidulus</i>	<1	180	1.22	
<i>Triumfetta plumigera</i>	0.5	40	1.42	
<i>Phyllanthus exilis</i>	0.5	20	1.38	
<i>Grevillea pyramidalis</i> ssp. <i>pyramidalis</i>	0.5	120	1.29	
<i>Euphorbia kimberleyensis</i>	0.5	20	1.16	
<i>Corchorus fascicularis</i>	0.5	15	1.04	
<i>Cajanus cinereus</i>	0.5	100	1.37	



Site	II 2
Date	8/04/2010
Recorder	DB
Photo	JB 7695 & DB 53
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558723
Northing	8221216
Habitat	Mid slopes
Aspect	South east
Soil	Brown loam - skeletal
Rock Type	Sandstone & mineralised iron - outcropping/ boulders/ cobbles
% Bare Ground	30
% Logs:Twigs:Leaves	<1:3:25
Vegetation Condition	Very good
Disturbance Type	Fire, walk tracks
Fire Age	Recent
Vegetation	<i>Corymbia cadophora</i> ssp. <i>cadophora</i> , <i>Eucalyptus tectifica</i> and <i>Corymbia confertiflora</i> Low Woodland over <i>Grevillea agrifolia</i> ssp. <i>agrifolia</i> , <i>Calytrix exstipulata</i> and <i>Buchanania oblongifolia</i> Shrubland over <i>Sorghum plumosum</i> Very Open Tussock Grassland

Species	% Cover	Height	No.
<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	8	400	2.03
<i>Sorghum plumosum</i>	6	190	2.16b
<i>Grevillea agrifolia</i> ssp. <i>agrifolia</i>	6	150	2.25
<i>Eucalyptus tectifica</i>	5	500-1500	2.01
<i>Corymbia confertiflora</i>	5	400-560	2.02
<i>Triodia bynoei</i>	4	80	1.03
<i>Ampelocissus acetosa</i>	4	Cl	2.05
<i>Calytrix exstipulata</i>	3	<200	1.06
<i>Buchanania oblongifolia</i>	3	100-200	1.17
<i>Vigna lanceolata</i> var. <i>filiformis</i>	2	Cr	2.07
<i>Trachymene didiscoides</i>	2	30	1.24
<i>Grevillea refracta</i> ssp. <i>refracta</i>	2	180	1.46
<i>Desmodium brownii</i>	2	30	2.13
<i>Cleome viscosa</i>	2	180	1.19
<i>Tephrosia subpectinata</i>	1	25	1.40
<i>Tephrosia rosea</i> var. <i>rosea</i>	<1	60	2.15
<i>Templetonia hookeri</i>	<1	30-60	2.27
<i>Scleria brownii</i>	<1	30	2.08
<i>Santalum lanceolatum</i>	<1	150	2.18
<i>Polygala linearifolia</i>	<1	10	1.05

<i>Phyllanthus exilis</i>	<1	40	1.38
<i>Murdannia graminea</i>	<1	30	2.23
<i>Mitrasacme nudicaulis</i> var. <i>nudicaulis</i>	<1	30	2.31
<i>Marsdenia viridiflora</i>	<1	Cl	2.29
<i>Marsdenia pleiadenia</i>	<1	Cl	2.26
<i>Indigastrium parviflorum</i>	1	40	2.11
<i>Hybanthus aurantiacus</i>	<1	40	1.11
<i>Hibiscus leptocladus</i>	<1	40	1.45
<i>Heliotropium glabellum</i>	<1	20	1.02
<i>Hakea arborescens</i>	1	400	2.19
<i>Gonocarpus leptothecus</i>	1	40	1.09
<i>Fimbristylis schultzei</i>	<1	30	1.13
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	250	1.12
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	50	2.10
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	25	1.01
<i>Euphorbia bifida</i>	<1	30	2.17
<i>Eriachne obtusa</i>	<1	70	2.22
<i>Eriachne ciliata</i>	<1	25	1.08
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	30	1.10
<i>Cymbopogon procerus</i>	<1	180	2.30
<i>Corchorus fascicularis</i>	<1	10	2.16a
<i>Cochlospermum fraseri</i>	<1	150	2.14
<i>Byblis filifolia</i>	<1	30	2.24
<i>Brachychiton viscidulus</i>	<1	100	2.09
<i>Brachychiton viscidulus</i>	<1	120	1.22
<i>Alloteropsis semialata</i>	<1	110	2.04
<i>Adenia heterophylla</i> ssp. <i>australis</i>	<1	Cl	2.28
<i>Acacia tumida</i> var. <i>tumida</i>	<1	<300	2.20
<i>Scaevola macrostachya</i>	0.5	30	1.20
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	0.5	<200	1.30
<i>Cassytha filiformis</i>	0.5	Cl	2.12
<i>Canarium australianum</i> var. <i>australianum</i>	0.5	300	2.06
<i>Brachychiton viridiflorus</i>	0.5	300	2.21



Site	II 3
Date	8/04/2010
Recorder	DB
Photo	JB 7698/7699 & DB 54
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558574
Northing	8221701
Habitat	Upper slope - Ridge top
Aspect	East
Soil	Grey/brown loam
Rock Type	Sandstone with surface irons - boulders/ cobbles, etc.
% Bare Ground	50
% Logs:Twigs:Leaves	<1:1:1
Vegetation Condition	Very good
Disturbance Type	Walk tracks, poly pipe lines/ tank, historical exploration tracks
Fire Age	Recent
Vegetation	<i>Scaevola macrostachya</i> , <i>Calytrix exstipulata</i> , <i>Grevillea wickhamii</i> ssp. <i>wickhamii</i> and <i>Distichostemon hispidulus</i> var. <i>aridus</i> Low Shrubland over <i>Cleome viscosa</i> and <i>Gonocarpus leptothecus</i> Very Open Herbland

Species	% Cover	Height	No.
<i>Scaevola macrostachya</i>	15	70	1.20
<i>Cleome viscosa</i>	4	100	1.19
<i>Gonocarpus leptothecus</i>	3	30	1.09
<i>Calytrix exstipulata</i>	3	50	1.06
<i>Triodia bynoei</i>	2	60	1.03
<i>Grevillea wickhamii</i> ssp. <i>wickhamii</i>	2	60	1.21
<i>Fimbristylis cardiocarpa</i>	2	30	1.14
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	20	1.10
<i>Acacia wickhamii</i> ssp. <i>wickhamii</i>	1.5	20	1.28
<i>Uraria lagopodioides</i>	<1	30	3.01
<i>Tephrosia subpectinata</i>	<1	30	1.40
<i>Tephrosia leptoclada</i>	<1	30	3.06
<i>Ptilotus polystachyus</i> var. <i>longistachyus</i>	<1	110	1.25
<i>Polygala linearifolia</i>	<1	10	1.05
<i>Phyllanthus exilis</i>	<1	25	1.38
<i>Marsdenia viridiflora</i>	<1	Cl	2.29
<i>Hybanthus aurantiacus</i>	<1	50	1.11
<i>Hibiscus leptocladus</i>	<1	20	3.02
<i>Hakea arborescens</i>	<1	145	2.19
<i>Haemodorum gracile</i>	<1	20	1.31

P4

<i>Grevillea refracta</i> ssp. <i>refracta</i>	<1	130	1.46
<i>Fimbristylis schultzei</i>	<1	30	1.13
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	100	2.10
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	10	1.01
<i>Euphorbia kimberleyensis</i>	<1	15	1.16
<i>Eucalyptus miniata</i>	<1	300	3.04
<i>Eriachne ciliata</i>	<1	30	1.08
<i>Byblis filifolia</i>	<1	20	2.24
<i>Bulbostylis barbata</i>	<1	15	1.49
<i>Bonamia pannosa</i>	<1	30	3.05
<i>Verticordia verticillata</i>	0.5	90	3.03
<i>Terminalia canescens</i>	0.5	120	1.15
<i>Solanum echinatum</i>	0.5	70	1.18
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	0.5	100	1.30
<i>Corchorus fascicularis</i>	0.5	10	1.04



Site	II 4
Date	8/04/2010
Recorder	DB
Photo	DB 55 & JB 7700
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558336
Northing	8221918
Habitat	Upper gully
Aspect	South
Soil	Grey/ brown loam
Rock Type	Sandstone - boulders and cobbles
% Bare Ground	10
% Logs:Twigs:Leaves	1:02:05
Vegetation Condition	Very good
Disturbance Type	Fire, walk track
Fire Age	Recent
	<i>Eucalyptus</i> cf. <i>miniata</i> and <i>Eucalyptus</i> <i>tectiflora</i> Open Woodland over <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Cochlospermum fraseri</i> , <i>Corymbia cadophora</i> ssp. <i>cadophora</i> and <i>Corymbia confertiflora</i> Low Woodland over <i>Acacia hippuroides</i> Low Open Shrubland over <i>Gonocarpus leptothecus</i> , <i>Cleome viscosa</i> and <i>Trachymene didisoides</i>
Vegetation	Open Herbland

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	25	300-1400	4.06
<i>Gonocarpus leptothecus</i>	6	50	1.09
<i>Cochlospermum fraseri</i>	4	200-300	2.14
<i>Acacia hippuroides</i>	4	50	4.02
<i>Trachymene didisoides</i>	3	100-200	1.24
<i>Sorghum plumosum</i>	2	220	2.16
<i>Galactia tenuiflora</i>	2	Cr	4.14
<i>Fimbristylis cardiocarpa</i>	2	20	1.14
<i>Cleome viscosa</i>	2	100	1.19
<i>Ampelocissus acetosa</i>	2	Cr	2.05
<i>Xenostegia tridentata</i>	<1	Cr	4.19
<i>Vigna lanceolata</i> var. <i>filiformis</i>	<1	Cr	2.07
<i>Triumfetta plumigera</i>	<1	120	4.16
<i>Triodia bynoei</i>	1	180	4.01
<i>Tribulopsis</i> sp. Koolan Island (K.F. Kenneally 8278)	<1	15	1.43
<i>Terminalia</i> cf. <i>latipes</i>	<1	150	4.23
<i>Terminalia canescens</i>	<1	150	1.15
<i>Tephrosia subpectinata</i>	<1	40	1.40
<i>Stackhousia intermedia</i>	<1	30	4.15

Spermacoce cf. dolichosperma	<1	30	4.25	
Scleria brownii	<1	50	2.08	
Polygala sp. Kimberley (R.A. Kerrigan 1111)	<1	20	4.05	
Phyllanthus exilis	<1	30	1.38	
Mitrasacme connata	<1	20	4.20	
Marsdenia viridiflora	<1	Cl	2.29	
Leptopus decaisnei var. decaisnei	<1	30	4.08	
Indigastrum parviflorum	<1	30	4.18	
Hybanthus aurantiacus	<1	25	1.11	
Hakea arborescens	<1	150	2.19	
Haemodorum gracile	<1	60	4.17	P4
Grewia retusifolia	<1	80	4.07	
Grevillea refracta ssp. refracta	<1	30	4.09	
Flueggea virosa ssp. melanthesoides	<1	100	1.30	
Euphorbia bifida	<1	40	2.17	
Eucalyptus tectifica	1	650	2.01	
Desmodium brownii	<1	20	2.13	
Crotalaria montana var. angustifolia	<1	50	4.10	
Crotalaria alata	<1	40	4.12	
Corymbia confertiflora	1	250	2.02	
Corymbia cadophora ssp. cadophora	1	300-400	2.03	
Chamaecrista mimosoides	<1	50	4.03	
Brachychiton diversifolius ssp. diversifolius	<1	100	4.24	
Alysicarpus muelleri	<1	60	4.11	
Alloteropsis semialata	<1	50	2.04	
Acacia oligoneura	<1	130	4.21	
Acacia neurocarpa	<1	100	4.22	
Acacia multisiliqua	<1	100	4.04	
Templetonia hookeri	0.5	50	2.27	
Microstachys chamaelea	0.5	50	4.13	
Grevillea pyramidalis ssp. pyramidalis	0.5	150	1.29	
Eriachne obtusa	0.5	50	2.22	
Distichostemon hispidulus var. aridus	0.5	20	1.10	
Corchorus fascicularis	0.5	30	1.04	
Acacia wickhamii ssp. wickhamii	0.5	30	1.28	



Site	II 5
Date	8/04/2010
Recorder	DB
Photo	DB 56 & JB 7702
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558904
Northing	8220963
Habitat	Mid slope of upper gully
Aspect	North east
Soil	Red/brown sandy loam
Rock Type	Sandstone/ ironstone - outcropping/ boulders/ cobbles
% Bare Ground	10
% Logs:Twigs:Leaves	2:03:40
Vegetation Condition	Very good
Disturbance Type	Exploration tracks
Fire Age	Recent
Vegetation	<i>Eucalyptus</i> cf. <i>miniata</i> , <i>Terminalia ferdinandiana</i> and <i>Ficus aculeata</i> var. <i>indecora</i> Low Open Woodland over <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Terminalia canescens</i> and <i>Buchanania oblongifolia</i> Shrubland over <i>Triodia bynoei</i> Very Open Hummock Grassland over <i>Gonocarpus leptothecus</i> and <i>Cleome viscosa</i> Very Open Herbland

Species	% Cover	Height	No.
<i>Triodia bynoei</i>	7	100	1.03
<i>Eucalyptus</i> cf. <i>miniata</i>	5-10	<200	4.06
<i>Gonocarpus leptothecus</i>	4	50	1.09
<i>Cleome viscosa</i>	4	160	1.19
<i>Ampelocissus acetosa</i>	2	Cl	2.05
<i>Eucalyptus</i> cf. <i>miniata</i>	10-15	200-1200	4.06
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1.5	50	1.10
<i>Calytrix exstipulata</i>	1.5	50	1.06
<i>Galactia tenuiflora</i>	1	Cr	4.14
<i>Buchanania oblongifolia</i>	1	160	1.17
<i>Brachychiton viridiflorus</i>	1	180	2.21
<i>Terminalia ferdinandiana</i>	0.5	380	5.01
<i>Terminalia</i> cf. <i>latipes</i>	0.5	<300	4.23
<i>Terminalia canescens</i>	0.5	150	5.03
<i>Sorghum plumosum</i>	0.5	180	2.16
<i>Scaevola macrostachya</i>	0.5	40	1.20
<i>Ficus aculeata</i> var. <i>indecora</i>	0.5	250	5.04
<i>Acacia tumida</i> var. <i>tumida</i>	0.5	<200	2.20
<i>Trachymene didiscoides</i>	<1	100	1.24
<i>Tephrosia subpectinata</i>	<1	20	1.40

Templetonia hookeri	<1	50	2.27	
Stackhousia intermedia	<1	30	4.15	
Senna goniodes	<1	20	05.05	
Scleria brownii	<1	30	2.08	
Phyllanthus exilis	<1	30	1.38	
Murdannia graminea	<1	30	2.23	
Mitrasacme connata	<1	20		
Jasminum didymum ssp. didymum	<1	80	5.02	
Hybanthus aurantiacus	<1	40	1.11	
Hibiscus leptocladus	<1	60	1.45	
Haemodorum gracile	<1	60	1.31	P4
Grewia retusifolia	<1	50	4.07	
Grevillea wickhamii ssp. wickhamii	<1	150	1.21	
Flueggea virosa ssp. melanthesoides	<1	70	1.30	
Fimbristylis schultzei	<1	25	1.13	
Ficus aculeata var. indecora	<1	160	2.10	
Euphorbia kimberleyensis	<1	30	1.16	
Cynanchum pedunculatum	<1	Cl	5.07	
Cymbopogon procerus	<1	120	2.30	
Corchorus fascicularis	<1	20	1.04	
Canarium australicum var. australicum	<1	200	6.11	
Bulbostylis barbata	<1	20	1.49	
Buchnera urticifolia	<1	60	5.06	
Brachychiton viscidulus	<1	120	1.22	
Brachychiton diversifolius ssp. diversifolius	<1	200	4.24	
Adenia heterophylla ssp. australis	<1	Cl	2.28	
Acacia neurocarpa	<1	130	4.22	
Acacia multisiliqua	<1	40	4.04	



Site	II 6
Date	8/04/2010
Recorder	JB/DB
Photo	JB7703
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558613
Northing	8221112
Habitat	Hillslope - mid-upper
Aspect	South
Soil	Skeletal red/ brown loam
Rock Type	Sandstone, some iron-rich sandstone
% Bare Ground	6
% Logs:Twigs:Leaves	2:04:35
Vegetation Condition	Very good
Disturbance Type	Near cleared drill lines, recent fire
Fire Age	Recent with some old - patchy <i>Corymbia confertiflora</i> , <i>Corymbia cadophora</i> ssp. <i>cadophora</i> , <i>Canarium australianum</i> var. <i>australianum</i> and <i>Brachychiton viridiflorus</i> Low Woodland over <i>Calytrix exstipulata</i> , <i>Hakea arborescens</i> and <i>Flueggea</i> <i>virosa</i> ssp. <i>melanthesoides</i> Open Shrubland over <i>Sorghum</i> <i>plumosum</i> Very Open Tussock Grassland
Vegetation	

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	15	300-600	2.02
<i>Sorghum plumosum</i>	5	150-200	2.16
<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	5	400-600	2.03
<i>Ampelocissus acetosa</i>	5	Cr	2.05
<i>Triumfetta plumigera</i>	3	40-80	1.42
<i>Cleome viscosa</i>	3	150	1.19
<i>Calytrix exstipulata</i>	3	50-300	1.06
<i>Hakea arborescens</i>	2	200-600	2.19
<i>Canarium australianum</i> var. <i>australianum</i>	2	400	6.11
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	1.5	200	1.30
<i>Brachychiton viridiflorus</i>	1.5	300	2.21
<i>Eucalyptus tectifica</i>	1	500	
<i>Xenostegia tridentata</i>	<1	Cr	6.06
<i>Wrightia saligna</i>	<1	140	6.08
<i>Triodia bynoei</i>	1	50-100	1.03
<i>Tephrosia subpectinata</i>	<1	40	1.40
<i>Templetonia hookeri</i>	<1	50	2.27
<i>Scleria brownii</i>	<1	80	2.08
<i>Phyllanthus maderaspatensis</i>	<1	50	6.01
<i>Murdannia graminea</i>	<1	25	2.23

<i>Microstachys chamaelea</i>	<1	60	1.26
<i>Melhania oblongifolia</i>	<1	30	6.05
<i>Indigofera trita</i>	<1	20	6.17
<i>Hybanthus aurantiacus</i>	<1	60	1.11
<i>Grewia retusifolia</i>	1	150	4.07
<i>Grevillea pyramidalis</i> ssp. <i>pyramidalis</i>	<1	350	1.29
<i>Galactia tenuiflora</i>	1	Cr	4.14
<i>Cyperus microcephalus</i> ssp. <i>microcephalus</i>	<1	40	6.04
<i>Cucumis</i> sp. Gunlom (J.L. McKean 864 b)	<1	Cl	6.16
<i>Crotalaria montana</i> var. <i>angustifolia</i>	1	100	6.07
<i>Cenchrus elymoides</i> var. <i>elymoides</i>	1	180	6.02
<i>Buchanania oblongifolia</i>	1	160	1.17
<i>Brachychiton viscidulus</i>	1	<300	1.22
<i>Asparagus racemosus</i>	<1	Cl	6.03
<i>Adenia heterophylla</i> ssp. <i>australis</i>	<1	Cl	6.13
<i>Trachymene didiscoides</i>	0.5	20	1.24
<i>Fimbristylis cardiocarpa</i>	0.5	250	1.14

OPP COLL

<i>Adenia heterophylla</i> ssp. <i>australis</i>	Cl	6.14
<i>Dicliptera armata</i>	30	6.09
<i>Digitaria brownii</i>	50	6.11
<i>Flagellaria indica</i>	200	6.10
<i>Panicum mindanense</i>	50	6.12
<i>Sehima nervosum</i>	120	6.15



Site	II 7
Date	8/04/2010
Recorder	DB
Photo	DB 57 & JB 7704
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558402
Northing	8221197
Habitat	Mid slope
Aspect	West
Soil	Skeletal brown loam
Rock Type	Sandstone - boulders/ heavy outcropping
% Bare Ground	50
% Logs:Twigs:Leaves	2:08:05
Vegetation Condition	Very good
Disturbance Type	Fire, walk track, poly pipe
Fire Age	Recent
Vegetation	<i>Calytrix exstipulata</i> , <i>Acacia tumida</i> var. <i>tumida</i> and <i>Grevillea wickhamii</i> ssp. <i>wickhamii</i> Open Shrubland over <i>Scaevola macrostachya</i> , <i>Buchanania oblongifolia</i> and <i>Corchorus pumilio</i> Low Open Shrubland over <i>Gonocarpus leptothecus</i> and <i>Cleome viscosa</i> Very Open Herbland

Species	% Cover	Height	No.
<i>Gonocarpus leptothecus</i>	4	25	1.09
<i>Corchorus pumilio</i>	3.5	35	
<i>Cleome viscosa</i>	3.5	125	1.19
<i>Eriachne ciliata</i>	3	30	1.08
<i>Calytrix exstipulata</i>	3	125	7.02
<i>Triodia bynoei</i>	2.5	125	1.03
<i>Scaevola macrostachya</i>	2.5	25	1.20
<i>Buchanania oblongifolia</i>	2	150	1.17
<i>Triumfetta triandra</i>	<1	20	7.04
<i>Tribulopsis</i> sp. Koolan Island (K.F. Kenneally 8278)	<1	Cr	1.43
<i>Templetonia hookeri</i>	<1	20	2.27
<i>Senna goniodes</i>	<1	50	7.07
<i>Indigofera haplophylla</i>	<1	25	7.03
<i>Hybanthus aurantiacus</i>	<1	25	1.11
<i>Fimbristylis leucocolea</i>	<1	15-20	7.05
<i>Corchorus fascicularis</i>	<1	20	1.04
<i>Calytrix brownii</i>	<1	10	7.06
<i>Buchnera linearis</i>	<1	60	1.47
<i>Acacia tumida</i> var. <i>tumida</i>	1	150-400	2.20
<i>Phyllanthus exilis</i>	0.5	30	1.38
<i>Grevillea wickhamii</i> ssp. <i>wickhamii</i>	0.5	150	7.01

<i>Fimbristylis schultzei</i>	0.5	20	1.13
<i>Fimbristylis cardiocarpa</i>	0.5	30	1.14
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	0.5	20	1.10



Site	II 8
Date	9/04/2010
Recorder	DB
Photo	DB 56 & JB 7708
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559200
Northing	8220185
Habitat	Swale
Aspect	North
Soil	Brown sandy loam
Rock Type	Sandstone - boulder/ cobbles - mineralisation at surface
% Bare Ground	15
% Logs:Twigs:Leaves	1:02:02
Vegetation Condition	Very good
Disturbance Type	Desalination plant nearby
Fire Age	Recent
Vegetation	<i>Pandanus spiralis</i> High Shrubland

Species	% Cover	Height	No.
<i>Pandanus spiralis</i>	20	200-400	08.08
<i>Hakea arborescens</i>	3.5	100-150	2.19
<i>Eriachne obtusa</i>	3	50	2.22
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2.5	30	1.10
<i>Sorghum plumosum</i>	2	150	2.16
<i>Cleome viscosa</i>	2	100	1.19
<i>Tephrosia rosea</i> var. <i>rosea</i>	1.5	40	8.01
<i>Corymbia confertiflora</i>	1.5	200-400	2.02
<i>Triodia bynoei</i>	<1	50	1.03
<i>Templetonia hookeri</i>	<1	50	2.27
<i>Sehima nervosum</i>	<1	50	6.15
<i>Scaevola macrostachya</i>	<1	30	1.20
<i>Santalum lanceolatum</i>	<1	120	2.18
<i>Ptilotus capitatus</i>	<1	25	8.04
<i>Polygala</i> sp. Kimberley (R.A. Kerrigan 1111)	<1	15	4.05
<i>Phyllanthus maderaspatensis</i>	1	35	8.02
<i>Murdannia graminea</i>	<1	20	2.23
<i>Indigofera trita</i>	<1	25	6.17
<i>Indigofera colutea</i>	<1	30	8.06
<i>Hibiscus leptocladus</i>	<1	40	8.09
<i>Heliotropium glabellum</i>	<1	30	1.02
<i>Grevillea pyramidalis</i> ssp. <i>pyramidalis</i>	<1	120	1.29
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	<1	150	1.30
<i>Flagellaria indica</i>	<1	250	6.10

<i>Ficus aculeata</i> var. <i>indecora</i>	1	300	5.04
<i>Euphorbia kimberleyensis</i>	<1	20	1.16
<i>Corchorus fascicularis</i>	<1	25	1.04
<i>Buchnera asperata</i>	<1	60	8.05
<i>Brachychiton viridiflorus</i>	<1	150	2.21
<i>Bonamia pannosa</i>	<1	Cl	3.05
<i>Asparagus racemosus</i>	<1	150	6.03
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	8.07
<i>Melhania oblongifolia</i>	0.5	40	6.05
<i>Leptopus decaisnei</i> var. <i>decaisnei</i>	0.5	25	4.08
<i>Hybanthus aurantiacus</i>	0.5	40	1.11
<i>Euphorbia bifida</i>	0.5	30	2.17
<i>Cajanus cinereus</i>	0.5	40	8.03



Site	II 9
Date	9/04/2010
Recorder	DB
Photo	DB 65 & JB 7709
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559052
Northing	8220083
Habitat	Crest of spur
Aspect	South west
Soil	Light grey/ brown loam
Rock Type	Sandstone - outcropping/ boulders/ cobbles
% Bare Ground	15
% Logs:Twigs:Leaves	1:08:01
Vegetation Condition	Very good
Disturbance Type	Fire
Fire Age	Recent
Vegetation	<i>Calytrix exstipulata</i> and <i>Acacia tumida</i> var. <i>tumida</i> Open Shrubland over <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> ssp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> and <i>Hybanthus aurantiacus</i> Low Shrubland over <i>Cleome viscosa</i> , <i>Gonocarpus leptothecus</i> and <i>Stackhousia intermedia</i> Herbland

Species	% Cover	Height	No.
<i>Cleome viscosa</i>	20	100	1.19
<i>Gonocarpus leptothecus</i>	15	50	1.09
<i>Stackhousia intermedia</i>	15	40	4.15
<i>Scaevola macrostachya</i>	10	30	1.20
<i>Grevillea wickhamii</i> ssp. <i>wickhamii</i>	6	50	7.01
<i>Acacia tumida</i> var. <i>tumida</i>	3	50-150	2.20
<i>Bonamia pannosa</i>	3	Cr	3.05
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	3	30	1.10
<i>Hybanthus aurantiacus</i>	3	50	1.11
<i>Calytrix exstipulata</i>	2	<150	1.06
<i>Eriachne ciliata</i>	0.5	35	1.08
<i>Grevillea refracta</i> ssp. <i>refracta</i>	0.5	50-100	1.46
<i>Senna goniodes</i>	0.5	45	5.05
<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	<1	15	9.01
<i>Corymbia confertiflora</i>	<1	300	2.02
<i>Fimbristylis cardiocarpa</i>	<1	10	1.14
<i>Hibiscus leptocladus</i>	<1	50	1.45
<i>Tephrosia subpectinata</i>	<1	15	1.40



Site	II 10
Date	9/04/2010
Recorder	DB
Photo	DB 70/71 & JB 7710
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557700
Northing	8221085
Habitat	
Aspect	
Soil	Very light brown loam
Rock Type	Sandstone - outcropping/ boulders
% Bare Ground	1%-2%
% Logs:Twigs:Leaves	1:2:65
Vegetation Condition	Excellent
Disturbance Type	None evident
Fire Age	Very old
Vegetation	<i>Eucalyptus</i> cf. <i>miniata</i> Open Woodland over <i>Eucalyptus</i> cf. <i>miniata</i> and <i>Eucalyptus tectifica</i> Low Woodland over <i>Buchanania oblongifolia</i> , <i>Mimusops elengi</i> and <i>Canarium australianum</i> var. <i>australianum</i> High Open Shrubland over <i>Calytrix exstipulata</i> , <i>Acacia wickhamii</i> ssp. <i>wickhamii</i> , <i>Grevillea wickhamii</i> ssp. <i>wickhamii</i> and <i>Flueggea virosa</i> ssp. <i>melanthesoides</i> Shrubland over <i>Triodia bynoei</i> Closed Hummock Grassland

Species	% Cover	Height	No.
<i>Triodia bynoei</i>	80	100-150	1.03
<i>Eucalyptus</i> cf. <i>miniata</i>	15	800-1500	4.06
<i>Calytrix exstipulata</i>	5	100-200	1.06
<i>Acacia wickhamii</i> ssp. <i>wickhamii</i>	4	100-200	1.28
<i>Mimusops elengi</i>	2	200-400	10.05
<i>Grevillea wickhamii</i> ssp. <i>wickhamii</i>	2	150-250	7.01
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	2	100-200	1.30
<i>Eucalyptus tectifica</i>	2	500-800	2.01
<i>Buchanania oblongifolia</i>	2	200-300	1.17
<i>Eucalyptus tectifica</i>	1.5	400	10.02
<i>Triumfetta plumigera</i>	<1	150	1.42
<i>Templetonia hookeri</i>	1	100-250	2.27
<i>Microstachys chamaelea</i>	<1	50	1.26
<i>Grevillea pyramidalis</i> ssp. <i>pyramidalis</i>	<1	200-400	1.29
<i>Gonocarpus leptothecus</i>	<1	40	1.09
<i>Exocarpos latifolius</i>	1	200-300	10.04
<i>Erythroxylum ellipticum</i>	<1	200	10.03
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1	50-150	1.10

<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	<1	200	2.03
<i>Cochlospermum fraseri</i>	<1	200	2.14
<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	1	100-250	10.01
<i>Cassytha filiformis</i>	<1	Cl	2.12
<i>Canarium australianum</i> var. <i>australianum</i>	1	500	6.11
<i>Brachychiton viscidulus</i>	<1	200	1.22
<i>Ampelocissus acetosa</i>	<1	Cl	2.05
<i>Adenia heterophylla</i> ssp. <i>australis</i>	<1	Cl	2.28
<i>Santalum lanceolatum</i>	0.5	200	2.18



Site	II 11
Date	9/04/2010
Recorder	DB
Photo	JB 7711
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558619
Northing	8220902
Habitat	Mid slope
Aspect	South west
Soil	Brown loam
Rock Type	Sandstone - outcropping/ boulders & cobbles
% Bare Ground	75
% Logs:Twigs:Leaves	0.5:4:5
Vegetation Condition	Very good
Disturbance Type	Walk tracks
Fire Age	Recent
Vegetation	<i>Corymbia confertiflora</i> Scattered Low Trees over <i>Buchanania oblongifolia</i> , <i>Terminalia canescens</i> and <i>Clerodendrum floribundum</i> var. <i>coriaceum</i> Shrubland over <i>Triodia bynoei</i> Very Open Hummock Grassland over <i>Cleome viscosa</i> and <i>Gonocarpus leptothecus</i> Open Herbland and <i>Fimbristylis cardiocarpa</i> Open Sedgeland

Species	% Cover	Height	No.
<i>Fimbristylis cardiocarpa</i>	15	40	1.14
<i>Triodia bynoei</i>	10	<150	1.03
<i>Cleome viscosa</i>	10	<150	1.19
<i>Buchanania oblongifolia</i>	4	300	1.17
<i>Terminalia canescens</i>	3	100-150	1.15
<i>Gonocarpus leptothecus</i>	3	50	1.09
<i>Corymbia confertiflora</i>	2	200-400	2.02
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1.5	35	1.10
<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	1.5	100-200	10.01
<i>Tephrosia subpectinata</i>	<1	40	1.40
<i>Templetonia hookeri</i>	<1	50	2.27
<i>Stackhousia intermedia</i>	<1	30	4.15
<i>Sorghum plumosum</i>	1	150-200	2.16
<i>Polygala</i> sp. Kimberley (R.A. Kerrigan 1111)	<1	10	4.05
<i>Polygala linearifolia</i>	<1	10	1.05
<i>Phyllanthus exilis</i>	<1	40	1.38
<i>Panicum seminudum</i>	<1	60	11.03
<i>Murdannia graminea</i>	<1	25	2.23
<i>Mnesithea formosa</i>	<1	60	11.04
<i>Leptopus decaisnei</i> var. <i>decaisnei</i>	<1	40	4.08

Indigastrum parviflorum	<1	20	11.02
Hybanthus aurantiacus	1	30	1.11
Hakea arborescens	<1	<200	2.19
Flueggea virosa ssp. melanthesoides	1	<200	1.30
Fimbristylis schultzei	<1	15	1.13
Evolvulus alsinoides var. decumbens	<1	20	1.01
Euphorbia kimberleyensis	<1	20	1.16
Eriachne ciliata	<1	20	1.08
Corymbia cadophora ssp. cadophora	<1	<200	2.03
Corchorus fascicularis	<1	10	1.04
Cochlospermum fraseri	<1	180	2.14
Cassytha filiformis	<1	Cl	2.12
Canarium australianum var. australianum	1	180	6.11
Brachychiton viscidulus	1	200	1.22
Brachychiton viridiflorus	<1	250	2.21
Ampelocissus acetosa	1	Cl	2.05
Solanum echinatum	0.5	20	1.18
Scaevola macrostachya	0.5	50	1.20
Grevillea wickhamii ssp. wickhamii	0.5	40	11.05
Corchorus pumilio	0.5	30	11.01
Calytrix exstipulata	0.5	50-250	1.06
Bonamia pannosa	0.5	Cl	3.05
Adenia heterophylla ssp. australis	0.5	Cl	6.14
Acacia wickhamii ssp. wickhamii	0.5	40	1.28
OPP COLL			
Euphorbia sp. B Kimberley Flora (B.J. Carter 629)	<1	5	11.06



Site	II 12
Date	10/04/2010
Recorder	DB
Photo	DB 76 & JB 7712
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558163
Northing	8221936
Habitat	Mid slope
Aspect	West
Soil	Very light brown loam
Rock Type	Sandstone - outcropping/ boulders & cobbles
% Bare Ground	30
% Logs:Twigs:Leaves	<1:2:1
Vegetation Condition	Very good
Disturbance Type	Walk track, historical grader track
Fire Age	Recent
Vegetation	<i>Eucalyptus</i> cf. <i>miniata</i> and <i>Corymbia cadophora</i> ssp. <i>cadophora</i> Low Open Woodland over <i>Buchanania oblongifolia</i> , <i>Cochlospermum fraseri</i> and <i>Terminalia canescens</i> Open Shrubland over <i>Triodia bynoei</i> Open Hummock Grassland over <i>Gonocarpus leptothecus</i> , <i>Stackhousia intermedia</i> , <i>Cleome viscosa</i> and <i>Trachymene didiscoides</i> Open Herbland

Species	% Cover	Height	No.
<i>Triodia bynoei</i>	15	130	1.03
<i>Eucalyptus</i> cf. <i>miniata</i>	7	600-1200	4.06
<i>Gonocarpus leptothecus</i>	6	25	1.09
<i>Ampelocissus acetosa</i>	6	Cl	2.05
<i>Stackhousia intermedia</i>	4	40	4.15
<i>Fimbristylis leucocolea</i>	4	20	7.05
<i>Cleome viscosa</i>	3.5	50-100	1.19
<i>Eriachne ciliata</i>	3	25	1.08
<i>Trachymene didiscoides</i>	2.5	20	1.24
<i>Crotalaria montana</i> var. <i>angustifolia</i>	2	110	6.07
<i>Buchanania oblongifolia</i>	2	100-200	1.17
<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	1.5	200-400	2.03
<i>Cochlospermum fraseri</i>	1.5	125	2.14
<i>Vigna lanceolata</i> var. <i>filiformis</i>	<1	Cr	12.08
<i>Triumfetta incana</i>	<1	50	12.04
<i>Tinospora smilacina</i>	<1	Cr	1.39
<i>Terminalia canescens</i>	1	<150	1.15
<i>Templetonia hookeri</i>	<1	30	2.27
<i>Stylidium semipartitum</i>	<1	5	12.10

Spermacoce cf. dolichosperma	<1	35	12.02	
Solanum echinatum	<1	20	1.18	
Scaevola macrostachya	<1	100	1.20	
Polygala sp. Kimberley (R.A. Kerrigan 1111)	<1	10	4.05	
Polygala linearifolia	<1	15	1.05	
Phyllanthus exilis	<1	20	1.38	
Mitrasacme connata	<1	70	12.11	
Marsdenia viridiflora	<1	Cl	12.06	
Marsdenia viridiflora	<1	35	12.06	
Leptopus decaisnei var. decaisnei	<1	30	4.08	
Ipomoea sp. A Kimberley Flora (L.J. Penn 84)	<1	25	12.01	P1
Indigastrum parviflorum	<1	35	11.02	
Heliotropium glabellum	<1	30	12.05	
Grevillea pyramidalis ssp. pyramidalis	<1	60	1.29	
Flueggea virosa ssp. melanthesoides	<1	100	1.30	
Fimbristylis schultzei	<1	20	1.13	
Evolvulus alsinoides var. decumbens	<1	25	1.01	
Euphorbia kimberleyensis	<1	20	1.16	
Euphorbia distans	<1	15	12.09	
Eucalyptus tectifica	<1	500	2.01	
Erythroxylum ellipticum	<1	350	12.03	
Distichostemon hispidulus var. aridus	<1	80	1.10	
Desmodium brownii	<1	25	12.07	
Desmodium brownii	<1	30	2.13	
Crotalaria alata	<1	25	4.12	
Corymbia confertiflora	<1	150	2.02	
Corchorus pumilio	<1	20	11.01	
Calytrix exstipulata	<1	50	1.06	
Brachychiton viscidulus	<1	200	1.22	
Brachychiton viridiflorus	<1	110	2.21	
Brachychiton diversifolius ssp. diversifolius	<1	500	4.24	
Alysicarpus muelleri	<1	50	4.11	
Acacia wickhamii ssp. wickhamii	<1	10	1.28	
*Passiflora foetida var. hispida	<1	Cl	8.07	
Hybanthus aurantiacus	0.5	40	1.11	
Galactia tenuiflora	0.5	Cr	4.14	
Clerodendrum floribundum var. coriaceum	0.5	150	10.01	



Site	II 13
Date	10/04/2010
Recorder	JB
Photo	JB 7717
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558086
Northing	8222160
Habitat	V-shaped valley within mid - upper hill slopes
Aspect	West & south west - valley flows to the west
Soil	Brown loam
Rock Type	Sandstone - outcropping/ boulders & cobbles
% Bare Ground	4%
% Logs:Twigs:Leaves	<1:2:70
Vegetation Condition	Very good
Disturbance Type	Fire disturbance
Fire Age	Recent
Vegetation	<i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus tectifica</i> , <i>Corymbia cadophora</i> ssp. <i>cadophora</i> and <i>Brachychiton diversifolius</i> ssp. <i>diversifolius</i> Low Open Forest over <i>Crotalaria montana</i> var. <i>angustifolia</i> , <i>Crotalaria alata</i> and <i>Acacia hippuroides</i> Low Shrubland over <i>Sorghum plumosum</i> , <i>Panicum seminudum</i> and <i>Chrysopogon latifolius</i> Open Tussock Grassland with <i>Ipomoea eriocarpa</i> , <i>Ampelocissus acetosa</i> and <i>Galactia tenuiflora</i> Open Creepers

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	60	400-1500	4.06
<i>Crotalaria montana</i> var. <i>angustifolia</i>	15	100	6.07
<i>Ipomoea eriocarpa</i>	10	Cr	13.04
<i>Sorghum plumosum</i>	7	180	2.16
<i>Galactia tenuiflora</i>	7	Cr	4.14
<i>Eucalyptus tectifica</i>	5	800-1200	2.01
<i>Brachychiton diversifolius</i> ssp. <i>diversifolius</i>	5	20-80	4.24
<i>Ampelocissus acetosa</i>	5	Cr	2.05
<i>Crotalaria alata</i>	4	40	4.12
<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	3	200-300	2.03
<i>Chrysopogon latifolius</i>	3	200	13.05
<i>Vigna radiata</i> cf. var. <i>sublobata</i>	2	Cr	13.02
<i>Panicum seminudum</i>	2	100	11.03
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	2	150	1.30
<i>Uraria lagopodioides</i>	<1	20	13.06
<i>Trachymene didiscoides</i>	1	180	1.24
<i>Solanum echinatum</i>	<1	10	1.18
<i>Scleria brownii</i>	<1	50	2.08

<i>Murdannia graminea</i>	<1	35	2.23
<i>Microstachys chamaelea</i>	<1	100	1.26
<i>Leptopus decaisnei</i> var. <i>decaisnei</i>	<1	60	4.08
<i>Euphorbia bifida</i>	<1	40	2.17
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	50	1.10
<i>Dicliptera armata</i>	<1	40	6.09
<i>Desmodium filiforme</i>	<1	30	13.01
<i>Corymbia confertiflora</i>	1	200-300	2.02
<i>Cochlospermum fraseri</i>	<1	200	2.14
<i>Chamaecrista mimosoides</i>	<1	40	4.03
<i>Canarium australianum</i> var. <i>australianum</i>	<1	50-100	2.06
<i>Alloteropsis semialata</i>	<1	130	2.04
<i>Acacia neurocarpa</i>	<1	50-400	4.22
<i>Acacia hippuroides</i>	1	50	4.02
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cr	8.07
<i>Triodia bynoei</i>	0.5	100-150	1.03
<i>Templetonia hookeri</i>	0.5	110	2.27
<i>Phyllanthus exilis</i>	0.5	50	1.38
<i>Microstachys chamaelea</i>	0.5	60	13.03
<i>Cenchrus elymoides</i> var. <i>elymoides</i>	0.5	150	6.02



Site	II 14
Date	10/04/2010
Recorder	DB
Photo	DB 77 & JB 7718
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558282
Northing	8222370
Habitat	Plateau
Aspect	East - gentle
Soil	Grey/ brown gravelly loam
Rock Type	Sandstone - some outcropping/ cobbles/ small boulders
% Bare Ground	10
% Logs:Twigs:Leaves	1:2:65
Vegetation Condition	Very good
Disturbance Type	None evident
Fire Age	Recent
	<i>Eucalyptus miniata</i> Open Woodland over <i>Eucalyptus miniata</i> and <i>Corymbia cadophora</i> Low Woodland over <i>Hakea arborescens</i> and <i>Cochlospermum fraseri</i> Open Shrubland over <i>Acacia hippuroides</i> Low Open Heath over <i>Gonocarpus leptothecus</i> and <i>Stackhousia intermedia</i>
Vegetation	Very Open Herbland

Species	% Cover	Height	No.
<i>Acacia hippuroides</i>	55	<50	4.02
<i>Gonocarpus leptothecus</i>	8	100	1.09
<i>Eucalyptus</i> cf. <i>miniata</i>	5	600-1200	4.06
<i>Cochlospermum fraseri</i>	4	100-250	2.14
<i>Stackhousia intermedia</i>	2	50	4.15
<i>Sorghum plumosum</i>	2	150-200	2.16
<i>Triodia bynoei</i>	1.5	120	1.03
<i>Hakea arborescens</i>	1.5	150	2.19
<i>Corymbia polycarpa</i>	1.5	1000	14.06
<i>Wrightia saligna</i>	<1	40	6.08
<i>Tribulopsis</i> sp. Koolan Island (K.F. Kenneally 8278)	<1	Cr	1.43
<i>Terminalia canescens</i>	<1	150	1.15
<i>Tephrosia leptoclada</i>	<1	15	14.04
<i>Templetonia hookeri</i>	<1	50	2.27
<i>Scaevola macrostachya</i>	<1	100	1.20
<i>Polygala</i> sp. Kimberley (R.A. Kerrigan 1111)	<1	15	4.05
<i>Phyllanthus exilis</i>	<1	30	1.38
<i>Persoonia falcata</i>	<1	100-250	14.08
<i>Microstachys chamaelea</i>	<1	60	1.26
<i>Microstachys chamaelea</i>	<1	40	14.01

<i>Grevillea refracta</i> ssp. <i>refracta</i>	<1	180	1.46
<i>Grevillea agrifolia</i> ssp. <i>agrifolia</i>	1	80-100	14.03
<i>Goodenia sepalosa</i> var. <i>sepalosa</i>	1	20	14.02
<i>Flueggea virosa</i> ssp. <i>melanthesoides</i>	<1	50	1.30
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	100	2.10
<i>Eriachne obtusa</i>	<1	60	2.22
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	<100	1.10
<i>Chamaecrista mimosoides</i>	<1	50	4.03
<i>Cassytha filiformis</i>	<1	Cl	2.12
<i>Brachychiton diversifolius</i> ssp. <i>diversifolius</i>	1	200-500	4.24
<i>Amyema sanguinea</i> var. <i>sanguinea</i>	<1	Cl	14.07
<i>Ampelocissus acetosa</i>	1	Cl	2.05
<i>Trachymene didiscoides</i>	0.5	110	1.24
<i>Fimbristylis cardiocarpa</i>	0.5	40	1.14
<i>Corymbia cadophora</i> ssp. <i>cadophora</i>	0.5	500	2.03
<i>Acacia oligoneura</i>	0.5	100	4.21
<i>Eucalyptus</i> cf. <i>miniata</i>	25-30	200-400	4.06
<i>Rostellularia adscendens</i> var. <i>clementii</i>	<1	10	14.05



Site	II 15
Date	10/04/2010
Recorder	DB
Photo	DB 84/ 85 & JB 7723
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557876
Northing	8222024
Habitat	Riverine
Aspect	South
Soil	Skeletal brown loam - in crevices of plate rock formations
Rock Type	Sandstone - sheet rock along gully and lower slopes
% Bare Ground	65
% Logs:Twigs:Leaves	<1:<1:1
Vegetation Condition	Very good
Disturbance Type	Weeds present: <i>Passiflora foetida</i> , <i>Melinis repens</i>
Fire Age	Recent
Vegetation	<i>Canarium australicum</i> var. <i>australicum</i> and <i>Corymbia confertiflora</i> Low Open Woodland over <i>Buchanania oblongifolia</i> , <i>Calytrix brownii</i> and <i>Acacia oligoneura</i> High Open Shrubland over <i>Triodia bynoei</i> Open Hummock Grassland and <i>Sorghum plumosum</i> Open Tussock Grassland

Species	% Cover	Height	No.
<i>Triodia bynoei</i>	15	<100	1.03
<i>Sorghum plumosum</i>	6	100-250	2.16
<i>Eriachne ciliata</i>	5	25	15.07
<i>Canarium australicum</i> var. <i>australicum</i>	5	300-800	6.11
<i>Calytrix brownii</i>	5	50-350	15.03
<i>Buchanania oblongifolia</i>	5	200-400	1.17
<i>Corchorus pumilio</i>	4	40	
<i>Helicteres rhynchocarpa</i>	2	50-150	15.16
<i>Cleome viscosa</i>	2	100	1.19
<i>Ampelocissus acetosa</i>	2	Cr	2.05
<i>Acacia oligoneura</i>	2	100-700	4.21
<i>Xenostegia tridentata</i>	<1	Cl	15.12
<i>Waltheria indica</i>	<1	100	15.04
<i>Trachymene didisoides</i>	<1	20	1.24
<i>Solanum echinatum</i>	<1	10	1.18
<i>Ptilotus polystachyus</i> var. <i>longistachyus</i>	1	120	1.25
<i>Polycarpaea involucreata</i>	<1	5	15.09
<i>Phyllanthus exilis</i>	<1	30	1.38
<i>Murdannia graminea</i>	<1	30	2.23

<i>Microstachys chamaelea</i>	<1	100	1.26
Malvaceae sp. indet.	<1	200	15.14
<i>Hybanthus aurantiacus</i>	<1	30	1.11
<i>Heliotropium glabellum</i>	<1	50	12.05
<i>Grewia breviflora</i>	<1	Cl	15.15
<i>Flagellaria indica</i>	<1	Cl	15.06
<i>Fimbristylis schultzei</i>	<1	30	1.13
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	25	1.01
<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	<1	10	11.06
<i>Erythroxylum ellipticum</i>	<1	350	10.03
<i>Eragrostis cumingii</i>	<1	40	15.01
<i>Dicliptera armata</i>	<1	40	15.08
<i>Desmodium brownii</i>	<1	25	2.13
<i>Desmodium brownii</i>	<1	10	15.02
<i>Cyperus microcephalus</i> ssp. <i>microcephalus</i>	<1	30	15.11
<i>Cucumis</i> sp. Gunlom (J.L. McKean 864 b)	<1	Cl	6.16
<i>Crotalaria montana</i> var. <i>angustifolia</i>	1	70	6.07
<i>Corymbia confertiflora</i>	1	600	2.02
<i>Corchorus pumilio</i>	<1	25	11.01
<i>Bulbostylis barbata</i>	<1	10	1.49
<i>Bulbostylis</i> aff. <i>barbata</i>	<1	10	15.13
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	Cl	8.07
* <i>Melinis repens</i>	<1	<80	15.17
<i>Tribulopsis</i> sp. Koolan Island (K.F. Kenneally 8278)	0.5	Cr	1.43
<i>Mimusops elengi</i>	0.5	400	10.05
<i>Grewia breviflora</i>	0.5	300	15.05
<i>Alysicarpus muelleri</i>	0.5	80	4.11
<i>Adenia heterophylla</i> ssp. <i>australis</i>	0.5	Cl	2.28



Site	II 16
Date	10/04/2010
Recorder	DB
Photo	DB86
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558125
Northing	8221701
Habitat	Mid-slope - moderate to steep
Aspect	South
Soil	Brown loam - skeletal
Rock Type	Sandstone - outcropping/ boulders & cobbles
% Bare Ground	25
% Logs:Twigs:Leaves	1:03:25
Vegetation Condition	Very good
Disturbance Type	None evident
Fire Age	Recent
Vegetation	Low Woodland of <i>Eucalyptus tectifica</i> and <i>Corymbia confertiflora</i> over Open Tussock Grassland of <i>Sorghum plumosum</i> and Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Sorghum plumosum</i>	15	100-250	2.16
<i>Triodia bynoei</i>	10	60	1.03
<i>Eucalyptus tectifica</i>	8	400-600	1.34
<i>Ampelocissus acetosa</i>	6	Cl	2.05
<i>Corymbia confertiflora</i>	4	500-800	2.02
<i>Terminalia canescens</i>	2	250	1.15
<i>Galactia tenuiflora</i>	2	Cr	4.14
<i>Calytrix exstipulata</i>	2	60	1.06
<i>Buchanania oblongifolia</i>	1.5	100-250	1.17
<i>Adenia heterophylla</i> ssp. <i>australis</i>	1.5	Cl	2.28
<i>Xenostegia tridentata</i>	<1	Cl	4.19
<i>Wrightia saligna</i>	<1	60	6.08
<i>Vigna lanceolata</i> var. <i>filiformis</i>	<1	Cl	2.07
<i>Triumfetta plumigera</i>	<1	50	1.42
<i>Trachymene didiscoides</i>	<1	40	1.24
<i>Tephrosia subpectinata</i>	<1	40	1.40
<i>Scleria brownii</i>	<1	40	2.08
<i>Santalum lanceolatum</i>	<1	130	2.18
<i>Phyllanthus reticulatus</i>	<1	150	16.03
<i>Phyllanthus exilis</i>	<1	25	1.38
<i>Microstachys chamaelea</i>	<1	50	1.26

Melhania oblongifolia	<1	30	6.05
Marsdenia viridiflora	<1	Cl	
Leptopus decaisnei var. decaisnei	<1	30	4.08
Jacquemontia paniculata	<1	Cr	16.02
Hybanthus aurantiacus	<1	40	1.11
Hibiscus fryxellii var. mollis	<1	50	16.04
Grewia retusifolia	<1	50	4.07
Flueggea virosa ssp. melanthesoides	1	<150	1.30
Ficus aculeata var. indecora	<1	140	2.10
Exocarpos latifolius	<1	100	10.04
Euphorbia distans	<1	200	12.09
Euphorbia distans	<1	25	12.09
Crotalaria alata	1	30	4.12
Christia australasica	<1	25	16.01
Brachychiton viridiflorus	<1	300	2.21
Asparagus racemosus	<1	Cl	6.03
Acacia wickhamii ssp. wickhamii	<1	25	1.28
*Passiflora foetida var. hispida	<1	Cl	8.07
Murdannia graminea	0.5	30	2.23
Erythroxylum ellipticum	0.5	250	10.03
Crotalaria montana var. angustifolia	0.5	100	6.07
Cenchrus elymoides var. elymoides	0.5	110	6.02
Brachychiton viscidulus	0.5	250	1.22



Site	II 17
Date	13/10/2010
Recorder	DB
Photo	DB 2 & 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	560200
Northing	8222394
Habitat	Peninsula - (Hillslope - Rocky outcrops) - Moderate slope
Aspect	South West
Soil	Grey/ brwon loamy sand - (skeletal)
Rock Type	Ironstone, Sandstone
% Bare Ground	70
% Logs:Twigs:Leaves	<1:0.5:<1
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>

Species	% Cover	Height	No.
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	10	0.3	
<i>Scaevola macrostachya</i>	5	0.5	17.02
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	5	0.5	
<i>Triodia bynoei</i>	2	0.3	
<i>Hybanthus aurantiacus</i>	0.5	0.3	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1	0.5	
<i>Gonocarpus leptothecus</i>	1	0.3	
<i>Solanum echinatum</i>	0.5	0.1	17.03
<i>Hibiscus leptocladus</i>	<1	12	
<i>Phyllanthus exilis</i>	<1	0.3	17.01



Site	II 18
Date	13/10/2010
Recorder	DB
Photo	DB 9
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559859
Northing	8222706
Habitat	Upper-mid Hillslope
Aspect	South West
Soil	Grey/ brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Excellent
Disturbance Type	None evident
Fire Age	Young
Vegetation	Shrubland of <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> over Low Shrubland of <i>Distichostemon hispidulus</i> var. <i>aridus</i> over Open Hummock Grassland of <i>Triodia bynoei</i> with Scattered Low Trees of <i>Eucalyptus tectifica</i>

Species	% Cover	Height	No.
<i>Eucalyptus tectifica</i>	10	10	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i> 'smooth'	40	6	
<i>Buchanania oblongifolia</i>	2	<1	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	4	2	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	2	1	
<i>Templetonia hookeri</i>	5	1	
<i>Solanum echinatum</i>	1.5	0.1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	1	0.4	
<i>Scaevola macrostachya</i>	0.5	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	0.5	0.5	
<i>Phyllanthus maderaspatensis</i>	0.5	0.4	
<i>Triodia bynoei</i>	20	<1	
<i>Trachymene didiscoides</i>	0.5	1.5	
<i>Microstachys chamaelea</i>	2	0.3	18.11
<i>Cymbopogon procerus</i>	0.5	1	
<i>Brachychiton viridiflorus</i>	<1	1	18.01
<i>Acacia neurocarpa</i>	0.5	0.5	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	4	18.02
<i>Eriachne ciliata</i>	<1	0.3	

Flueggea virosa subsp. melanthesoides	0.5	1	
Stenocarpus acacioides	<1	4	18.03
Cajanus scarabaeoides	<1	0.5	18.04
*Passiflora foetida var. hispida	<1	Cl	
Calytrix exstipulata	5	3	
Sorghum plumosum	1.5	1.2	
Cassytha filiformis	<1	Cl	18.13
Brachychiton viscidulus	1	2	18.05
Cynanchum sp.	<1	0.5	18.06
Chrysopogon latifolius	<1	1.2	
Cochlospermum fraseri	<1	2	18.07
Hakea arborescens	<1	3	
Amyema bifurcata	<1	Cl	18.08
Sersalisia sericea	<1	3	18.09
Marsdenia viridiflora ssp. tropica	<1	Cr	18.10
Flueggea virosa subsp. melanthesoides	<1	1.5	18.12
Tinospora smilacina	<1	Cl	18.14
OPP COLL			
Marsdenia viridiflora ssp. tropica	-	Cl	18.15



Site	II 19
Date	14/10/2010
Recorder	DB
Photo	DB 22 - 33
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556322
Northing	8223112
Habitat	Permanent water hole
Aspect	South West
Soil	Dark brown sandy clay - skeletal
Rock Type	Sandstone cliffs with conglomerate (seas platform)
% Bare Ground	10
% Logs:Twigs:Leaves	<1:1:15
Vegetation Condition	Excellent
Disturbance Type	Plassiflorus foetide nearby, Alcohol bottle, Turtle bones
Fire Age	Very old
Vegetation	Low Closed Woodland of Pandanus spiralis

Species	% Cover	Height	No.
Pandanus spiralis	80	8	
Exocarpos latifolius	<1	1.5	
Morinda citrifolia	<1	2	19.10
Ficus virens	<1	2	19.01
Terminalia canescens	<1	1	
Capparis spinosa	<1	1	
*Passiflora foetida var. hispida	<1	Cl	
Cleome viscosa	<1	1	
Stemodia lythrifolia	<1	0.3	19.06
Hibiscus leptocladus	<1	0.5	
Diospyros maritima	<1	1	19.02
Eriachne ciliata	<1	0.2	19.16
Corchorus pumilio	<1	0.3	19.03
Triumfetta triandra	<1	0.2	19.04
Xenostegia tridentata	2	0.1	19.05
Triumfetta albida	<1	01	19.07
Cajanus cinereus	<1	1	19.08
Panicum cf. mindanense	<1	0.8	19.09
Ptilotus polystachyus var. longistachyus	<1	0.8	
Thespesia populneoides	<1	2	19.11
Fimbristylis ferruginea	<1	1	19.12
Cyperus microcephalus subsp. microcephalus	<1	0.6	19.13
Ficus platypoda	<1	1.5	19.14

<i>Acacia multisiliqua</i>	2	1.5	19.15
<i>Rostellularia adscendens</i> var. <i>clementii</i>	<1	0.2	19.17
<i>Cymbopogon</i> cf. <i>ambiguus</i>	<1	0.8	19.20
<i>Triodia pungens</i>	<1	0.5	19.18
<i>Phyllanthus maderaspatensis</i>	<1	0.2	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	0.5	
<i>Melinis repens</i>	<1	0.8	19.19
<i>Indigofera colutea</i>	<1	0.5	
<i>Flagellaria indica</i>	<1	Cl	
<i>Calytrix brownii</i>	<1	0.3	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.2	
<i>Triodia</i> cf. <i>aeria</i>	<1	0.5	19.21
OPP COLL			
<i>Melochia umbellata</i>	<1	4	19.22



Site	II 20
Date	14/10/2010
Recorder	DB
Photo	DB 39
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556210
Northing	8222791
Habitat	Peninsula - (Hillslope - Rocky outcrops) - Moderate slope
Aspect	South
Soil	Skeletal brown sandy clay
Rock Type	Sandstone - outcropping
% Bare Ground	65
% Logs:Twigs:Leaves	<1:2:2
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Acacia hippuroides</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i>

Species	% Cover	Height	No.
<i>Acacia hippuroides</i>	60	0.5	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	15	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	6	0.3	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Scaevola macrostachya</i>	5	0.5	
<i>Cleome viscosa</i>	3	1	
<i>Triodia bynoei</i>	0.5	0.2	
<i>Corchorus visicularis</i>	0.5	0.2	
<i>Phyllanthus maderaspatensis</i>	1	0.3	
<i>Hibiscus leptocladus</i>	0.5	0.2	
<i>Gonocarpus leptothecus</i>	1	0.5	
<i>Senna goniodes</i>	<1	0.2	
<i>Solanum ellipticum</i>	<1	0.1	
<i>Bulbostylis barbata</i>	<1	0.1	
<i>Templetonia hookeri</i>	<1	0.5	
<i>Buchanania oblongifolia</i>	<1	1.2	
<i>Hybanthus aurantiacus</i>	<1	0.2	
<i>Trachymene didiscoides</i>	<1	1	
<i>Terminalia canescens</i>	<1	1.5	
<i>Triumfetta triandra</i>	<1	0.2	20.01



Site	II 21
Date	14/10/2010
Recorder	DB
Photo	DB 43 & 44
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556449
Northing	8222962
Habitat	Hillslope - (mid- steep) into drainage gully
Aspect	West
Soil	Dark brown sandy loam
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:5:15
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	High Shrubland of <i>Buchanania oblongifolia</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Brachychiton viscidulus</i> over Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Scaevola macrostachya</i> , <i>Triumfetta albida</i> over Open Tussock Grassland of <i>Chrysopogon latifolius</i> over Open Hummock Grassland of <i>Triodia bynoei</i> with Open Herbs of <i>Cleome viscosa</i> , <i>Trachymene didiscoides</i>

Species	% Cover	Height	No.
<i>Grevillea refracta</i> subsp. <i>refracta</i>	2	5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	4	
<i>Buchanania oblongifolia</i>	15	4	
<i>Terminalia canescens</i>	<1	2	
<i>Templetonia hookeri</i>	1.5	2	
<i>Exocarpos latifolius</i>	0.5	1	
<i>Cajanus cinereus</i>	2	1	
<i>Trachymene didiscoides</i>	10	1.5	
<i>Triodia bynoei</i>	10-12	1.2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.5	
<i>Chrysopogon latifolius</i>	20	1.2	
<i>Cymbopogon procerus</i>	1	1.2	21.03
<i>Phyllanthus maderaspatensis</i>	0.5	0.5	
<i>Scaevola macrostachya</i>	3	0.5	
<i>Heliotropium glabellum</i>	<1	0.4	
<i>Jacquemontia paniculata</i>	<1	Cl	21.01
<i>Melhania oblongifolia</i>	<1	0.4	

Triumfetta triandra	0.5	0.3	20.01
Canarium australianum var. australianum	1	4	
Cleome viscosa	2	1	
Hybanthus aurantiacus	<1	0.2	
Phyllanthus cf. aridus	<1	0.4	21.02
Acacia multisiliqua	<1	2	
Triumfetta albida	3	0.5	
Flagellaria indica	0.5	Cl	
Evolvulus alsinoides var. decumbens	<1	0.4	21.10
Adenia heterophylla ssp. australis	<1	Cl	21.04
Brachychiton viridiflorus	1	2	
Corchorus fascicularis	<1	0.2	21.08
Brachychiton diversifolius subsp. diversifolius	<1	4	
Brachychiton viscidulus	2	4	
Cassytha filiformis	<1	Cl	
Asparagus racemosus	<1	Cl	
*Passiflora foetida var. hispida	<1	Cl	
Erythroxylum ellipticum	0.5	4	21.09
Calytrix exstipulata	1-2	3	
Santalum lanceolatum	<1	1	
Grevillea wickhamii subsp. wickhamii	<1	0.5	
Cochlospermum fraseri	<1	1	
Mimusops elengi	<1	3	21.05
Grewia breviflora	<1	1.5	21.06
Sersalisia sericea	<1	3	21.07



Site	II 22
Date	15/10/2010
Recorder	DB
Photo	DB 49 - 51
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558112
Northing	8221535
Habitat	Mangroves
Aspect	South East
Soil	Mud - Humus - Dark brown/ black
Rock Type	Sandstone
% Bare Ground	5-10
% Logs:Twigs:Leaves	<1:<1:<1:
Vegetation Condition	Excellent
Disturbance Type	None evident - Old BHP workings nearby
Fire Age	Very old
Vegetation	Closed Forest of Sonneratia alba over High Shrubland of Avicennia marina, Aegiceras corniculatum, Rhizophora stylosa

Species	% Cover	Height	No.
Rhizophora stylosa	5	4	22.05
Sonneratia alba	80	15	22.01
Avicennia marina	15	4	
Aegiceras corniculatum	5	-	22.02
OPP COLL			
Acacia plectrocarpa ssp. plectrocarpa	-	10	22.03
Eucalyptus obconica	-	4	22.04



Site	II 23
Date	15/10/2010
Recorder	DB
Photo	JB 8912 & 8913
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557887
Northing	8221760
Habitat	Sheet rock drainage line - Ephemeral - Sandstone sides
Aspect	South East
Soil	Brown loam - skeletal
Rock Type	Sandstone - boulders and pebbles
% Bare Ground	40
% Logs:Twigs:Leaves	1:4:10
Vegetation Condition	Very good
Disturbance Type	*Passiflora foetide, Barge track nearby
Fire Age	Young
Vegetation	Low Woodland of Eucalyptus tectifica, Acacia plectrocarpa ssp. plectrocarpa over Open Hummock Grassland of Triodia bynoei over Open Tussock Grassland of Chrysopogon latifolius with Low Open Shrubland of Calytrix brownii, Xenostegia tridentata, Tephrosia laxa var. angustata, Corchorus pumilio

Species	% Cover	Height	No.
Brachychiton viridiflorus	<1	3	
Acacia plectrocarpa ssp. plectrocarpa	5-10	8	22.03
Eucalyptus tectifica	3	8	
Erythroxylum ellipticum	<1	5	
Grevillea pyramidalis subsp. pyramidalis	<1	2	
Brachychiton viscidulus	0.5	5	
Calytrix brownii	4	2	23.09
*Passiflora foetida var. hispida	5-10	Cl	
Corchorus pumilio	1.5	0.3	23.03
Flueggea virosa subsp. melanthesoides	<1	1	23.01
Bulbostylis barbata	<1	0.1	23.02
Terminalia canescens	<1	2	
Triumfetta triandra	1	0.6	23.04
Xenostegia tridentata	3-4	0.5	
Chrysopogon latifolius	20	1.5	
Triodia bynoei	25	1	
Indigofera colutea	<1	0.5	
Cleome viscosa	2	0.5	
Solanum echinatum	<1	0.2	

<i>Chrystia australasica</i>	0.5	0.3	
<i>Acacia hippuroides</i>	<1	0.2	
<i>Buchanania oblongifolia</i>	0.5	2	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.4	
<i>Phyllanthus exilis</i>	0.5	0.6	
<i>Waltheria indica</i>	0.5	0.5	23.08
<i>Triumfetta albida</i>	5	0.5	
<i>Jacquemontia paniculata</i>	0.5	Cl	23.07
<i>Tephrosia laxa</i> var. <i>angustata</i>	1.5	0.5	23.11
<i>Flagellaria indica</i>	<1	2	
<i>Ficus platypoda</i>	<1	2	
<i>Malvaceae</i> sp. indet. 2	0.5	4	23.05
<i>Canarium australianum</i> var. <i>australianum</i>	1.5	2	
<i>Santalum lanceolatum</i>	<1	1	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Stemodia lythrifolia</i>	<1	0.1	
<i>Dicliptera armata</i>	<1	0.3	
<i>Digitaria brownii</i>	<1	0.5	
<i>Indigofera trita</i>	<1	0.3	
<i>Terminalia hadleyana</i>	<1	3	23.06
<i>Panicum</i> cf. <i>mindanense</i>	<1	0.8	23.10
<i>Ipomoea</i> sp. indet.	<1	Cl	23.12
<i>Polycarpaea involucrata</i>	<1	Cl	
<i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>	<1	0.5	23.13
OPP COLL			
<i>Triodia</i> sp 'stinky'	<1	0.5	23.14



Site	II 24
Date	15/10/2010
Recorder	DB
Photo	DB 69 & 70
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557698
Northing	8221895
Habitat	Middle hillslope
Aspect	South
Soil	Grey / brown sandy loam - skeletal
Rock Type	Sandstone - outcropping
% Bare Ground	10
% Logs:Twigs:Leaves	7:15:70
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Forest of Eucalyptus tectifica, Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora. Corymbia confertiflora over Low Open Heath over Acacia hippuroides with Very Open Tussock Grassland of Sorghum plumosum

Species	% Cover	Height	No.
Eucalyptus cf. miniata	5	12	
Eucalyptus tectifica	10	12	
Corymbia cadophora subsp. cadophora	5	5	
Canarium australianum var. australianum	2	8	
Corymbia confertiflora	5	6	
Santalum lanceolatum	2	2	
*Passiflora foetida var. hispida	2	Cl	
Scleria brownii	<1	0.3	
Hakea arborescens	2	6	
Acacia oligoneura	7	8	
Trachymene didiscoides	10	1.5	
Cassytha filiformis	1	Cl	
Phyllanthus exilis	<1	0.5	24.03
Waltheria indica	<1	0.5	
Microstachys chamaelea	3	1	
Templetonia hookeri	0.5	1.5	
Acacia hippuroides	40	<1	
Chrysopogon latifolius	<10	1.2	
Scaevola macrostachya	2	0.5	
Gonocarpus leptothecus	4	0.5	

<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	1.2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	1.5	0.5	
<i>Acacia neurocarpa</i>	<1	0.5	
<i>Hybanthus aurantiacus</i>	<1	0.5	24.05
<i>Cochlospermum fraseri</i>	<1	2	
<i>Triodia bynoei</i>	2	0.5	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	2	5	
<i>Jacquemontia paniculata</i>	<1	0.5	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	24.02
<i>Panicum seminudum</i>	<1	0.5	24.04
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	Cl	24.01
<i>Asparagus racemosus</i>	<1	Cl	



Site	II 25
Date	15/10/2010
Recorder	DB
Photo	DB 71 & 72
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557392
Northing	8221602
Habitat	Gentle hill plateau
Aspect	West
Soil	Brown loamy sand
Rock Type	Sanstone
% Bare Ground	10
% Logs:Twigs:Leaves	3:5:70
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Forest of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus</i> <i>tectifica</i> over High Shrubland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Santalum lanceolatum</i> , <i>Calytrix exstipulata</i> over Open Tussock Grassland of <i>Sorghum plumosum</i> over Low Shrubland of <i>Scaevola macrostachya</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Gonocarpus leptothecus</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	45	<10	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	2	6	
<i>Eucalyptus</i> cf. <i>miniata</i>	15	4	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	3	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	5	6	
<i>Santalum lanceolatum</i>	2.5	2	
<i>Cochlospermum fraseri</i>	<1	5	
<i>Chrysopogon latifolius</i>	25-30	1.5	
<i>Trachymene didiscoides</i>	3	1.5	
<i>Scaevola macrostachya</i>	6	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.5	
<i>Hakea arborescens</i>	0.5	2	
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	0.5	
<i>Triodia bynoei</i>	<5	1	
<i>Calytrix exstipulata</i>	1	3	
<i>Acacia neurocarpa</i>	<1	1	

<i>Tephrosia leptoclada</i>	<1	0.5	25.01
<i>Cajanus scarabaeoides</i>	0.5	Cr	25.05
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Acacia oligoneura</i>	0.5	2	
<i>Eucalyptus tectifica</i>	2-5	<10	
<i>Chamaecrista mimosoides</i>	<1	0.6	25.02
<i>Cassytha filiformis</i>	<1	Cl	
<i>Erythroxylum ellipticum</i>	<1	1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	1.5	
<i>Xenostegia tridentata</i>	<1	0.5	
<i>Goodenia sepalosa</i> var. <i>sepalosa</i>	<1	0.2	25.04
<i>Phyllanthus maderaspatensis</i>	<1	0.5	
<i>Bulbostylis barbata</i>	<1	0.2	
<i>Cullen virens</i>	0.5	1.5	25.03
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	25.06
<i>Galactia tenuiflora</i>	<1	0.2	25.07



Site	II 26
Date	15/10/2010
Recorder	DB
Photo	DB 76 & 77
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557555
Northing	8220447
Habitat	Exposed hill crest - peninsula
Aspect	South West
Soil	Brown sandy loam - skeletal
Rock Type	Sandstone - massive outcropping
% Bare Ground	40
% Logs:Twigs:Leaves	<1:5:1
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Heath of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Acacia tumida</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>

Species	% Cover	Height	No.
<i>Acacia tumida</i>	6	<1	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	30	<1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.3	
<i>Hybanthus aurantiacus</i>	3	0.3	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.3	
<i>Triodia bynoei</i>	0.5	0.2	
<i>Scaevola macrostachya</i>	4	0.5	
<i>Templetonia hookeri</i>	1	0.5	26.05
<i>Phyllanthus exilis</i>	1	0.2	
<i>Calytrix exstipulata</i>	2	0.6	
<i>Microstachys chamaelea</i>	<1	0.3	
<i>Corchorus fascicularis</i>	<1	0.1	
<i>Triumfetta triandra</i>	0.5	0.2	26.03
<i>Senna goniodes</i>	<1	0.5	26.04
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	26.07
<i>Bonamia pannosa</i>	5	0.2	26.02
<i>Indigofera haplophylla</i>	<1	0.2	26.01
<i>Gonocarpus leptothecus</i>	2	0.2	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Triumfetta plumigera</i>	<1	0.3	26.06



Site	II 27
Date	15/10/2010
Recorder	DB
Photo	DB 84
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557262
Northing	8220681
Habitat	Hillslope of exposed peninsula
Aspect	South West
Soil	Light brown sandy loam
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:3:5
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Gonocarpus leptothecus</i> with Open Shrubland of <i>Acacia tumida</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>

Species	% Cover	Height	No.
<i>Acacia tumida</i>	5	<1	
<i>Grevillea wickhamii</i> ssp <i>wickhamii</i>	20	<1	27.05
<i>Scaevola macrostachya</i>	35	<1	
<i>Gonocarpus leptothecus</i>	15	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Corymbia confertiflora</i>	2	4	
<i>Calytrix exstipulata</i>	2	0.5	
<i>Eriachne lanata</i>	<1	0.35	
<i>Hybanthus aurantiacus</i>	0.5	0.3	
<i>Triodia bynoei</i>	2	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	1	
<i>Templetonia hookeri</i>	<1	0.6	
<i>Phyllanthus exilis</i>	0.5	0.3	
<i>Jacquemontia paniculata</i>	<1	Cr	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2.5	
<i>Cajanus cinereus</i>	<1	0.5	27.04
<i>Solanum echinatum</i>	<1	0.2	
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	
<i>Stenocarpus acacioides</i>	<1	1.5	27.01

<i>Terminalia canescens</i>	<1	1.5	
<i>Ptilotus capitatus</i>	<1	0.3	27.02
<i>Gompholobium subulatum</i>	<1	0.3	27.03



Site	II 28
Date	16/10/2010
Recorder	DB
Photo	DB 88-90
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559386
Northing	8222837
Habitat	Ridge crest
Aspect	South West
Soil	Creamy/ light brown loam (powdery)
Rock Type	Sandstone - Iron @ surface
% Bare Ground	10
% Logs:Twigs:Leaves	2:5:5
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> , <i>Templetonia hookeri</i> with Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Eucalyptus tectifica</i> over Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	7	4	
<i>Eucalyptus</i> cf. <i>miniata</i>	2	10	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	5	3	
<i>Corymbia confertiflora</i>	1	3	
<i>Scaevola macrostachya</i>	18	1	
<i>Calytrix exstipulata</i>	1.5	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	55	0.5	
<i>Eriachne ciliata</i>	0.5	0.3	
<i>Triodia bynoei</i>	13	0.5	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Sorghum plumosum</i>	1	1	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.2	
<i>Heliotropium glabellum</i>	<1	0.3	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1	
<i>Xenostegia tridentata</i>	<1	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	2	0.5	
<i>Trachymene didiscoides</i>	1	1.5	
<i>Templetonia hookeri</i>	2	0.5	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	0.5	

<i>Eucalyptus tectifica</i>	1	1	
<i>Terminalia canescens</i>	<1	1.2	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	0.5	28.02
<i>Cassytha filiformis</i>	<1	Cl	
<i>Indigofera haplophylla</i>	1	0.2	28.03
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Brachychiton viscidulus</i>	<1	1	
<i>Solanum echinatum</i>	<1	0.2	
<i>Acacia neurocarpa</i>	<1	1	
<i>Corchorus pumilio</i>	0.5	0.3	28.04
<i>Grevillea agrifolia</i> ssp. <i>agrifolia</i>	<1	0.5	28.01
<i>Sauropus trachyspermus</i>	<1	0.5	28.05
<i>Eulalia aurea</i>	<1	0.5	
<i>Acacia hippuroides</i>	<1	0.5	
<i>Corchorus fascicularis</i>	0.25	0.3	
<i>Hybanthus aurantiacus</i>	<1	0.3	



Site	II 29
Date	15/10/2010
Recorder	DB
Photo	DB 101
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559242
Northing	8223009
Habitat	Hillock - Hillcrest/ Upper Hillslope
Aspect	East
Soil	Creamy / light brown loam
Rock Type	Sandstone - Ironstone infused
% Bare Ground	40
% Logs:Twigs:Leaves	1:5:15
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora, Eucalyptus tectifica over Low Shrubland of Gompholobium subulatum, Distichostemon hispidulus var. aridus over Very Open Hummock Grassland of Triodia bynoei

Species	% Cover	Height	No.
Eucalyptus cf. miniata	25	<10	
Corymbia cadophora subsp. cadophora	2	4	
Eucalyptus tectifica	1	4	
Acacia oligoneura	<1	1	29.01
Buchanania oblongifolia	0.5	1	
Distichostemon hispidulus var. aridus	5	0.3	
Sauropus trachyspermus	<1	0.3	
Gompholobium subulatum	15	0.5	
Scaevola macrostachya	<1	0.5	
Templetonia hookeri	0.5	0.3	
Triodia bynoei	8	0.5	
Grevillea refracta subsp. refracta	1	0.5	
Sorghum plumosum	1	<1	
Solanum echinatum	<1	0.5	
Grevillea agrifolia subsp. agrifolia	<1	0.5	
Calytrix exstipulata	<1	0.5	
Tephrosia laxa var. angustata	1	0.5	29.02
Phyllanthus exilis	<1	0.5	
Trachymene didiscoides	1	1.2	
Corymbia confertiflora	<1	2	

<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1	
<i>Eulalia aurea</i>	<1	0.5	29.03



Site	II 30
Date	15/10/2010
Recorder	DB
Photo	DB 108 & 109
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559187
Northing	8223200
Habitat	Steep hillslope
Aspect	North
Soil	Grey/ brown loam
Rock Type	Sandstone - Ironstone infused
% Bare Ground	15
% Logs:Twigs:Leaves	1:5:10
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Hummock Grassland of <i>Triodia bynoei</i> with Low Open Woodland of <i>Corymbia confertiflora</i> over High Open Shrubland of <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Open Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	5-10	5	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	1.5	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	3	2	
<i>Calytrix exstipulata</i>	5	3	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	1.5	3	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	3	
<i>Triodia bynoei</i>	55	<1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1	2	
<i>Gompholobium subulatum</i>	1.5	0.4	
<i>Scaevola macrostachya</i>	2	1	
<i>Acacia multisiliqua</i>	0.5	1	
<i>Galactia tenuiflora</i>	1	0.2	
<i>Euphorbia kimberleyensis</i>	0.5	0.2	30.02
<i>Corchorus pumilio</i>	<1	0.3	28.04
<i>Sauropus trachyspermus</i>	<1	0.5	30.03
<i>Hybanthus aurantiacus</i>	<1	0.3	
<i>Trachymene didiscoides</i>	3	1.5	
<i>Templetonia hookeri</i>	<1	0.5	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Amyema</i> sp 'long leaf'	<1	Cl	
<i>Buchanania oblongifolia</i>	<1	1.2	

Canarium australianum var. australianum	<1	2	
Evolvulus alsinoides var. decumbens	<1	0.3	
Distichostemon hispidulus var. aridus	<1	0.5	
Xenostegia tridentata	<1	Cl	
Clerodendrum floribundum var. coriaceum	<1	1.5	30.01
Corchorus fascicularis	<1	0.2	
Tephrosia laxa var. angustata	1	0.3	
Eriachne ciliata	<1	0.3	
Eucalyptus cf. miniata	<1	10	
Solanum echinatum	<1	0.2	
Sersalisia sericea	<1	1.5	30.04



Site	II 31
Date	16/10/2010
Recorder	JB
Photo	8942
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559076
Northing	8222909
Habitat	Mangrove inlet forest
Aspect	N/A
Soil	Grey loamy mud (clayey loam)
Rock Type	None evident
% Bare Ground	<1
% Logs:Twigs:Leaves	0:0.5:0.5
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Low Closed Woodland of <i>Rhizophora stylosa</i>

Species	% Cover	Height	No.
<i>Rhizophora stylosa</i>	98	6	31.01
<i>Avicennia marina</i>	1	4	



Site	II 32
Date	15/10/2010
Recorder	DB
Photo	DB 112
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559137
Northing	8222838
Habitat	Upper hillslope (of Hillocks)
Aspect	South West
Soil	Creamy/ light brown loam
Rock Type	Sandstone
% Bare Ground	25
% Logs:Twigs:Leaves	1:5:40
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Open Forest of Eucalyptus cf. miniata over Low Open Heath of Acacia multisiliqua, Acacia hippuroides, Distichostemon hispidulus var. aridus over Very Open Hummock Grassland of Triodia bynoei

Species	% Cover	Height	No.
Eucalyptus cf. miniata	35	<10	
Eucalyptus cf. miniata	15	15	
Acacia multisiliqua	15	<1	
Acacia hippuroides	7	<1	
Distichostemon hispidulus var. aridus	8	0.5	
Scaevola macrostachya	3	0.5	
Templetonia hookeri	3	0.6	
Triodia bynoei	7	0.4	
Sorghum plumosum	3	1.5	
Cochlospermum fraseri	2	0.8	
Terminalia canescens	<1	0.8	
Flueggea virosa subsp. melanthesoides	<1	1.2	
Grevillea agrifolia subsp. agrifolia	<1	1.5	
Eucalyptus tectifera	2	4	
Corymbia confertiflora	<1	2	
Grevillea refracta subsp. refracta	0.5	2	
Buchanania oblongifolia	<1	1.2	
Cymbopogon procerus	<1	1.2	
Cassytha filiformis	<1	Cl	
Xenostegia tridentata	<1	Cr	
Phyllanthus exilis	<1	0.5	
Microstachys chamaelea	0.5	0.5	



Site	II 33
Date	15/10/2010
Recorder	DB
Photo	DB 113 & DB 1 & 6 Film 2
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559032
Northing	8222643
Habitat	Sandstone - Ironstone infused - Stony ridge - (Saddle of Ridge)
Aspect	South
Soil	Brown loam
Rock Type	Sandstone - Black - Ironstone infused
% Bare Ground	45
% Logs:Twigs:Leaves	1:2:10
Vegetation Condition	Very good
Disturbance Type	Walk track along water pipeline, Drill pad nearby
Fire Age	Young
Vegetation	Low Woodland of <i>Corymbia confertiflora</i> , <i>Eucalyptus tectifica</i> over Open Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> over Low Open Shrubland of <i>Corchorus fascicularis</i> , <i>Scaevola macrostachya</i> , <i>Templetonia hookeri</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	6	8	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	1	4	
<i>Amyema</i> sp 'Corymbia long leaf'	<1	Cl	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	2	6	
<i>Hakea arborescens</i>	0.5	2	
<i>Terminalia canescens</i>	1	3	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	2	3	
<i>Cleome viscosa</i>	4	1.5	
<i>Templetonia hookeri</i>	1	1	
<i>Scaevola macrostachya</i>	1.5	1	
<i>Acacia neurocarpa</i>	<1	0.5	
<i>Grewia retusifolia</i>	2	1.3	33.04
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	33.01
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	33.02
<i>Corchorus fascicularis</i>	5	0.3	
<i>Chrysopogon latifolius</i>	2	1.5	33.03
<i>Triodia bynoei</i>	8	0.5	
<i>Phyllanthus exilis</i>	0.5	0.5	

<i>Eucalyptus tectifica</i>	6	8	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	2	2	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Indigofera trita</i>	<1	0.3	
<i>Sauropus trachyspermus</i>	<1	0.6	
<i>Triumfetta carteri</i>	<1	1	33.05
<i>Gonocarpus leptothecus</i>	1	0.5	
<i>Cymbopogon procerus</i>	<1	1.3	
<i>Cajanus cinereus</i>	0.5	0.5	
<i>Buchanania oblongifolia</i>	<1	1	
<i>Eriachne ciliata</i>	<1	0.2	
<i>Calytrix exstipulata</i>	<1	1.5	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	0.5	
<i>Brachychiton viscidulus</i>	<1	2	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2	





Site

II 34

Date 15/10/2010
Recorder DB
Photo DB 10 & 11
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 558807
Northing 8222471
Habitat Foredune
Aspect South
Soil Sandy - Beach sand - Creamy / Light orange
Rock Type Sandstone
% Bare Ground 30
% Logs:Twigs:Leaves 0:<1:3
Vegetation Condition Good
Disturbance Type *Passiflora foetida var. hispida, Tracks for water pipeline, Camping
Fire Age Very old
Vegetation Closed Tussock Grassland of Spinifex longifolius with Low Shrubland of Canavalia rosea with Open Shrubland of Abutilon indicum var. australiense

Species	% Cover	Height	No.
Cleome viscosa	1	2	
Exocarpos latifolius	<1	2	
Melhania oblongifolia	2	0.5	
Tephrosia laxa var. angustata	<1	0.6	
*Passiflora foetida var. hispida	3	Cl	
Spinifex longifolius	70	1	
Panicum seminudum	<1	1	
Canavalia rosea	15	Cr	34.03
Templetonia hookeri	<1	1	
Abutilon indicum var. australiense	5	2	34.04
Ptilotus capitatus	<1	0.3	
Triodia bynoei	0.5	0.5	
Cassytha filiformis	0.5	Cl	
Grewia breviflora	<1	2.5	34.01
Ipomoea pes-caprae subsp. brasiliensis	1	Cr	34.02
Leptopus decaisnei var. decaisnei	0.5	0.8	34.05
Heteropogon contortus	<1	0.4	34.06



Site

II 35

Date 15/10/2010
Recorder DB
Photo DB 15-18 Film 2
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 557120
Northing 8220878
Habitat Saddle/ Gully - Fresh water seepage
Aspect West
Soil Brown/ Light orange loamy sand - High organic component
Rock Type Sandstone
% Bare Ground 5
% Logs:Twigs:Leaves 1:5:95
Vegetation Condition Excellent
Disturbance Type Fire
Fire Age Young
Vegetation Closed Forest of *Pandanus spiralis*, *Canarium australianum* var. *australianum*, *Corymbia confertiflora*

Species	% Cover	Height	No.
<i>Pandanus spiralis</i>	80	10	
<i>Canarium australianum</i> var. <i>australianum</i>	5	10	
<i>Corymbia confertiflora</i>	5	10	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	1	35.05
<i>Chrysopogon latifolius</i>	<1	1.5	
<i>Galactia tenuiflora</i>	1.5	Cr	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	0.5	
<i>Acacia hippuroides</i>	<1	0.5	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Chrystia australasica</i>	1	0.1	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	0.5	
<i>Brachychiton viridiflorus</i>	1	2	
<i>Templetonia hookeri</i>	<1	0.8	
<i>Ameyema</i> sp. (growing on <i>Corymbia</i>)	<1	Cl	
<i>Phyllanthus maderaspatensis</i>	<1	0.7	35.04
<i>Melhania oblongifolia</i>	0.5	0.5	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1.5	10	
<i>Brachychiton viscidulus</i>	0.5	2.5	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Santalum lanceolatum</i>	0.5	4	
<i>Flagellaria indica</i>	<1	2	
<i>Sorghum plumosum</i>	1	1.2	
<i>Indigofera trita</i>	<1	0.3	

<i>Abrus precatorius</i>	<1	Cl	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	4	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	35.03
<i>Galactia tenuiflora</i>	<1	Cl	35.01
<i>Adenia heterophylla</i> ssp. <i>australis</i>	<1	Cl	35.02



Site	II 36
Date	15/10/2010
Recorder	DB
Photo	DB 19 & 20 Film 2
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557100
Northing	8221100
Habitat	Upper hillslope
Aspect	West
Soil	Skeletal brown loamy sand
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	2:15:15
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Hummock Grassland of <i>Triodia bynoei</i> with Shrubland of <i>Buchanania oblongifolia</i> , <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> with Low Shrubland of <i>Scaevola macrostachya</i> , <i>Buchanania oblongifolia</i> , <i>Calytrix exstipulata</i> with Low Open Woodland of <i>Corymbia confertiflora</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	8	6	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.4	
<i>Gonocarpus leptothecus</i>	<1	0.5	
<i>Buchanania oblongifolia</i>	4	2	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	1	2	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	5	2	
<i>Calytrix exstipulata</i>	5	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	1	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	1.5	<1	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	3	<1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	2	
<i>Sauropus trachyspermus</i>	<1	0.5	
<i>Triodia bynoei</i>	35	0.5	
<i>Eriachne ciliata</i>	0.5	0.5	
<i>Scaevola macrostachya</i>	8	0.5	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Solanum echinatum</i>	<1	0.2	
<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	<1	0.2	

Phyllanthus exilis	<1	0.2	
Heliotropium sp. indet.	<1	0.5	36.02
Acacia multisiliqua	<1	0.5	
Ficus aculeata var. indecora	1	3	
Microstachys chamaelea	0.5	0.2	
Clerodendrum floribundum var. coriaceum	<1	1	36.04
Erythroxylum ellipticum	<1	1	
Jasminum didymum subsp. didymum	<1	1	
Trachymene didiscoides	2	1.5	
Templetonia hookeri	<1	0.5	
Digitaria brownii	<1	1	
Cymbopogon procerus	0.5	1.2	
Canarium australianum var. australianum	<1	2	
Gompholobium subulatum	<1	0.3	
Brachychiton viscidulus	<1	5	
Eriachne avenacea	<1	0.6	36.01
Adenia heterophylla ssp. australis	<1	Cl	36.03
Corchorus sp. 'felty u-leaf'	<1	0.3	
Santalum lanceolatum	<1	2	
Buchanania oblongifolia	3	<1	
Calytrix exstipulata	3	<1	
Hybanthus aurantiacus	<1	0.5	
OPP COLL			
Terminalia ferdinandiana	-	3	36.05



Site

II 37

Date 15/10/2010
Recorder DB
Photo DB 22 Film 2
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 557111
Northing 8221317
Habitat Lower end of hillcrest
Aspect West
Soil Grey/ brown sandy loam
Rock Type Sandstone - outcropping
% Bare Ground 20
% Logs:Twigs:Leaves 8:4:4
Vegetation Condition Excellent
Disturbance Type Fire
Fire Age Young
Vegetation Low Closed Heath of *Scaevola macrostachya*, *Gonocarpus leptothecus*, *Acacia wickhamii* subsp. *wickhamii* over Very Open Hummock Grassland of *Triodia bynoei*

Species	% Cover	Height	No.
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	3	<1	
<i>Scaevola macrostachya</i>	60	1	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	3	0.5	
<i>Triodia bynoei</i>	3	1	
<i>Cleome viscosa</i>	3	1.5	
<i>Templetonia hookeri</i>	<1	0.4	
<i>Fimbristylis schultzei</i>	0.5	0.2	37.02
<i>Fimbristylis</i> cf. <i>trigastrocarya</i>	<1	0.2	37.01
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.5	
<i>Solanum echinatum</i>	<1	0.2	
<i>Santalum lanceolatum</i>	<1	-	
<i>Gonocarpus leptothecus</i>	8	0.5	
<i>Trachymene didiscoides</i>	3	2	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Hibiscus leptocladus</i>	<1	0.3	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.4	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	0.5	0.2	
<i>Hybanthus aurantiacus</i>	<1	0.3	
<i>Corchorus fascicularis</i>	<1	0.3	
<i>Grewia retusifolia</i>	<1	1	37.03
<i>Brachychiton viridiflorus</i>	<1	2	
<i>Cymbopogon procerus</i>	<1	1.2	
<i>Brachychiton viscidulus</i>	<1	3	

<i>Grevillea refracta</i> subsp. <i>refracta</i>	1	3
<i>Buchanania oblongifolia</i>	2	1
<i>Calytrix exstipulata</i>	0.5	1



Site	II 38
Date	17/10/2010
Recorder	DB
Photo	DB 23 Film 2
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558047
Northing	8224208
Habitat	Hillspur off narrow peninsula (inland)
Aspect	South
Soil	Skeletal light brown/ grey sandy loam
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:2:40
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Forest of <i>Corymbia confertiflora</i> over Hummock Grassland of <i>Triodia bynoei</i> with Low Shrubland of <i>Tephrosia laxa</i> var. <i>angustata</i> , <i>Buchanania oblongifolia</i> , <i>Acacia oligoneura</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	35	6	
<i>Amyema</i> sp. - long thin leaf	<1	Cl	
<i>Canarium australianum</i> var. <i>australianum</i>	0.5	4	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	3	
<i>Buchanania oblongifolia</i>	1	3	
<i>Buchanania oblongifolia</i>	2	1	
<i>Cajanus cinereus</i>	1.5	1.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1.5	
<i>Tephrosia laxa</i> var. <i>angustata</i>	8	0.5	38.01
<i>Triodia bynoei</i>	35	0.5	
<i>Acacia oligoneura</i>	1.5	1	38.03
<i>Hibiscus leptocladus</i>	<1	0.2	38.04
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Sorghum plumosum</i>	1	1.5	
<i>Crotalaria montana</i> var. <i>angustifolia</i>	<1	1	38.02
<i>Scaevola macrostachya</i>	1	0.5	
<i>Cymbopogon procerus</i>	<1	1.2	
<i>Stemodia lythrifolia</i>	<1	0.2	
<i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>	<1	0.5	38.05
<i>Brachychiton viscidulus</i>	0.5	2	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	

Melhania oblongifolia	<1	0.5	
Indigofera colutea	<1	0.3	
Gonocarpus leptothecus	<1	0.5	
Chrystia australasica	<1	0.1	
Indigofera trita	<1	0.2	
Flagellaria indica	<1	2	
Triodia pungens	1	0.5	38.06



Site	II 39
Date	17/10/2010
Recorder	DB
Photo	DB 27
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557691
Northing	8224291
Habitat	Hillslope - upper
Aspect	East
Soil	Brown loamy sand
Rock Type	Sandstone - outcropping
% Bare Ground	20
% Logs:Twigs:Leaves	1:<1:35
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Open Forest of Eucalyptus cf. miniata over Low Shrubland of Microstachys chamaelea, Distichostemon hispidulus var. aridus, Templetonia hookeri over Very Open Tussock Grassland of Sorghum plumosum

Species	% Cover	Height	No.
Eucalyptus cf. miniata	40	>10	
Corymbia confertiflora	<1	4	
Flueggea virosa subsp. melanthesoides	0.5	2	
Acacia oligoneura	5	1	
Hybanthus aurantiacus	<1	0.5	
Distichostemon hispidulus var. aridus	9	0.5	
Templetonia hookeri	2	0.6	
Microstachys chamaelea	11	1	
Trachymene didisoides	3	1.3	
Melhania oblongifolia	2	0.3	
Triodia bynoei	<2	0.5	
Sorghum plumosum	7	1.5	
Solanum echinatum	0.5	0.2	
Phyllanthus exilis	2	0.5	
Crotalaria medicaginea var. neglecta	0.5	0.6	
Phyllanthus maderaspatensis	<1	0.4	DB WP 047
Cleome viscosa	1	1.5	
Canarium australianum var. australianum	0.5	6	
Brachychiton sp.	0.5	5	39.01
Scaevola macrostachya	0.5	0.5	

<i>Grevillea refracta</i> subsp. <i>refracta</i>	0.5	0.8
<i>Hibiscus leptocladus</i>	<1	0.3
<i>Corchorus fascicularis</i>	<1	0.2
<i>Triumfetta triandra</i>	<1	0.7
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	1.5
<i>Cymbopogon procerus</i>	<1	1.2



Site	II 40
Date	17/10/2010
Recorder	DB
Photo	DB 29
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557308
Northing	8224394
Habitat	Bare sheet rock - Drainage line (U shaped)
Aspect	North
Soil	Light brown loam or clay loam
Rock Type	Sandstone
% Bare Ground	90
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Open Low Shrubland of <i>Scaevola macrostachya</i> , <i>Calytrix brownii</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> over Very Open Tussock Grassland of <i>Eriachne ciliata</i> with Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Scaevola macrostachya</i>	2	0.5	
<i>Calytrix brownii</i>	1	0.2	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	1	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1	0.2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	1	0.3	
<i>Gonocarpus leptothecus</i>	0.5	0.1	
<i>Bulbostylis barbata</i>	5	0.2	
<i>Eriachne ciliata</i>	5	0.2	
<i>Triodia bynoei</i>	3	0.2	
<i>Phyllanthus exilis</i>	<1	0.6	
<i>Trachymene didiscoides</i>	0.5	1.2	
<i>Solanum echinatum</i>	<1	0.2	



Site	II 41
Date	17/10/2010
Recorder	DB
Photo	DB 30 & 31
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557028
Northing	8224437
Habitat	Middle hillslope
Aspect	North West
Soil	Grey/ brown loamy sand
Rock Type	Sandstone
% Bare Ground	20
% Logs:Twigs:Leaves	1:5:65
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Forest of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora over Tussock Grassland of Chrysopogon latifolius over Open Hummock Grassland of Triodia bynoei with Shrubland of Tephrosia laxa var. angustata, Microstachys chamaelea

Species	% Cover	Height	No.
Eucalyptus cf. miniata	40	10	
Corymbia cadophora subsp. cadophora	8	5	
Cochlospermum fraseri	2	2	
Trachymene didiscoides	2	1.5	
Triodia bynoei	25	0.5	
Ficus aculeata var. indecora	<1	2	
Flueggea virosa subsp. melanthesoides	0.5	2	
Tephrosia laxa var. angustata	4	0.5	
Indigofera trita	1.5	0.3	
Microstachys chamaelea	4	0.6	
Phyllanthus exilis	1	0.5	
Acacia wickhamii subsp. wickhamii	0.5	0.3	
Distichostemon hispidulus var. aridus	1.5	0.5	
Ipomoea eriocarpa	<1	Cl	41.02
Chamaecrista mimosoides	<1	0.5	
Cyperus microcephalus subsp. microcephalus	<1	0.2	
Chrysopogon latifolius	40	1.5	
Bulbostylis barbata	<1	0.1	
Hibiscus leptocladus	<1	0.4	
Grevillea pyramidalis subsp. pyramidalis	<1	2	

Brachychiton viscidulus	0.5	2	
Melhania oblongifolia	1	0.4	
Sauropus trachyspermus	<1	0.6	
Ampelocissus acetosa	<1	Cl	41.01
Hybanthus aurantiacus	<1	0.5	
Buchanania oblongifolia	<1	<1	
Flueggea virosa subsp. melanthesoides	<1	1	
Tephrosia laxa var. angustata	1	0.5	
Exocarpos latifolius	0.5	1	
Brachychiton diversifolius subsp. diversifolius	<1	4	
Indigofera haplophylla	<1	0.5	
Jacquemontia paniculata	2	0.3	
Terminalia canescens	<1	1	



Site	II 42
Date	17/10/2010
Recorder	JB
Photo	8972
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557212
Northing	8224209
Habitat	Hillcrest - undulating plateau top
Aspect	North West, West, South West
Soil	Brown sandy loam
Rock Type	Sandstone - boulders, cobbles and some outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:7:75
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Forest of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Eucalyptus</i> <i>tectifera</i> , <i>Corymbia</i> <i>cadophora</i> subsp. <i>cadophora</i> over Low Shrubland of <i>Templetonia</i> <i>hookeri</i> , <i>Gonocarpus</i> <i>leptothecus</i> over Open Tussock Grassland of <i>Sorghum</i> <i>plumosum</i> over Open Herbs of <i>Trachymene</i> <i>didiscoides</i> , <i>Microstachys</i> <i>chamaelea</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	30	12	
<i>Eucalyptus</i> cf. <i>miniata</i> regrowth	5	4	
<i>Cochlospermum</i> <i>fraseri</i>	1	2	
* <i>Passiflora</i> <i>foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Trachymene</i> <i>didiscoides</i>	10	2	
<i>Phyllanthus</i> <i>exilis</i>	0.5	0.5	
<i>Scaevola</i> <i>macrostachya</i>	1.5	1	
<i>Templetonia</i> <i>hookeri</i>	8	0.5	
<i>Hakea</i> <i>arborescens</i>	1	6	
<i>Acacia</i> <i>wickhamii</i> subsp. <i>wickhamii</i>	1	1	
<i>Canarium</i> <i>australianum</i> var. <i>australianum</i>	0.5	5	
<i>Mimusops</i> <i>elengi</i>	0.5	6	
<i>Microstachys</i> <i>chamaelea</i>	6	1	
<i>Flueggea</i> <i>virosa</i> subsp. <i>melanthesoides</i>	0.5	2	42.05
<i>Exocarpos</i> <i>latifolius</i>	<1	1.5	
<i>Sorghum</i> <i>plumosum</i>	18	2	
<i>Flueggea</i> <i>virosa</i> subsp. <i>melanthesoides</i>	1.5	2.5	
<i>Triodia</i> <i>bynoei</i>	4	1	
<i>Cynanchum</i> <i>puberulum</i>	<1	Cl	42.07

<i>Erythroxylum ellipticum</i>	<1	2	
<i>Xenostegia tridentata</i>	4.5	Cr	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	3	4.5	
<i>Terminalia canescens</i>	<1	2	
<i>Corymbia confertiflora</i>	2	5.5	
<i>Santalum lanceolatum</i>	<1	2	
<i>Gonocarpus leptothecus</i>	5	0.55	
<i>Calytrix exstipulata</i>	<1	0.5	
<i>Solanum echinatum</i>	<1	0.3	
<i>Tephrosia laxa</i> var. <i>angustata</i>	0.5	0.4	42.06
<i>Triumfetta albida</i>	1	0.5	
<i>Eucalyptus tectifica</i>	3	3	
<i>Ficus aculeata</i> var. <i>indecora</i>	0.5	2	
<i>Dicliptera armata</i>	<1	0.4	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Panicum seminudum</i>	<1	0.6	42.04
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	1	
<i>Cleome viscosa</i>	0.5	1.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	0.5	
<i>Phyllanthus maderaspatensis</i>	<1	0.4	42.03
<i>Galactia tenuiflora</i>	<1	Cr	42.02
<i>Cullen virens</i>	<1	0.5	42.01
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1	6	
<i>Triumfetta carteri</i>	<1		42.08



Site	II 43
Date	17/10/2010
Recorder	JB
Photo	8971
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557545
Northing	8224188
Habitat	Mangrove flats
Aspect	N/A
Soil	Grey/ brown loamy mud
Rock Type	Adjacent to sandstone rocky slopes
% Bare Ground	1
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Low Closed Woodland of Rhizophora stylosa, Avicennia marina

Species	% Cover	Height	No.
Rhizophora stylosa	90	6	
Avicennia marina	10	8	
OPP COLL			
Erythroxylum ellipticum	<1	3	43.01



Site	II 44
Date	17/10/2010
Recorder	DB
Photo	DB 32
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556850
Northing	8224100
Habitat	Hillcrest/ upper hillslope (source of drainage line sometimes)
Aspect	West
Soil	Orange clay loam
Rock Type	laterised sandstone
% Bare Ground	70
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Excellent
Disturbance Type	Fire, *Passiflora foetida
Fire Age	Young
Vegetation	Low Shrubland of <i>Buchanania obovata</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Buchanania obovata</i>	4	1	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	0.5	1	
<i>Triumfetta albida</i>	2	0.3	
<i>Melhania oblongifolia</i>	6	0.3	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	0.5	0.2	
<i>Phyllanthus maderaspatensis</i>	<1	0.5	
<i>Cleome viscosa</i>	2	1	
<i>Xenostegia tridentata</i>	3	Cl	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.3	
<i>Corchorus fascicularis</i>	<1	0.3	
<i>Tephrosia laxa</i> var. <i>angustata</i>	1	0.2	
<i>Triumfetta triandra</i>	10	0.2	
<i>Erythroxylum ellipticum</i>	<1	1	
<i>Cynanchum puberulum</i>	<1	0.2	
<i>Triodia bynoei</i>	5	0.4	
<i>Templetonia hookeri</i>	2	0.5	
<i>Indigofera haplophylla</i>	1	0.2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	0.5	0.4	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	0.5	
<i>Hybanthus aurantiacus</i>	<1	0.2	
<i>Terminalia canescens</i>	<1	1	
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Sorghum plumosum</i>	<1	1.3	44.01
<i>Heliotropium</i> sp. <i>indet.</i>	4	0.1	44.02



Site	II 45
Date	17/10/2010
Recorder	JB
Photo	8977
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556608
Northing	8223810
Habitat	Hillcrest - upper hillslope
Aspect	South
Soil	Brown sandy loam
Rock Type	Sandstone - outcrops, boulders and cobbles
% Bare Ground	15
% Logs:Twigs:Leaves	2:15:60
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Open Forest of Eucalyptus cf. miniata over Low Shrubland of Distichostemon hispidulus var. aridus, Triumphetta triandra over Open Hummock Grassland of Triodia bynoei over Open Herbs of Trachymene didiscoides

Species	% Cover	Height	No.
Eucalyptus cf. miniata	35	12	
Cochlospermum fraseri	2	2.5	
Trachymene didiscoides	15	2	
Microstachys chamaelea	1	1	
Distichostemon hispidulus var. aridus	6	0.5	
Triumphetta triandra	5	1.5	45.02
Acacia wickhamii subsp. wickhamii	1	0.5	
Corymbia confertiflora	1	6	
Marsdenia viridiflora ssp. tropica	<1	Cl	45.03
Triodia bynoei	11	0.5	
Brachychiton viridiflorus	<1	2	
Ficus aculeata var. indecora	0.5	3	
Xenostegia tridentata	0.5	Cl	
Phyllanthus exilis	0.5	1	
Corymbia cadophora subsp. cadophora	1.5	4	
Tephrosia leptoclada	<1	0.3	
Wrightia saligna	<1	1.6	
Chamaecrista mimosoides	<1	1	
Crotalaria montana var angustifolia	1.5	1	45.01
Fimbristylis aff simulans	<1	0.3	
Santalum lanceolatum	<1	1	

<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	2.5	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>		1.5	
<i>Templetonia hookeri</i>	<1	1	
<i>Hakea arborescens</i>	0.5	4	
<i>Terminalia canescens</i>	<1	2	
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Cymbopogon procerus</i>	<1	1	
<i>Exocarpos latifolius</i>	<1	1	
<i>Sorghum plumosum</i>	3	2	
<i>Solanum echinatum</i>	<1	0.2	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	3	
Various dead grasses and herbs	-	-	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2	
<i>Calytrix exstipulata</i>	<1	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	2	
<i>Terminalia</i> sp. indet.	<1	1.5	45.04
<i>Triumfetta albida</i>	<1	0.5	



Site	II 46
Date	17/10/2010
Recorder	DB
Photo	DB 34 Film 2
Shape/Size	50m x 50m
Datum	GDA94
Zone	50K
Easting	556488
Northing	8224126
Habitat	Upper hillslope
Aspect	North
Soil	Brown loamy sand
Rock Type	Sandstone
% Bare Ground	35
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	1	2	
<i>Scaevola macrostachya</i>	35	0.6	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	6	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.3	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	6	0.2	
<i>Acacia hippuroides</i>	5	0.5	
<i>Gonocarpus leptothecus</i>	3	0.3	
<i>Phyllanthus exilis</i>	0.5	0.5	
<i>Bulbostylis barbata</i>	<1	0.1	
<i>Triodia bynoei</i>	1.5	0.1	
<i>Calytrix exstipulata</i>	<1	0.7	
<i>Eriachne ciliata</i>	<1	0.1	
<i>Triodia pungens</i>	0.5	0.4	46.01
<i>Trachymene didiscoides</i>	<1	1.5	
<i>Hybanthus aurantiacus</i>	<1	0.2	



Site	II 47
Date	18/10/2010
Recorder	DB
Photo	DB35-38
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556088
Northing	8223510
Habitat	Upper hillslope - coastal fringe west
Aspect	West
Soil	Brown sandy loam - skeletal
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	<1:4:10
Vegetation Condition	Excellent
Disturbance Type	Fire, *Pissflora foetida
Fire Age	Young
Vegetation	Low Open Heath of Scaevola macrostachya, Distichostemon hispidulus var. aridus, Acacia hippuroides with Open Shrubland of Calytrix exstipulata over Very Open Hummock Grassland of Triodia bynoei over Very Open Herbs of Trachymene didiscoides, Cleome viscosa

Species	% Cover	Height	No.
Calytrix exstipulata	5	>2	
Grevillea pyramidalis subsp. pyramidalis	1	1	
Grevillea wickhamii subsp. wickhamii	<1	0.5	
Scaevola macrostachya	45	0.5	
Distichostemon hispidulus var. aridus	10	0.4	
Evolvulus alsinoides var. decumbens	1	0.1	
Acacia hippuroides	4	0.5	
Sauropus trachyspermus	0.5	0.5	
Hybanthus aurantiacus	0.5	0.3	
Phyllanthus exilis	0.5	0.5	
Solanum echinatum	2	0.2	
Cleome viscosa	1.5	1	
Trachymene didiscoides	5	2	
Jacquemontia paniculata	1	Cr	
Bulbostylis barbata	<1	0.3	
Triodia bynoei	9	0.5	
Corchorus fascicularis	1	0.2	
Hibiscus leptocladus	1	0.2	
Microstachys chamaelea	1	0.5	
Gonocarpus leptothecus	2	0.4	

<i>Cymbopogon procerus</i>	0.5	1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1	
<i>Cajanus cinereus</i>	2	0.5	
<i>Terminalia canescens</i>	<1	1	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	47.01
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Triumfetta triandra</i>	1	0.2	47.02
<i>Ficus platypoda</i>	<1	1	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Eriachne ciliata</i>	<1	0.2	
<i>Brachychiton viridiflorus</i>	<1	2.5	
<i>Heliotropium glabellum</i>	<1	0.3	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	
<i>Gompholobium subulatum</i>	<1	0.5	
<i>Cynanchum puberulum</i>	<1	Cl	



Site	II 48
Date	17/10/2010
Recorder	DB
Photo	DB 39/40 Film 2
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556727
Northing	8224320
Habitat	Hillslope middle (below cliff face)
Aspect	North
Soil	Creamy light brown clay loam
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:3:15
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Scaevola macrostachya, Distichostemon hispidulus var. aridus, Buchanania oblongifolia over Hummock Grassland of Triodia bynoei with High Open Shrubland of Corymbia confertiflora

Species	% Cover	Height	No.
Corymbia confertiflora	5	4	
Buchanania oblongifolia	7	1	
Cajanus cinereus	3	1	
Grevillea wickhamii subsp. wickhamii	2	1	
Acacia hippuroides	1	0.6	
Templetonia hookeri	5	0.7	
Scaevola macrostachya	30	0.6	
Distichostemon hispidulus var. aridus	10	0.5	
Microstachys chamaelea	4	0.5	
Acacia wickhamii subsp. wickhamii	4	0.5	
Hybanthus aurantiacus	0.5	0.5	
Phyllanthus exilis	<1	0.5	
Triodia bynoei	.35	0.6	
Sorghum plumosum	10	1.5	48.01
Hibiscus leptocladus	<1	0.3	
Evolvulus alsinoides var. decumbens	<1	0.1	
*Passiflora foetida var. hispida	<1	Cl	
Crotalaria medicaginea var. neglecta	<1	0.7	
Solanum echinatum	<1	0.1	
Gonocarpus leptothecus	2	0.5	
Triumfetta albida	3	0.6	

<i>Cochlospermum fraseri</i>	<1	1.5
<i>Cymbopogon procerus</i>	<1	1.5
<i>Sauropus trachyspermus</i>	<1	0.6
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1.5



Site	II 49
Date	18/10/2010
Recorder	DB
Photo	DB 47-49
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556470
Northing	8223561
Habitat	U-shaped drainage line
Aspect	South East
Soil	Brown laom
Rock Type	Sandstone
% Bare Ground	5-10
% Logs:Twigs:Leaves	2:5-10:85
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Low Closed Woodland of Canarium australianum var. australianum, Melochia umbellata, Brachychiton diversifolius subsp. diversifolius, Corymbia confertiflora over Very Open Tussock Grassland of Sorghum plumosum

Species	% Cover	Height	No.
Canarium australianum var. australianum	60	7	
Eucalyptus cf. miniata	5	15	
Brachychiton diversifolius subsp. diversifolius	3	10	
Melochia umbellata	10	8	
Corymbia confertiflora	4	3	
Chrysopogon latifolius	<1	1	
Sorghum plumosum	10	1.5	
Dicliptera armata	<1	0.4	
Microstachys chamaelea	0.5	0.5	
Phyllanthus exilis	<1	0.5	
Trachymene didiscoides	<1	1.5	
Chrystia australasica	2	0.3	
*Passiflora foetida var. hispida	0.5	Cl	
Cynanchum pedunculatum	<1	Cl	49.05
Chamaecrista mimosoides	<1	1	
Scleria brownii	<1	0.3	
Pandanus spiralis	0.5	8	
Brachychiton viscidulus	<1	3	
Cenchrus elymoides var elymoides	<1	1	
Brachychiton viridiflorus	0.5	3	
Hibiscus leptocladus	<1	0.5	

<i>Adenia heterophylla</i> ssp. <i>australis</i>	0.5	Cl	49.04
<i>Mimusops elengi</i>	3	5	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	3	
<i>Euphorbia distans</i>	<1	0.3	49.02
<i>Triumfetta triandra</i>	<1	0.5	
<i>Hibiscus fryxellii</i> var. <i>mollis</i>	<1	0.5	49.01
<i>Decaisnina signata</i> subsp. <i>cardiophylla</i>	<1	Cl	49.03
<i>Exocarpos latifolius</i>	<1	2	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	1	
<i>Asparagus racemosus</i>	<1	Cl	
* <i>Melinis repens</i>	<1	<1	
<i>Phyllanthus maderaspatensis</i>	<1	0.5	



Site	II 50
Date	18/10/2010
Recorder	DB
Photo	DB 50 & 51
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556884
Northing	8223690
Habitat	Sandstone pavements/ ridges
Aspect	North West
Soil	Skeletal orange/ light brown loam
Rock Type	Sandstone (massive) - grey
% Bare Ground	70
% Logs:Twigs:Leaves	0:2:5
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Shrubland of <i>Triumfetta albida</i> , <i>Scaevola macrostachya</i> , <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> with Low Open Woodland of <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Corymbia confertiflora</i> over Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i> , <i>Triodia pungens</i>

Species	% Cover	Height	No.
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	1.5	4	
<i>Buchanania oblongifolia</i>	1.5	2	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	3	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	4	1	
<i>Triumfetta albida</i>	9	0.6	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	4	0.5	
<i>Templetonia hookeri</i>	1	0.4	50.01
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Terminalia canescens</i>	1	0.5	
<i>Scaevola macrostachya</i>	4	0.5	
<i>Galactia tenuiflora</i>	<1	Cl	
<i>Triodia bynoei</i>	4	0.5	
<i>Triodia pungens</i>	4	0.3	
<i>Sorghum plumosum</i>	0.5	1.2	50.02
<i>Polycarpha involucrata</i>	<1	0.1	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2	
<i>Corymbia confertiflora</i>	1	6	
<i>Trachymene didiscoides</i>	1	1.5	

<i>Sauropus trachyspermus</i>	<1	0.5	
<i>Solanum echinatum</i>	<1	0.2	
<i>Templetonia hookeri</i>	<1	0.4	
<i>Heliotropium glabellum</i>	<1	0.5	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	
<i>Calytrix exstipulata</i>	0.5	0.5	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.3	50.03
<i>Cajanus cinereus</i>	<1	1	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.8	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	-	
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Indigofera trita</i>	<1	0.2	
<i>Xenostegia tridentata</i>	<1	0.5	
<i>Senna goniodes</i>	<1	0.5	



Site	II 51
Date	18/10/2010
Recorder	DB
Photo	DB 53
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557199
Northing	8223409
Habitat	Upper hillslope
Aspect	South West
Soil	Grey, creamy/ light brown sandy loam
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1.5:9:40
Vegetation Condition	Excellent
Disturbance Type	Fire, *Passiflora foetide
Fire Age	Young
Vegetation	Woodland of Eucalyptus cf. miniata over Low Open Woodland of Eucalyptus cf. miniata, Corymbia confertiflora, Corymbia cadophora subsp. cadophora over Low Open Heath of Acacia hippuroides, Distichostemon hispidulus var. aridus, Scaevola macrostachya with Very Open Tussock Grassland of Sorghum sp. indet. and Open Herbs of Trachymene didiscoides

Species	% Cover	Height	No.
Eucalyptus cf. miniata	25	15	
Eucalyptus cf. miniata	4	4	
Corymbia confertiflora	3	5	
Corymbia cadophora subsp. cadophora	3	5	
Trachymene didiscoides	30	1.5	
Flueggea virosa subsp. melanthesoides	2.5	2	
Templetonia hookeri	1	0.6	
*Passiflora foetida var. hispida	1	Cl	
Grevillea agrifolia subsp. agrifolia	3	1	
Acacia hippuroides	15	0.5	
Distichostemon hispidulus var. aridus	8	0.5	
Gonocarpus leptothecus	3	0.5	
Sorghum sp. indet.	8	2	
Scaevola macrostachya	5	0.5	
Sauropus trachyspermus	0.5	0.6	
Phyllanthus exilis	1	0.5	
Cleome viscosa	<1	1	
Acacia wickhamii subsp. wickhamii	1	0.5	

Triodia bynoei	5	<1	
Solanum echinatum	<1	0.2	
Triumfetta triandra	<1	0.2	
Cassytha filiformis	<1	Cl	
Hakea arborescens	<1	2	
Terminalia ferdinandiana	<1	4	51.02
Calytrix exstipulata	<1	2	
Cochlospermum fraseri	<1	2	
Eucalyptus tectifica	<1	6	
Chrysopogon latifolius	<1	1.2	
Canarium australianum var. australianum	<1	1	
Gompholobium subulatum	<1	0.5	
Hibbertia sp. A Kimberley Flora (T.E.H. Aplin et al. 898)	<1	1	51.01
Erythroxylum ellipticum	<1	1	
Brachychiton diversifolius subsp. diversifolius	<1	6	
Eriachne avenacea	<1	0.3	51.03
Marsdenia pleiodenia	<1	Cl	51.04
Fimbristylis aff simulans	<1	0.2	



Site	II 52
Date	18/10/2010
Recorder	DB
Photo	DB 54
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556774
Northing	8223303
Habitat	V-shpaed drainage line - ephemeral
Aspect	North West
Soil	Brown loam
Rock Type	Sandstone
% Bare Ground	5-10
% Logs:Twigs:Leaves	<1:2:40
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	*Passiflora foetida var. hispida

Species	% Cover	Height	No.
Eucalyptus cf. miniata	65	15	
Brachychiton diversifolius subsp. diversifolius	10	10	
Canarium australianum var. australianum	5	10	
Mimusops elengi	2	7	
Ficus aculeata var. indecora	<1	2	
Flueggea virosa subsp. melanthesoides	1	2	
Cenchrus elymoides var. elymoides	1.5	1.5	52.07
*Passiflora foetida var. hispida	2	Cl	
Cleome viscosa	<1	1	
Microstachys chamaelea	2	0.8	
Trachymene didiscoides	3	2	
Chrystia australasica	7	0.2	
Templetonia hookeri	<1	0.6	
Sorghum plumosum	0.5	1.2	52.05
Acacia wickhamii subsp. wickhamii	<1	0.5	
Chrysopogon latifolius	0.5	1	52.04
Grewia retusifolia	<1	1	
Asparagus racemosus	<1	Cl	
Terminalia ferdinandiana	1	4	
Flagellaria indica	1	Cl	
Scleria brownii	2	0.5	
Dicliptera armata	2	0.4	
Exocarpos latifolius	0.5	4	

<i>Acacia neurocarpa</i>	<1	0.5	
<i>Chamaecrista</i>	<1	-	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	0.5	0.5	
<i>Melhania oblongifolia</i>	1.5	0.5	
<i>Phyllanthus maderaspatensis</i>	<1	0.5	
<i>Buchanania oblongifolia</i>	<1	0.5	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	1	52.03
<i>Hakea arborescens</i>	<1	2	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Adenia heterophylla</i> ssp. <i>australis</i>	<1	Cl	52.01
<i>Flemingia parviflora</i>	<1	Cl	52.02
<i>Wrightia saligna</i>	<1	Cl	52.06



Site	II 53
Date	18/10/2010
Recorder	DB
Photo	DB 55
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559945
Northing	8223548
Habitat	Hillcrest of peninsula
Aspect	North West
Soil	Grey/ light brown sandy loam
Rock Type	Sandstone
% Bare Ground	0
% Logs:Twigs:Leaves	<1:2:40
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Closed Hummock Grassland of <i>Triodia bynoei</i> with Low Open Heath of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> over Climber of <i>Cassytha filiformis</i> with Shrubland of <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania obovata</i> over High Open Shrubland of <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania obovata</i>

Species	% Cover	Height	No.
<i>Calytrix exstipulata</i>	4	>2	
<i>Calytrix exstipulata</i>	10	2	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	3	>2	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	1.5	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	30	1	
<i>Triodia bynoei</i>	65	1.2	
<i>Buchanania obovata</i>	1.5	>2	
<i>Buchanania obovata</i>	1	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Haemodorum gracile</i>	<1	0.5	
<i>Cassytha filiformis</i>	20	Cl	
<i>Scaevola macrostachya</i>	<1	0.5	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	<1	2	
<i>Gonocarpus leptothecus</i>	<1	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1.5	
<i>Corymbia confertiflora</i>	<2	4	
<i>Amyema bifurcata</i>	<1	Cl	53.01



Site	II 54
	18/10/2010
Recorder	DB
Photo	DB 56/57
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559865
Northing	8223614
Habitat	Hillslope on peninsula
Aspect	West
Soil	Grey/ light brown sandy loam
Rock Type	Sandstone
% Bare Ground	0
% Logs:Twigs:Leaves	1:5:40
Vegetation Condition	Pristine
Disturbance Type	Noen evident
Fire Age	Very old
Vegetation	Hummock Grassland of <i>Triodia bynoei</i> with High Shrubland of <i>Corymbia confertiflora</i> , <i>Buchanania obovata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> over Shrubland of <i>Calytrix exstipulata</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Buchanania obovata</i> over Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	8	4	
<i>Ficus aculeata</i> var. <i>indecora</i>	3	4	
<i>Buchanania obovata</i>	6	4	
<i>Calytrix exstipulata</i>	12	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	20	1	
<i>Triodia bynoei</i>	40	1	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	1	
<i>Scaevola macrostachya</i>	<1	0.5	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	4	4	
<i>Ameyema</i> sp. (Growing on <i>Corymbia</i>)	<1	Cl	
<i>Acacia neurocarpa</i>	6	6	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	1	
<i>Gonocarpus leptothecus</i>	<1	0.5	
<i>Brachychiton viridiflorus</i>	<1	2	
<i>Buchanania obovata</i>	3	1.2	
<i>Stenocarpus acacioides</i>	1.5	3	54.01
<i>Canarium australianum</i> var. <i>australianum</i>	<1	3	
<i>Mimusops elengi</i>	1	4	
<i>Acacia multisiliqua</i>	<1	3	

<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	<1	2
<i>Sersalisia sericea</i>	<1	3



Site	II 55
Date	19/10/2010
Recorder	DB
Photo	DB 58/59
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558410
Northing	8222712
Habitat	Hillcrest - plateau
Aspect	North
Soil	Grey sand (fine)
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	<1:2:10
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Acacia hippuroides</i> with Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	25	6	
<i>Acacia hippuroides</i>	75	<1	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	2	3	
<i>Buchanania obovata</i>	<1	2	
<i>Triodia bynoei</i>	6	0.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	3	1.2	
<i>Scaevola macrostachya</i>	2	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	1	
<i>Gompholobium subulatum</i>	<1	0.3	
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Calytrix exstipulata</i>	<1	1	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Persoonia falcata</i>	<1	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	<1	0.5	
<i>Sorghum</i> sp. indet.	<1	1.2	
<i>Acacia dunnii</i>	<1	0.5	
<i>Trachymene didiscoides</i>	<1	1.2	
<i>Cochlospermum fraseri</i>	<1	2.5	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	2-3	
<i>Templetonia hookeri</i>	0.5	0.8	
<i>Acacia oligoneura</i>	<1	1.5	

<i>Eucalyptus tectifica</i>	<1	1
<i>Bulbostylis barbata</i>	<1	0.1
<i>Fimbristylis aff simulans</i>	<1	0.1



Site	II 56
Date	19/10/2010
Recorder	DB 60
Photo	DB 60
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558148
Northing	8223053
Habitat	Hillslope (more rocky than plateau) - skeletal soils
Aspect	East
Soil	Grey/ light brown loamy sand
Rock Type	Sandstone
% Bare Ground	20
% Logs:Twigs:Leaves	<1:2:15
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Acacia hippuroides, Cajanus cinereus, Distichostemon hispidulus var. aridus with Low Woodland of Eucalyptus cf. miniata, Corymbia confertiflora over Open Herbs of Trachymene didiscoides with Open Woodland of Eucalyptus cf. miniata over Open Shrubland of Grevillea pyramidalis subsp. pyramidalis, Cajanus cinereus, Templetonia hookeri

Species	% Cover	Height	No.
Eucalyptus cf. miniata	20	<10	
Grevillea pyramidalis subsp. pyramidalis	1	2	
Grevillea refracta subsp. refracta	1	2	
Buchanania obovata	2	1	
Tephrosia laxa var. angustata	3	<1	
Scaevola macrostachya	2.5	0.6	
Distichostemon hispidulus var. aridus	8	0.5	
Corchorus fascicularis	0.5	0.2	
Acacia hippuroides	12	0.5	
Cajanus cinereus	5	1	
Cleome viscosa	<1	1	
Templetonia hookeri	2.5	0.5	
Triodia bynoei	<5	0.5	
Acacia wickhamii subsp. wickhamii	1	0.6	
Hibiscus fryxellii var. mollis	1.5	0.6	56.01
Melhaniania oblongifolia	1.5	0.4	
Corchorus pumilio	0.5	0.3	56.02
Grevillea refracta subsp. refracta	0.5	1	

Trachymene didiscoides	15	1.2	
Microstachys chamaelea	4	0.5	
Solanum echinatum	<1	0.2	
Cochlospermum fraseri	<1	2	
Phyllanthus exilis	<1	0.5	
*Passiflora foetida var. hispida	0.5	Cl	
Gonocarpus leptothecus	<1	0.5	
Triumfetta triandra	<1	1.8	
Corymbia confertiflora	1.5	2	
Galactia tenuiflora	2	Cr	
Digitaria brownii	0.5	0.5	
Erythroxylum ellipticum	<1	1	
Cymbopogon procerus	<1	1.2	
Crotalaria alata	<1	0.2	
Hibiscus leptocladus	<1	0.2	
Cynanchum puberulum	<1	0.5	
Buchnera urticifolia	<1	0.5	56.03
Calytrix exstipulata	0.5	2.5	
Hybanthus aurantiacus	<1	0.3	
Panicum seminudum	<1	0.5	



Site	II 57
Date	19/10/2010
Recorder	DB
Photo	DB 62 & 63
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557956
Northing	8222943
Habitat	Rocky face of V-shaped drainage valley
Aspect	West
Soil	Grey sandy loam
Rock Type	Sandstone
% Bare Ground	25
% Logs:Twigs:Leaves	<1:2:15
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia confertiflora</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Eucalyptus tectifica</i> over Low Shrubland of <i>Acacia hippuroides</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Scaevola macrostachya</i> over Open Tussock Grassland of <i>Sorghum plumosum</i> with Open Shrubland of <i>Grevillea agrifolia</i> subsp. <i>agrifolia</i> , <i>Buchanania oblongifolia</i> , <i>Calytrix exstipulata</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	7	<10	
<i>Corymbia confertiflora</i>	2	5	
<i>Buchanania oblongifolia</i>	1	<2	
<i>Buchanania oblongifolia</i>	2	1	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	1	5	
<i>Eucalyptus tectifica</i>	1	6	
<i>Calytrix exstipulata</i>	2	2	
<i>Erythroxylum ellipticum</i>	1	3	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	2	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Scaevola macrostachya</i>	2	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	
<i>Acacia hippuroides</i>	11	0.5	
<i>Templetonia hookeri</i>	<1	1	
<i>Phyllanthus exilis</i>	0.5	0.5	
<i>Terminalia canescens</i>	<1	2	
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Cajanus cinereus</i>	<1	0.5	

<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	57.01
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Sorghum plumosum</i>	20	1.5	
<i>Trachymene didiscoides</i>	1	1	
<i>Triodia bynoei</i>	5	0.5	
<i>Cynanchum puberulum</i>	<1	0.5	
<i>Galactia tenuiflora</i>	0.5	Cr	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	1	
<i>Hibiscus leptocladus</i>	<1	0.5	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Cochlospermum fraseri</i>	<1	-	
<i>Exocarpos latifolius</i>	<1	-	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	0.5	
<i>Triumfetta triandra</i>	<1	1	
<i>Eriachne ciliata</i>	<1	0.2	
<i>Melochia umbellata</i>	<1	2	
<i>Sersalisia sericea</i>	<1	4	
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6	



Site	II 58
Date	19/10/2010
Recorder	DB
Photo	DB 67 & 68
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558001
Northing	8222606
Habitat	Dteep
Aspect	South West
Soil	Brown sandy loam - skeletal
Rock Type	Sandstone - black moss cover
% Bare Ground	25
% Logs:Twigs:Leaves	2:4:20
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Forest of Eucalyptus tectifica, Canarium australianum var. australianum , Corymbia confertiflora

Species	% Cover	Height	No.
Eucalyptus tectifica	50	8	
Canarium australianum var. australianum	8	6	
Grevillea refracta subsp. refracta	1	6	
Melochia umbellata	5	5	
Sersalisia sericea	4	5	
Jasminum didymum subsp. didymum	0.5	2	
Mimusops elengi	1	6	
Trachymene didisoides	3	1.2	
Digitaria brownii	0.5	0.8	
Galactia tenuiflora	<1	Cr	
Ficus platypoda	0.5	4	
*Passiflora foetida var. hispida	0.5	Cl	
Hibiscus leptocladus	0.5	0.5	
Fimbristylis aff simulans	0.5	0.2	
Triodia bynoei	5	0.5	
Acacia wickhamii subsp. wickhamii	4	2	
Scleria brownii	<1	0.3	58.01
Hibbertia sp. A Kimberley Flora (T.E.H. Aplin et al. 898)	<1	1	58.02
Cynanchum puberulum	<1	Cl	
Adenia heterophylla subsp. australis	<1	Cl	
Abrus precatorius	<1		

Gonocarpus leptothecus	1	0.5	
Asparagus racemosus	<1	Cl	
Cassytha filiformis	<1	Cl	
Microstachys chamaelea	0.5	1	
Corymbia confertiflora	5	8	
Acacia plectrocarpa ssp. plectrocarpa	2	8	58.04
Phyllanthus exilis	<1	0.5	
Euphorbia distans	<1	0.5	
Corymbia cadophora subsp. cadophora	1	4	
Hakea arborescens	1	8	
Erythroxylum ellipticum	2	5	
Templetonia hookeri	<1	0.5	
Ficus aculeata var. indecora	0.5	3	
Cajanus cinereus	<1	1	
Brachychiton diversifolius subsp. diversifolius	1	8	
Adenia heterophylla ssp. australis	<1	Cl	58.03
Flueggea virosa subsp. melanthesoides	4	2	
Chrystia australasica	<1	0.2	
Exocarpos latifolius	<1	2.5	
Flagellaria indica	<1	Cl	



Site	II 59
Date	19/10/2010
Recorder	DB
Photo	DB 69
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558943
Northing	8225811
Habitat	Coastal fringing hillslope
Aspect	South
Soil	Brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	0:<1:1.5
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Closed Hummock Grassland of <i>Triodia pungens</i> with High Open Shrubland of <i>Terminalia ferdinandiana</i> , <i>Canarium australianum</i> var. <i>australianum</i> , <i>Brachychiton viscidulus</i> over Open Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Cajanus cinereus</i> , <i>Triumfetta albida</i>

Species	% Cover	Height	No.
<i>Terminalia ferdinandiana</i>	3	3	
<i>Trachymene didiscoides</i>	1.5	2	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	5	2	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.4	
* <i>Passiflora foetida</i> var. <i>hispida</i>	2	Cl	
<i>Canarium australianum</i> var. <i>australianum</i>	3	4	
<i>Scaevola macrostachya</i>	1.5	1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	2	2	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Triumfetta albida</i>	2	0.5	
<i>Triodia bynoei</i>	0.5	1	
<i>Brachychiton viscidulus</i>	1.5	4	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	2	1	
<i>Indigofera colutea</i>	<1	0.3	
<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	<1	0.2	
<i>Eriachne ciliata</i>	<1	0.2	
<i>Cymbopogon procerus</i>	<1	1.2	59.04
<i>Stemodia lythrifolia</i>	<1	0.2	59.01

<i>Buchnera urticifolia</i>	<1	0.5	59.03
<i>Cassytha filiformis</i>	2	Cl	
<i>Cajanus cinereus</i>	4	2	
<i>Triodia pungens</i>	85	0.4	
<i>Cochlospermum fraseri</i>	0.5	2	
<i>Cleome viscosa</i>	<1	1.5	
<i>Polycarpaea involucrata</i>	<1	0.1	
<i>Stylidium semipartitum</i>	<1	0.2	59.02



Site	II 60
Date	19/10/2010
Recorder	JB
Photo	9019
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558298
Northing	8226496
Habitat	Hillslope - (Coastal hillside) - Mid-slope
Aspect	North East
Soil	Red/ brown loam
Rock Type	Ironstone, Sandstone - outcrops, boulders, sleet outcrop
% Bare Ground	35
% Logs:Twigs:Leaves	0:1:1
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Hummock Grassland of <i>Triodia pungens</i> with Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Calytrix exstipulata</i> with Open Shrubland of <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Calytrix exstipulata</i>

Species	% Cover	Height	No.
<i>Terminalia ferdinandiana</i>	<1	3	
<i>Triodia pungens</i>	50	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	11	1	
<i>Scaevola macrostachya</i>	1.5	1	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	1	
<i>Brachychiton viridiflorus</i>	<1	1	
<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	<1	0.2	
<i>Calytrix exstipulata</i>	9	1.5	60.01
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	4	2.5	
<i>Trachymene didiscoides</i>	1	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	0.5	1.5	
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Eriachne ciliata</i>	0.5	0.25	
<i>Buchanania oblongifolia</i>	1.5	2	
<i>Cassytha filiformis</i>	<1	Cl	
<i>HGonocarpus leptothecus</i>	<1	0.5	
<i>Capparis spinosa</i> var. <i>nummularia</i>	<1	1	60.02
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Cleome viscosa</i>	<1	1	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Ipomoea macrantha</i>	<1	Cr	60.03



Site	II 61
Date	19/10/2010
Recorder	DB
Photo	DB 70 & 71
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558829
Northing	8225982
Habitat	Hillcrest and Hillslope of South East Peninsula
Aspect	North East
Soil	Grey/ brown sandy loam
Rock Type	Sandstone - iron infused
% Bare Ground	5
% Logs:Twigs:Leaves	1:2:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Closed Hummock Grassland of <i>Triodia pungens</i> , <i>Triodia bynoei</i> with Shrubland of <i>Terminalia canescens</i> , <i>Buchanania obovata</i> , <i>Verticordia verticillata</i> over Low Open Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> with Scattered Low Trees of <i>Corymbia confertiflora</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	2	6	
<i>Terminalia canescens</i>	4	2	
<i>Buchanania obovata</i>	3	3	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	10	1	
<i>Verticordia verticillata</i>	5	4	
<i>Cochlospermum fraseri</i>	1.5	4	
<i>Cassytha filiformis</i>	1.5	Cl	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Triodia bynoei</i>	5	1.2	
<i>Triodia pungens</i>	70	1.2	
<i>Exocarpos latifolius</i>	<1	3	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2	
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Scaevola macrostachya</i>	<1	0.5	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1	2	
<i>Terminalia ferdinandiana</i>	1	2	
<i>Brachychiton viridiflorus</i>	<1	2	
<i>Cymbopogon procerus</i>	<1	1.3	
<i>Cajanus cinereus</i>	<1	2	



Site

II 62

Date 20/10/2010
Recorder DB
Photo DB 76 & 77
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 556631
Northing 8222826
Habitat Hillslope
Aspect South West
Soil Brown sandy loam
Rock Type Sandstone
% Bare Ground 10
% Logs:Twigs:Leaves 1:5:60
Vegetation Condition Excellent
Disturbance Type *Passiflora foetida var. hispida, Fire
Fire Age Young
Vegetation Low Open Heath of Acacia hippuroides, Distichostemon hispidulus var. aridus, Scaevola macrostachya with Woodland of Eucalyptus cf. miniata over Low Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora, Hakea arborescens over Open Tussock Grassland of Sorghum plumosum over Open Herbs of Trachymene didiscoides

Species	% Cover	Height	No.
Eucalyptus cf. miniata	25	12	
Corymbia cadophora subsp. cadophora	4	6	
Hakea arborescens	2	6	
Calytrix exstipulata	0.5	3	
Grevillea pyramidalis subsp. pyramidalis	<1	3	
Corymbia confertiflora	1.5	7	
*Passiflora foetida var. hispida	1.5	Cl	
Cochlospermum fraseri	1	2	
Buchanania obovata	<1	2	
Scaevola macrostachya	5	1	
Templetonia hookeri	1.5	1	
Acacia hippuroides	25	0.6	
Distichostemon hispidulus var. aridus	5	0.5	
Cleome viscosa	1.5	1	
Trachymene didiscoides	30	1.5	
Acacia wickhamii subsp. wickhamii	4	0.5	
Sorghum plumosum	15	1.5	
Phyllanthus exilis	0.5	0.5	
Santalum lanceolatum	1	2	
Flueggea virosa subsp. melanthesoides	1	2	
Cassytha filiformis	0.5	Cl	

<i>Tinospora smilacina</i>	<1	Cl
<i>Xenostegia tridentata</i>	<1	Cl
<i>Canarium australianum</i> var. <i>australianum</i>	1.5	4
<i>Brachychiton viscidulus</i>	1	4
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1.5	6
<i>Exocarpos latifolius</i>	<1	1
<i>Triumfetta albida</i>	<1	0.5
<i>Gonocarpus leptothecus</i>	4	0.3
<i>Melhania oblongifolia</i> <i>Triodia bynoei</i>	<1	0.5
<i>Triodia bynoei</i>	5	0.5
<i>Phyllanthus maderaspatensis</i>	<1	0.5
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	0.5	1
<i>Erythroxylan</i>	<1	3
<i>Microstachys chamaelea</i>	<1	0.5
<i>Hybanthus aurantiacus</i>	<1	0.2
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	1
<i>Sersalisia sericea</i>	<1	1



Site	II 63
Date	20/10/2010
Recorder	DB
Photo	DB 78
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556950
Northing	8222900
Habitat	Hillslope
Aspect	South West
Soil	Grey/ light brown loamy sand
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	<1:10:35
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Heath of <i>Acacia hippuroides</i> , <i>Scaevola macrostachya</i> , <i>Templetonia hookeri</i> with Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> over Open Herbs of <i>Trachymene didiscoides</i> with Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Very Open Tussock Grassland of <i>Sorghum</i> sp. <i>indet.</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	6	>10	
<i>Eucalyptus</i> cf. <i>miniata</i>	15	5	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	4	5	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	0.5	2	
<i>Templetonia hookeri</i>	6	1	
<i>Scaevola macrostachya</i>	10	1	
<i>Sorghum</i> sp. <i>indet.</i>	6	1.3	
<i>Tephrosia leptoclada</i>	4	0.3	63.03
<i>Trachymene didiscoides</i>	20	1.5	
<i>Gonocarpus leptothecus</i>	6	0.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	2	
<i>Buchanania obovata</i>	1	2	
<i>Cochlospermum fraseri</i>	0.5	2	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	<1	2	
<i>Phyllanthus exilis</i>	1	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	1	
<i>Fimbristylis</i> aff <i>simulans</i>	1	0.2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	4	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.5	
<i>Hakea arborescens</i>	<1	2	

<i>Santalum lanceolatum</i>	<1	2	
<i>Acacia hippuroides</i>	7	0.8	
<i>Corymbia confertiflora</i>	1	2	
<i>Calytrix exstipulata</i>	<1	0.5	
<i>Chrysopogon latifolius</i>	0.5	0.5	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Acacia oligoneura</i>	0.5	2	
<i>Gompholobium subulatum</i>	<1	0.2	
<i>Acacia multisiliqua</i>	<1	1.5	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.2	
<i>Cajanus cinereus</i>	<1	0.5	
<i>Eucalyptus tectifica</i>	<1	2	
<i>Terminalia canescens</i>	<1	2	
<i>Crotalaria medicaginea</i>	<1	0.6	
<i>Erythroxylum ellipticum</i>	<1	2	
<i>Eriachne obtusa</i>	<1	0.2	63.01
<i>Eriachne avenacea</i>	0.5	0.6	63.02
<i>Hybanthus aurantiacus</i>	<1	0.5	
<i>Triumfetta albida</i>	<1	0.5	
<i>Scleria brownii</i>	<1	0.3	



Site	II 64
Date	20/10/2010
Recorder	DB
Photo	DB 79
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557448
Northing	8223039
Habitat	Upper rocky hillslope - Source of rocky pavement drainage line below
Aspect	North West
Soil	Fine grey loamy sand
Rock Type	Sandstone - outcropping
% Bare Ground	25
% Logs:Twigs:Leaves	<1:4:25
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Acacia hippuroides, Gonocarpus leptothecus, Scaevola macrostachya, Distichostemon hispidulus var. aridus with Low Open Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora over Open Shrubland of Grevillea agrifolia subsp. agrifolia with Scattered Trees of Eucalyptus cf. miniata

Species	% Cover	Height	No.
Eucalyptus cf. miniata	<2	>10	
Eucalyptus cf. miniata	7	6	
Corymbia cadophora subsp. cadophora	4	<5	
Calytrix exstipulata	0.5	<1	
Buchanania obovata	2	1	
Distichostemon hispidulus var. aridus	4	1	
Corymbia confertiflora	1.5	5	
Triodia bynoei	4	1	
Phyllanthus exilis	1	0.6	
Cassytha filiformis	<1	Cl	
Scaevola macrostachya	4	1	
Grevillea agrifolia subsp. agrifolia	6	1.5	
Triumfetta albida	2	0.4	
Trachymene didiscoides	2	1.5	
Gompholobium subulatum	0.5	0.3	
Cleome viscosa	<1	1	
Templetonia hookeri	<1	1	
Acacia hippuroides	15	0.5	

<i>Xenostegia tridentata</i>	<1	1
<i>Gonocarpus leptothecus</i>	8	0.6
<i>Sauropus trachyspermus</i>	<1	0.3
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.4
<i>Heliotropium glabellum</i>	<1	0.6
<i>Hakea arborescens</i>	<1	1
<i>Terminalia ferdinandiana</i>	<1	2
<i>Eriachne ciliata</i>	<1	0.3
<i>Triodia pungens</i>	1.5	0.8
<i>Corchorus pumilio</i>	0.5	0.2
<i>Bulbostylis barbata</i>	<1	0.2
<i>Terminalia canescens</i>	<1	1
<i>Solanum echinatum</i>	<1	0.5
<i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>	<1	0.6



Site	II 65
Date	20/10/2010
Recorder	DB
Photo	DB 80 & 81
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557269
Northing	8222735
Habitat	U-shaped ephemeral drainage line
Aspect	South East
Soil	Brown loam - large boulders
Rock Type	Sandstone - black mossy cover
% Bare Ground	5-10
% Logs:Twigs:Leaves	1:10:80
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Open Forest of Eucalyptus cf. miniata over Low Woodland of Canarium australianum var. australianum, Corymbia confertiflora, Brachychiton diversifolius subsp. diversifolius

Species	% Cover	Height	No.
Eucalyptus cf. miniata	55	15	
Brachychiton diversifolius subsp. diversifolius	6	8	
Corymbia confertiflora	7	8	
Canarium australianum var. australianum	12	10	
Chrystia australasica	2	0.2	
*Passiflora foetida var. hispida	1.5	Cl	
Phyllanthus maderaspatensis	<1	0.5	
Ficus aculeata var. indecora	<1	1	
Jasminum didymum subsp. didymum	<1	2	
Scleria brownii	1	0.3	
Asparagus racemosus	<1	Cl	
Microstachys chamaelea	1	1	
Flueggea virosa subsp. melanthesoides	1	1.3	
Cynanchum puberulum	<1	Cl	
Trichodesma zeylanicum var. latisepalum	0.5	2	65.08
Trachymene didiscoides	1	1.5	
Acacia hippuroides	1	0.5	
Phyllanthus exilis	<1	0.5	
Melhania oblongifolia	0.5	0.5	
Scaevola macrostachya	<1	0.5	
Distichostemon hispidulus var. aridus	<1	0.5	

<i>Acacia neurocarpa</i>	<1	0.5	
<i>Sorghum</i> sp. indet.	1.5	1.2	
<i>Chrysopogon latifolius</i>	<1	0.5	
<i>Hibiscus leptocladus</i>	1	0.3	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6	
<i>Panicum seminudum</i>	0.5	0.5	65.01
<i>Flagellaria indica</i>	0.5	2	
<i>Sersalisia sericea</i>	<1	3	
<i>Cenchrus elymoides</i> var. <i>elymoides</i>	0.5	1.5	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	65.07
<i>Flemingia parviflora</i>	<1	Cl	65.03
<i>Cassytha filiformis</i>	0.3	Cl	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.4	
<i>Gonocarpus leptothecus</i>	<1	0.7	
<i>Abrus precatorius</i>	<1	Cl	
<i>Melochia umbellata</i>	1	2	
<i>Cymbopogon procerus</i>	<1	1.5	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	0.5	3	
<i>Triodia bynoei</i>	3	0.5	
<i>Calytrix exstipulata</i>	0.5	5	
<i>Hakea arborescens</i>	<1	1	
<i>Chamaecrista mimosoides</i>	<1	1	65.04
<i>Triumfetta triandra</i>	<1	0.5	65.05
<i>Diospyros maritima</i>	<1	5	65.02
<i>Tephrosia subpectinata</i>	<1	0.5	65.06
<i>Galactia tenuiflora</i>	<1	Cl	65.09



Site	II 66
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Date	20/10/2010
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Recorder	DB
Photo	DB 82
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556865
Northing	8222511
Habitat	Hillslope (into swales) - (from rocky ridge)
Aspect	North
Soil	Light brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	1:5:85
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Heath of <i>Acacia hippuroides</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> with Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Low Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> , <i>Corymbia cadophora</i> subsp. <i>cadophora</i> , <i>Eucalyptus tectifica</i> over Very Open Tussock Grassland of <i>Sorghum</i> sp. indet., <i>Sorghum plumosum</i>

Species	% Cover	Height	No.
<i>Eucalyptus</i> cf. <i>miniata</i>	25	15	
<i>Eucalyptus</i> cf. <i>miniata</i>	<10	10	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	5	6	
<i>Eucalyptus tectifica</i>	1.5	8	
<i>Gonocarpus leptothecus</i>	1	0.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Cochlospermum fraseri</i>	1	2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	7	0.5	
<i>Acacia hippuroides</i>	50	0.5	
<i>Chrysopogon latifolius</i>	1	0.5	
<i>Tephrosia gracile</i>	<1	0.5	
<i>Xanostegia</i>	1	Cl	
<i>Templetonia hookeri</i>	<1	0.5	
<i>Corymbia confertiflora</i>	1	-	
<i>Sorghum plumosum</i>	3	1	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Scaevola macrostachya</i>	2	0.5	
		1.5	
<i>Trachymene didiscoides</i>	0.5		
<i>Hakea arborescens</i>	1	2	
<i>Sorghum</i> sp. indet.	5	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	

<i>Phyllanthus maderaspatensis</i>	<1	0.5
<i>Corchorus pumilio</i>	<1	0.2
<i>Triodia bynoei</i>	3	0.5
<i>Terminalia canescens</i>	<1	2
<i>Triumfetta albida</i>	<1	0.8
<i>Cassytha filiformis</i>	<1	Cl
<i>Canarium australianum</i> var. <i>australianum</i>	1	4
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1	1
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	2
<i>Melhania oblongifolia</i>	<1	0.5
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1.5	8
<i>Erythroxylum ellipticum</i>	<1	3
<i>Scleria brownii</i>	<1	0.5
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	2
<i>Acacia oligoneura</i>	<1	1.2
<i>Eriachne obtusa</i>	<1	0.4



Site	II 67
Date	20/10/2010
Recorder	DB
Photo	DB 84
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556215
Northing	8222315
Habitat	Hillslope
Aspect	West
Soil	Grey/ brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	0:4:10
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Closed Heath of <i>Scaevola macrostachya</i> , <i>Acacia hippuroides</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> with Open Herbs of <i>Cleome viscosa</i> , <i>Trachymene didiscoides</i> with Open Shrubland of <i>Calytrix exstipulata</i>

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	0.5	4	
<i>Brachychiton viscidulus</i>	<1	1.5	
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Scaevola macrostachya</i>	55	0.5	
<i>Cleome viscosa</i>	8	1.5	
<i>Terminalia canescens</i>	<1	2	
<i>Triodia bynoei</i>	5	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	3	0.5	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	8	1	
<i>Gonocarpus leptothecus</i>	4	0.5	
<i>Calytrix exstipulata</i>	5	2	
<i>Trachymene didiscoides</i>	3	1.5	
<i>Acacia hippuroides</i>	10	0.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Bulbostylis barbata</i>	2	0.2	
<i>Solanum echinatum</i>	<1	0.3	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	0.5	2	
<i>Cymbopogon procerus</i>	0.5	1	
<i>Eriachne ciliata</i>	<1	-	
<i>Phyllanthus exilis</i>	0.5	0.5	

<i>Microstachys chamaelea</i>	<1	0.5
<i>Cassytha filiformis</i>	<1	Cl



Site	II 68
Date	20/10/2010
Recorder	DB
Photo	DB 85 & 86
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556275
Northing	8221978
Habitat	Upper slope
Aspect	South East
Soil	Grey/ brown sandy loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	2:12:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Woodland of Eucalyptus cf. miniata over Low Shrubland of Distichostemon hispidulus var. aridus, Scaevola macrostachya over Open Tussock Grassland of Sorghum plumosum with Low Open Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora

Species	% Cover	Height	No.
Eucalyptus cf. miniata	15	12	
Eucalyptus cf. miniata	5	4	
Corymbia cadophora subsp. cadophora	1	4	
Calytrix exstipulata	2	3	
Buchanania obovata	0.5	1	
Scaevola macrostachya	7	0.5	
Ficus aculeata var. indecora	<1	1	
Trachymene didiscoides	10	1.5	
Cleome viscosa	6	1.5	
Fimbristylis aff simulans	1	0.2	
Distichostemon hispidulus var. aridus	10	0.5	
Templetonia hookeri	0.5	0.5	
Gonocarpus leptothecus	2	0.5	
Microstachys chamaelea	1	0.5	
Sorghum plumosum	25	2	
Phyllanthus exilis	<1	0.5	
Acacia wickhamii subsp. wickhamii	<1	0.5	
Cajanus cinereus	<1	0.5	
Cochlospermum fraseri	1	2	
Galactia tenuiflora	1	Cl	

<i>Cynanchum puberulum</i>	0.5	Cl	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	2	
<i>Canarium australianum</i> var. <i>australianum</i>	<1	1	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	1	
<i>Brachychiton viridiflorus</i>	<1	2	
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	2	
<i>Cymbopogon procerus</i>	0.5	1	
<i>Erythroxylum ellipticum</i>	<1	3	
<i>Sauropus trachyspermus</i>	<1	0.7	
<i>Triodia bynoei</i>	1.5	0.5	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	<1	1.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Terminalia canescens</i>	1	2	
<i>Heliotropium glabellum</i>	<1	0.4	
<i>Corymbia confertiflora</i>	<1	2	
<i>Hybanthus aurantiacus</i>	<1	0.5	
<i>Solanum echinatum</i>	<1	0.2	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	68.01
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	68.02
<i>Templetonia hookeri</i>	<1	0.5	68.03



Site	II 69
Date	20/10/2010
Recorder	DB
Photo	DB 88
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556350
Northing	8221701
Habitat	Hillslope (coastal)
Aspect	South West
Soil	Brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	<1:5:20
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Scaevola macrostachya, Distichostemon hispidulus var. aridus, Acacia wickhamii subsp. wickhamii, Grevillea wickhamii subsp. wickhamii over Herbs of Cleome viscosa, Trachymene didiscoides with Low Open Woodland of Corymbia cadophora subsp. cadophora over Open Shrubland of Buchanania oblongifolia, Grevillea refracta subsp. refracta, Cajanus cinereus

Species	% Cover	Height	No.
Corymbia cadophora subsp. cadophora	3	5	
*Passiflora foetida var. hispida	2	Cl	
Grevillea refracta subsp. refracta	3	2	
Templetonia hookeri	0.5	0.5	
Triumfetta albida	4	0.5	
Panicum seminudum	1	0.6	
Hybanthus aurantiacus	<1	0.3	
Acacia wickhamii subsp. wickhamii	4	0.5	
Cleome viscosa	30	1.5	
Buchanania oblongifolia	3	2	
Flueggea virosa subsp. melanthesoides	0.5	2	
Distichostemon hispidulus var. aridus	10	0.5	
Cassytha filiformis	<1	Cl	
Scaevola macrostachya	25	0.5	
Trachymene didiscoides	4	1.5	
Cajanus cinereus	3	1.5	
Cynanchum puberulum	<1	0.2	

<i>Acacia hippuroides</i>	2	0.5
<i>Eriachne obtusa</i>	<1	0.5
<i>Digitaria brownii</i>	<1	0.5
<i>Jacquemontia</i>	<1	Cr
<i>Bulbostylis barbata</i>	<1	0.2
<i>Phyllanthus exilis</i>	<1	0.5
<i>Calytrix exstipulata</i>	<1	0.5
<i>Gonocarpus leptothecus</i>	4	0.5
<i>Hakea arborescens</i>	0.5	2
<i>Asparagus racemosus</i>	<1	2
<i>Phyllanthus maderaspatensis</i>	<1	0.5
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	8	1
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	2
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6
<i>Brachychiton viscidulus</i>	1	3
<i>Corchorus fascicularis</i>	1	0.2
<i>Corchorus pumilio</i>	1	0.3
<i>Solanum echinatum</i>	<1	0.2
<i>Eucalyptus</i> cf. <i>miniata</i>	<1	2
<i>Terminalia ferdinandiana</i>	<1	2
<i>Triodia bynoei</i>	2	0.5



Site	II 70
Date	20/10/2010
Recorder	JB
Photo	9022 & 9023
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556329
Northing	8221540
Habitat	Swale b/w coastal hills - Seepage soak valley
Aspect	South & South East
Soil	Red/ brown loam
Rock Type	Ironstone, Sandstone
% Bare Ground	2
% Logs:Twigs:Leaves	2.5:4:80
Vegetation Condition	Excellent
Disturbance Type	Patchy fire
Fire Age	Young
Vegetation	Low Open Forest of <i>Canarium australianum</i> var. <i>australianum</i> , <i>Sersalisia sericea</i> , <i>Pandanus spiralis</i> , <i>Corymbia confertiflora</i> over Climbers of <i>Flagellaria indica</i> , <i>Asparagus racemosus</i> over Open Shrubland of <i>Pandanus spiralis</i> regrowth over Very Open Tussock Grassland of <i>Cenchrus elymoides</i> var. <i>elymoides</i> , <i>Sorghum plumosum</i>

Species	% Cover	Height	No.
<i>Pandanus spiralis</i>	20	6.5	
<i>Cajanus cinereus</i>	<1	1.5	
<i>Ficus aculeata</i> var. <i>indecora</i>	3.5	4	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1	2	
<i>Trachymene didiscoides</i>	1	2	
<i>Hakea arborescens</i>	2.5	4	
<i>Tephrosia laxa</i> var. <i>angustata</i> pink	1.5	0.5	
<i>Terminalia ferdinandiana</i>	<1	2	
<i>Corymbia confertiflora</i>	25	11	
<i>Triodia bynoei</i>	0.5	1	
<i>Canarium australianum</i> var. <i>australianum</i>	22	8	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	0.5	1	
<i>Microstachys chamaelea</i>	1.5	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5	
<i>Phyllanthus exilis</i>	<1	0.5	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6	
<i>Gonocarpus leptothecus</i>	<1	0.5	
<i>Sorghum plumosum</i>	3	2	
<i>Galactia tenuiflora</i>	<1	Cr	70.01

<i>Asparagus racemosus</i>	3.5	Cl	70.02
<i>Chrystia australasica</i>	1	0.3	
<i>Sersalisia sericea</i>	8	6	
<i>Flagellaria indica</i>	5	Cl	
<i>Scleria brownii</i>	0.5	0.35	
<i>Galactia tenuiflora</i>	<1	Cr	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	5	8	
<i>Cenchrus elymoides</i> var <i>elymoides</i>	3	2	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Exocarpos latifolius</i>	1.5	4	
<i>Grewia retusifolia</i>	<1	2	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Mimusops elengi</i>	1.5	7	



Site	II 71
Date	21/10/2010
Recorder	JB
Photo	9034
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	556535
Northing	8222241
Habitat	South facing hillside leading into minor drainage line and including drainage levee
Aspect	South
Soil	Light brown sandy loam
Rock Type	Sandstone - outcrops, boulders and scree
% Bare Ground	10
% Logs:Twigs:Leaves	2:5:65
Vegetation Condition	Excellent
Disturbance Type	None evident
Fire Age	Old
Vegetation	Low Open Forest of <i>Canarium australianum</i> var. <i>australianum</i> , <i>Sersalisia sericea</i> , <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i> , <i>Hakea arborescens</i> with Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over Very Open Tussock Grassland of <i>Sorghum plumosum</i> , * <i>Melinis repens</i> , <i>Cenchrus elymoides</i> var. <i>elymoides</i>

Species	% Cover	Height	No.
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1.5	0.5	
<i>Templetonia hookeri</i>	1	1	
<i>Eucalyptus</i> cf. <i>miniata</i>	20	13	
<i>Callicarpa candicans</i>	1	0.35	
<i>Brachychiton viridiflorus</i>	<1	1.8	
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Crotalaria medicaginea</i> 'tall dead'	<1	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	2	0.5	
<i>Canarium australianum</i> var. <i>australianum</i>	22	10	
<i>Xenostegia tridentata</i>	<1	Cl	
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Chrysopogon latifolius</i>	0.5	0.5	
<i>Terminalia canescens</i>	1	2.5	
<i>Asparagus racemosus</i>	<1	Cl	
<i>Calytrix exstipulata</i>	<1	2	
<i>Cleome viscosa</i>	<1	1	
<i>Acacia hippuroides</i>	<1	0.5	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	1.5	10	

Cassytha filiformis	<1	Cl	
Hibiscus fryxellii var. mollis	1	1	
Flagellaria indica	1	Cl	
Sersalisia sericea	5.5	7	
Microstachys chamaelea	<1	1	
*Melinis repens	2	1	71.02
Brachychiton diversifolius subsp. diversifolius	3.5	6	
Hakea arborescens	4.5	6	
Flueggea virosa subsp. melanthesoides	0.5	2.5	
Grevillea refracta subsp. refracta	2	6	
Sorghum plumosum	4.5	2	
Dicliptera armata	0.5	0.4	
Triodia bynoei	2	1	
Sauropus trachyspermus	<1	0.7	71.03
Trachymene didiscoides	4	2	
Cynanchum puberulum	1	Cl	
Adenia heterophylla subsp. australis	<1	Cl	
Chrystia australasica	0.5	0.25	
Cymbopogon procerus	<1	1	
Heliotropium glabellum	<1	0.4	
Solanum echinatum	<1	0.3	
Melhania oblongifolia	3	0.4	
Phyllanthus exilis	0.5	0.5	
Evolvulus alsinoides var. decumbens	<1	0.2	
Exocarpos latifolius	<1	2	
Scleria brownii	0.5	0.35	
Cenchrus elymoides var. elymoides	1.5	1	
Ficus aculeata var. indecora	<1	3	
Erythroxylum ellipticum	1	4	
Terminalia ferdinandiana	1	5	
Digitaria brownii	<1	1	
Acacia multisiliqua	<1	0.6	
Tephrosia subpectinata	<1	0.3	
Brachychiton viscidulus	<1	2.5	
Pentalepis ecliptoides	1	0.4	71.01
Marsdenia viridiflora ssp. tropica	<1	Cl	71.04
Jasminum didymum subsp. didymum	<1	0.5	



Site	II 72
Date	21/10/2010
Recorder	DB
Photo	DB 97 & 98
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557000
Northing	8222100
Habitat	Broad slightly incised drainage zone
Aspect	South
Soil	Brown loamy sand
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	1:10:30
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Distichostemon hispidulus var. aridus, Gonocarpus leptothecus, Scaevola macrostachya, Acacia hippuroides with Low Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora over Open Hummock Grassland of Triodia bynoei

Species	% Cover	Height	No.
Eucalyptus cf. miniata	7	15	
Corymbia cadophora subsp. cadophora	7	8	
Buchanania oblongifolia	3.5	<1.5	
Grevillea agrifolia subsp. agrifoliai	4	2	
Scaevola macrostachya	6	0.5	
Distichostemon hispidulus var. aridus	10	0.5	
Tephrosia laxa var. angustata	3	0.5	
Tephrosia subpectinata	<1	0.5	
Triodia bynoei	12	<1	
Trachymene didiscoides	8	1.5	
Cleome viscosa	2	1.5	
Templetonia hookeri	<1	0.6	
Gonocarpus leptothecus	9	0.5	
Phyllanthus exilis	0.5	0.6	
Eucalyptus cf. miniata	5	4	
Evolvulus alsinoides var. decumbens	<1	0.2	
Jacquemontia paniculata	<1	Cl	
Corchorus pumilio	<1	0.2	
Sorghum plumosum	2	1.2	
Heliotropium glabellum	4	0.6	
Acacia hippuroides	6	0.5	

<i>Chrysopogon latifolius</i>	<1	0.4
<i>Terminalia canescens</i>	0.5	2
<i>Triumfetta albida</i>	1.5	0.3
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	<1	0.5
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2
<i>Xenostegia tridentata</i>	<1	Cl
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2
<i>Sorghum</i> sp. indet.	1	2
<i>Acacia multisiliqua</i>	<1	0.5
<i>Triumfetta triandra</i>	<1	0.8
<i>Cenchrus elymoides</i> var. <i>elymoides</i>	<1	1.5
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1



Site	II 73
Date	21/10/2010
Recorder	DB
Photo	DB 99 & 100
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557354
Northing	8222207
Habitat	Rocky hillslope into drainage gully
Aspect	West
Soil	Brown sandy loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	1:10:15
Vegetation Condition	Excellent
Disturbance Type	Fire (mosaic burnt)
Fire Age	Young
Vegetation	Open Scrub of <i>Calytrix exstipulata</i> , <i>Melochia umbellata</i> , <i>Buchanania oblongifolia</i> , <i>Canarium australianum</i> var. <i>australianum</i> over Low Shrubland of <i>Triumfetta albida</i> , <i>Tephrosia laxa</i> var. <i>angustata</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> over Very Open Hummock Grassland of <i>Triodia bynoei</i>

Species	% Cover	Height	No.
<i>Calytrix exstipulata</i>	25	4	
<i>Canarium australianum</i> var. <i>australianum</i>	2	5	
<i>Melochia umbellata</i>	5	3	
<i>Eucalyptus</i> cf. <i>miniata</i>	1	<10	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1	7	
<i>Templetonia hookeri</i>	<1	3	
<i>Sersalisia sericea</i>	1	4	
<i>Terminalia canescens</i>	1.5	4	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1.5	3	
<i>Triodia bynoei</i>	6	0.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	1.5	1.5	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	5	0.5	
<i>Phyllanthus maderaspatensis</i>	<1	0.5	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6	
<i>Xenostegia tridentata</i>	<1	Cl	
<i>Senna goniodes</i>	<1	0.5	
<i>Scaevola macrostachya</i>	0.5	1	
<i>Hibiscus leptocladus</i>	<1	0.3	
<i>Corchorus pumilio</i>	<1	0.4	
<i>Scleria brownii</i>	<1	0.4	

<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	0.5	0.8	
<i>Phyllanthus exilis</i>	0.5	0.6	73.05
<i>Tephrosia subpectinata</i>	6	0.5	
<i>Sorghum plumosum</i>	7	2	
<i>Cassytha filiformis</i>	1.5	Cl	
<i>Dicliptera armata</i>	<1	0.5	
<i>Trachymene didiscoides</i>	<1	1.5	
<i>Euphorbia distans</i>	<1	0.5	73.03
<i>Erythroxylum ellipticum</i>	2	6	
<i>Triumfetta albida</i>	9	0.5	
<i>Eriachne ciliata</i>	0.5	0.5	
<i>Gonocarpus leptothecus</i>	1	0.5	
<i>Heliotropium glabellum</i>	<1	0.5	
<i>Sauropus trachyspermus</i>	<1	0.6	
<i>Terminalia ferdinandiana</i>	1	5	
<i>Buchanania oblongifolia</i>	3	3	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	2	8	
<i>Flagellaria indica</i>	<1	2	
<i>Solanum echinatum</i>	<1	0.2	
<i>Triumfetta triandra</i>	<1	1	
<i>Hybanthus aurantiacus</i>	<1	0.5	
<i>Grewia retusifolia</i>	<1	1	73.06
<i>Corymbia confertiflora</i>	<1	4	
<i>Santalum lanceolatum</i>	<1	2.5	
<i>Stemodia lythrifolia</i>	<1	0.3	73.04
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	0.5	73.01
<i>Jacquemontia paniculata</i>	<1	Cl	73.02



Site

II 74

Date 21/10/2010
Recorder DB
Photo DB 101, 102 & 104
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 557768
Northing 8222383
Habitat Lower hillslope - into large drainage gully system
Aspect South
Soil Light brown loam
Rock Type Sandstone - black moss cover
% Bare Ground 5
% Logs:Twigs:Leaves 5:10:90
Vegetation Condition Excellent
Disturbance Type *Passiflora foetida, Old BP dozer track nearby
Fire Age Very old
Vegetation Open Forest of *Corymbia polycarpa*, *Eucalyptus* cf. *miniata*, *Corymbia confertiflora* over Low Open Forest of *Canarium australianum* var. *australianum*, *Flueggea virosa* subsp. *melanthesoides*, *Melochia umbellata*

Species	% Cover	Height	No.
<i>Dendrobium affine</i>	<1	Cl	74.01
<i>Corymbia polycarpa</i>	10	15	
<i>Corymbia confertiflora</i>	30	15	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	4	10	
<i>Mimusops elengi</i>	2	6	
<i>Canarium australianum</i> var. <i>australianum</i>	10	6	
* <i>Melinis repens</i>	0.5	0.8	
<i>Chamaecrista mimosoides</i>	3	0.2	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	10	4	
<i>Melhania oblongifolia</i>	<1	0.5	
<i>Asparagus racemosus</i>	<1	Cl	
<i>Adenia heterophylla</i> ssp. <i>australis</i>	2	Cl	
<i>Euphorbia distans</i>	<1	0.2	74.04
<i>Scleria brownii</i>	1	0.3	
<i>Cassytha filiformis</i>	2	Cl	
<i>Melochia umbellata</i>	7	7	74.03
<i>Chrysopogon latifolius</i>	1	1	
<i>Grewia retusifolia</i>	<1	0.5	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	<1	Cl	
<i>Eucalyptus</i> cf. <i>miniata</i>	10	1.5	
<i>Exocarpos latifolius</i>	2	8	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	1	
<i>Flagellaria indica</i>	1.5	Cl	
<i>Sersalisia sericea</i>	2	4	

* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Trachymene didiscoides</i>	<1	1.5	
<i>Flemingia parviflora</i>	<1	0.5	74.02



Site	II 75
Date	22-10-2010
Recorder	DB
Photo	DB 105
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557018
Northing	8223924
Habitat	Plateau - hillcrest
Aspect	West
Soil	Brown loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	1:10:25
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Closed Heath of Acacia hippuroides, Gonocarpus leptothecus, Microstachys chamaelea with Low Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora with Open Woodland of Eucalyptus cf. miniata over Very Open Tussock Grassland of Sorghum plumosum

Species	% Cover	Height	No.
Eucalyptus cf. miniata	3	12	
Eucalyptus cf. miniata	12	<10	
Acacia hippuroides	65	0.5	
Cleome viscosa	0.5	1.5	
Microstachys chamaelea	4	0.5	
Hybanthus aurantiacus	<1	0.5	
Distichostemon hispidulus var. aridus	1	0.5	
Trachymene didiscoides	6	1.5	
Acacia wickhamii subsp. wickhamii	2	0.5	
Grevillea pyramidalis subsp. pyramidalis	1.5	3	
Gonocarpus leptothecus	6	0.5	
Corymbia confertiflora	0.5	3	
Grevillea refracta subsp. refracta	0.5	3	
Brachychiton diversifolius subsp. diversifolius	<1	2	
Cochlospermum fraseri	1	3	
Hakea arborescens	<1	2	
Flueggea virosa subsp. melanthesoides	1	2	
Sorghum plumosum	4	1.5	
Scleria brownii	<1	0.3	

<i>Terminalia canescens</i>	1.5	2
<i>Exocarpos latifolius</i>	<1	1
<i>Hibbertia</i> sp. A Kimberley Flora (T.E.H. Aplin et al. 898)	<1	Cl
<i>Cassytha filiformis</i>	1	Cl
<i>Xenostegia tridentata</i>	0.5	Cl
<i>Corchorus pumilio</i>	<1	0.5
<i>Indigofera haplophylla</i>	1	0.4
<i>Phyllanthus exilis</i>	0.5	0.6
<i>Templetonia hookeri</i>	1.5	1.5
<i>Santalum lanceolatum</i>	<1	1
<i>Cymbopogon procerus</i>	1	1.5
<i>Chrysopogon latifolius</i>	0.5	0.4
<i>Triodia bynoei</i>	2	0.2
<i>Triumfetta triandra</i>	1	1
<i>Canarium australicum</i> var. <i>australicum</i>	0.5	2.5
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	Cl
<i>Brachychiton viridiflorus</i>	<1	1
<i>Hibiscus leptocladus</i>	<1	0.5
<i>Eucalyptus tectifica</i>	0.5	6
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	2	4
<i>Cajanus cinereus</i>	<1	0.8
<i>Scaevola macrostachya</i>	0.5	0.5



Site	II 76
Date	21/10/2010
Recorder	DB
Photo	DB 106
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557317
Northing	8223800
Habitat	Hillcrest
Aspect	West
Soil	Fine grey sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	2:10:55
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Closed Heath of Acacia hippuroides, Acacia wickhamii subsp. wickhamii, Gonocarpus leptothecus, Scaevola macrostachya with Low Woodland of Eucalyptus cf. miniata, Corymbia cadophora subsp. cadophora over Open Tussock Grassland of Sorghum plumosum over Open Herbs over Trachymene didiscoides

Species	% Cover	Height	No.
Eucalyptus cf. miniata	2	15	
Eucalyptus cf. miniata	20	10	
Acacia hippuroides	45	<1	
Corymbia cadophora subsp. cadophora	7	7	
Acacia wickhamii subsp. wickhamii	4	<1	
Trachymene didiscoides	15	1.5	
Brachychiton diversifolius subsp. diversifolius	0.5	4	
Distichostemon hispidulus var. aridus	4	1	
Scaevola macrostachya	6	1	
Terminalia canescens	1.5	2	
Eucalyptus tectifica	0.5	3	
Acacia multisiliqua	<1	2	
Chamaecrista mimosoides	<1	0.5	
Calytrix exstipulata	<1	1	
Fimbristylis aff simulans	<1	0.2	
Sorghum plumosum	25	2	
Chrysopogon latifolius	<1	0.5	
Triodia bynoei	3	1	
Hybanthus aurantiacus	<1	0.4	

Gonocarpus leptothecus	7	0.5	
Phyllanthus exilis	<1	0.7	
Cassytha filiformis	<1	Cl	
Flueggea virosa subsp. melanthesoides	<1	1	
Canarium australianum var. australianum	0.5	2	
Marsdenia viridiflora ssp. tropica	<1	Cl	76.02
Solanum echinatum	<1	0.2	
Grevillea pyramidalis subsp. pyramidalis	<1	2	
Grevillea refracta subsp. refracta	<1	2	
Buchanania oblongifolia	<1	1	
*Passiflora foetida var. hispida	<1	Cl	
Grewia retusifolia	<1	0.5	
Corymbia confertiflora	1	4	
Gompholobium subulatum	<1	0.5	
Eriachne obtusa	<1	0.5	76.01
Ficus aculeata var. indecora	<1	2	
Sorghum sp. indet.	0.5	1.5	



Site	II 77
Date	22/10/2010
Recorder	DB
Photo	DB 110 & 111
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557514
Northing	8223630
Habitat	Upper hillslope
Aspect	North
Soil	Grey sandy loam
Rock Type	Sandstone
% Bare Ground	20
% Logs:Twigs:Leaves	1:10:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Acacia hippuroides with Low Woodland of Eucalyptus cf. miniata, Eucalyptus tectificam Corymbia cadophora subsp. cadophora over Open Tussock Grassland of Sorghum plumosum with Open Woodland of Eucalyptus cf. Miniata

Species	% Cover	Height	No.
Eucalyptus cf. miniata	5	>10	
Eucalyptus cf. miniata	15	<10	
Eucalyptus tectifica	6	10	
Corymbia cadophora subsp. cadophora	6	7	
Cajanus cinereus	3	1	
Templetonia hookeri	2	1	
Trachymene didiscoides	5	1.4	
Hakea arborescens	3.5	8	
Microstachys chamaelea	5	1	
Canarium australianum var. australianum	2.5	7	
Acacia hippuroides	30	<1	
*Passiflora foetida var. hispida	0.5	Cl	
Corymbia confertiflora	1.5	7	
Erythroxylum ellipticum	<1	2	
Acacia wickhamii subsp. wickhamii	<1	1	
Phyllanthus exilis	0.5	0.7	
Distichostemon hispidulus var. aridus	1	0.5	
Grevillea agrifolia subsp. agrifolia	3	1	
Scleria brownii	<1	0.3	

<i>Terminalia canescens</i>	1	2	
<i>Scaevola macrostachya</i>	<1	0.5	
<i>Triumfetta triandra</i>	<1	1	
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Sorghum plumosum</i>	15	2	
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	1	8	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	2	
<i>Triodia bynoei</i>	2	0.5	
<i>Gonocarpus leptothecus</i>	5	0.5	
<i>Exocarpos latifolius</i>	0.5	1	
<i>Galactia tenuiflora</i>	<1	Cr	77.01



Site	II 78
Date	22/10/2010
Recorder	DB
Photo	DB 112
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557806
Northing	8223515
Habitat	Hillslope
Aspect	North East
Soil	Grey loam
Rock Type	Sandstone
% Bare Ground	20
% Logs:Twigs:Leaves	0.5:10:55
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Woodland of Eucalyptus cf. miniata, Corymbia polycarpa over Low Shrubland of Acacia wickhamii subsp. wickhamii, Microstachys chamaelea over Open Tussock Grassland of Sorghum plumosum with Low Open Woodland of Corymbia cadophora subsp. cadophora, Corymbia confertiflora, Brachychiton diversifolius subsp. diversifolius over Open Shrubland of Grevillea agrifolia subsp. agrifolia, Buchanania oblongifolia, Templetonia hookeri

Species	% Cover	Height	No.
Eucalyptus cf. miniata	25	>10	
Corymbia polycarpa	1	10	
Corymbia cadophora subsp. cadophora	3	4	
Brachychiton diversifolius subsp. diversifolius	1	8	
Canarium australianum var. australianum	1	10	
Templetonia hookeri	1.5	2	
Calytrix exstipulata	1.5	2	
Tephrosia laxa var. angustata	<1	0.5	
Acacia wickhamii subsp. wickhamii	5	0.5	
Hybanthus aurantiacus	<1	0.5	
Phyllanthus exilis	0.5	0.6	
Triumfetta triandra	0.5	1	
Microstachys chamaelea	6	1	
Corymbia confertiflora	2.5	5	
Buchanania oblongifolia	1.5	4	
Distichostemon hispidulus var. aridus	0.5	0.5	

<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	5	2	
* <i>Passiflora foetida</i> var. <i>hispida</i>	4	Cl	
<i>Triodia bynoei</i>	3	0.5	
<i>Santalum lanceolatum</i>	<1	2	
<i>Gonocarpus leptothecus</i>	1.5	0.5	
<i>Scaevola macrostachya</i>	0.5	0.5	
<i>Fimbristylis</i> aff <i>simulans</i>	<1	0.3	
<i>Dicliptera armata</i>	0.5	0.3	
<i>Trachymene didiscoides</i>	5	1.5	
<i>Sorghum plumosum</i>	15	2	
<i>Terminalia canescens</i>	0.5	2	
<i>Cynanchum pedunculatum</i>	<1	Cl	
<i>Exocarpos latifolius</i>	<1	3	
<i>Cajanus cinereus</i>	0.5	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	2	
<i>Erythroxylum ellipticum</i>	1.5	5	
<i>Euphorbia distans</i>	<1	0.3	
<i>Asparagus racemosus</i>	<1	Cl	
<i>Acacia hippuroides</i>	0.5	0.3	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	78.01



Site	II 79
Date	23/10/2010
Recorder	JB
Photo	9073
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557392
Northing	8226317
Habitat	Hillcrest - broad plateau
Aspect	South
Soil	Orange/ brown loam
Rock Type	Iron infused Sandstone - bedrock, cobbles and pebbles
% Bare Ground	12
% Logs:Twigs:Leaves	4:10:50
Vegetation Condition	Excellent
Disturbance Type	Military disturbance nearby (perhaps) - rocky bunkers
Fire Age	Very old
Vegetation	Low Open Forest of Eucalyptus cf. miniata over Hummock Grassland of Triodia pungens with Low Woodland of Corymbia confertiflora, Brachychiton diversifolius subsp. diversifolius, Mimusops elengi over Low Shrubland of Buchanania oblongifolia, Cajanus cinereus, Flueggea virosa subsp. melanthesoides

Species	% Cover	Height	No.
Acacia hippuroides	2	0.5	
Triodia pungens	65	1	
Buchanania oblongifolia	5	5	
Distichostemon hispidulus var. aridus	1.5	1	
Brachychiton diversifolius subsp. diversifolius	3	6	
Eucalyptus cf. miniata	45	15	
Exocarpos latifolius	2	5	
Acacia neurocarpa	3	5	
Sorghum plumosum	1.5	2	
Ficus aculeata var. indecora	<1	2	
Cassytha filiformis	<1	Cl	
Flueggea virosa subsp. melanthesoides	2	-	79.01
Phyllanthus cf. reticulatus	<1	-	79.02
Templetonia hookeri	1	2	
Phyllanthus exilis	<1	0.5	
Corymbia confertiflora	4	8	
Terminalia canescens	<1	2	
Canarium australianum var. australianum	2	5	
Grevillea wickhamii subsp. wickhamii	<1	1	
Triumfetta albida	<1	0.4	

<i>Scaevola macrostachya</i>	<1	1	
<i>Cajanus cinereus</i>	1	2	
<i>Ficus platypoda</i>	1.5	4	
<i>Mimusops elengi</i>	1.5	4	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Jasminum didymum</i> subsp. <i>didymum</i>	0.5	1	
<i>Sersalisia sericea</i>	1	2.5	
<i>Brachychiton viscidulus</i>	1	2.5	
<i>Cymbopogon procerus</i>	<1	2	
<i>Brachychiton viridiflorus</i>	<1	2	
<i>Microstachys chamaelea</i>	<1	0.6	
<i>Triumfetta triandra</i>	<1	0.2	79.04
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	1	4	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	3	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	79.03



Site	II 80
Date	23/10/2010
Recorder	DB
Photo	DB 2 Film 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557688
Northing	8226132
Habitat	Breakaway gully slope
Aspect	South
Soil	Light brown sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	2:15:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida nearby
Fire Age	Very old
Vegetation	Open Scrub of Calytrix exstipulata, Canarium australianum var. australianum, Terminalia canescens over Tussock Grassland of Sorghum plumosum with Low Woodland of Corymbia confertiflora, Mimusops elengi over Open Hummock Grassland of Triodia pungens with Open Shrubland of Acacia wickhamii subsp. wickhamii

Species	% Cover	Height	No.
Corymbia confertiflora	15	6	
Mimusops elengi	5	6	
Calytrix exstipulata	40	4	
Acacia wickhamii ssp wickhamii	10	1.5	80.04
Flueggea virosa subsp. melanthesoides	1	2	80.01
Evolvulus alsinoides var. decumbens	<1	0.2	
Triodia pungens	20	0.5	
Buchanania oblongifolia	1	2	
Terminalia canescens	2	>2	
Euphorbia sp. B Kimberley Flora (B.J. Carter 629)	<1	0.2	
Terminalia cf. canescens	<1	Cr	80.02
Phyllanthus exilis	<1	0.5	
Sauropus trachyspermus	<1	0.6	
Cymbopogon procerus	<1	2	
Phyllanthus cf. reticulatus	<1	2	80.03
Sorghum plumosum	40	1	
Cochlospermum fraseri	<1	2	
Adenia heterophylla subsp. australis	<1	Cl	

Canarium australianum var. australianum	2.5	2
Brachychiton viscidulus	<1	2
Exocarpos latifolius	<1	2
Sarcostemma viminale	<1	1
Grevillea refracta subsp. refracta	<1	3
*Passiflora foetida var. hispida	<1	Cl



Site	II 81
Date	23/10/2010
Recorder	DB
Photo	DB 6
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557841
Northing	8225934
Habitat	Hillcrest
Aspect	South West
Soil	Skeletal light brown sandy loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	<1:2:20
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Hummock Grassland of <i>Triodia pungens</i> with Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Buchanania oblongifolia</i> , <i>Calytrix exstipulata</i>

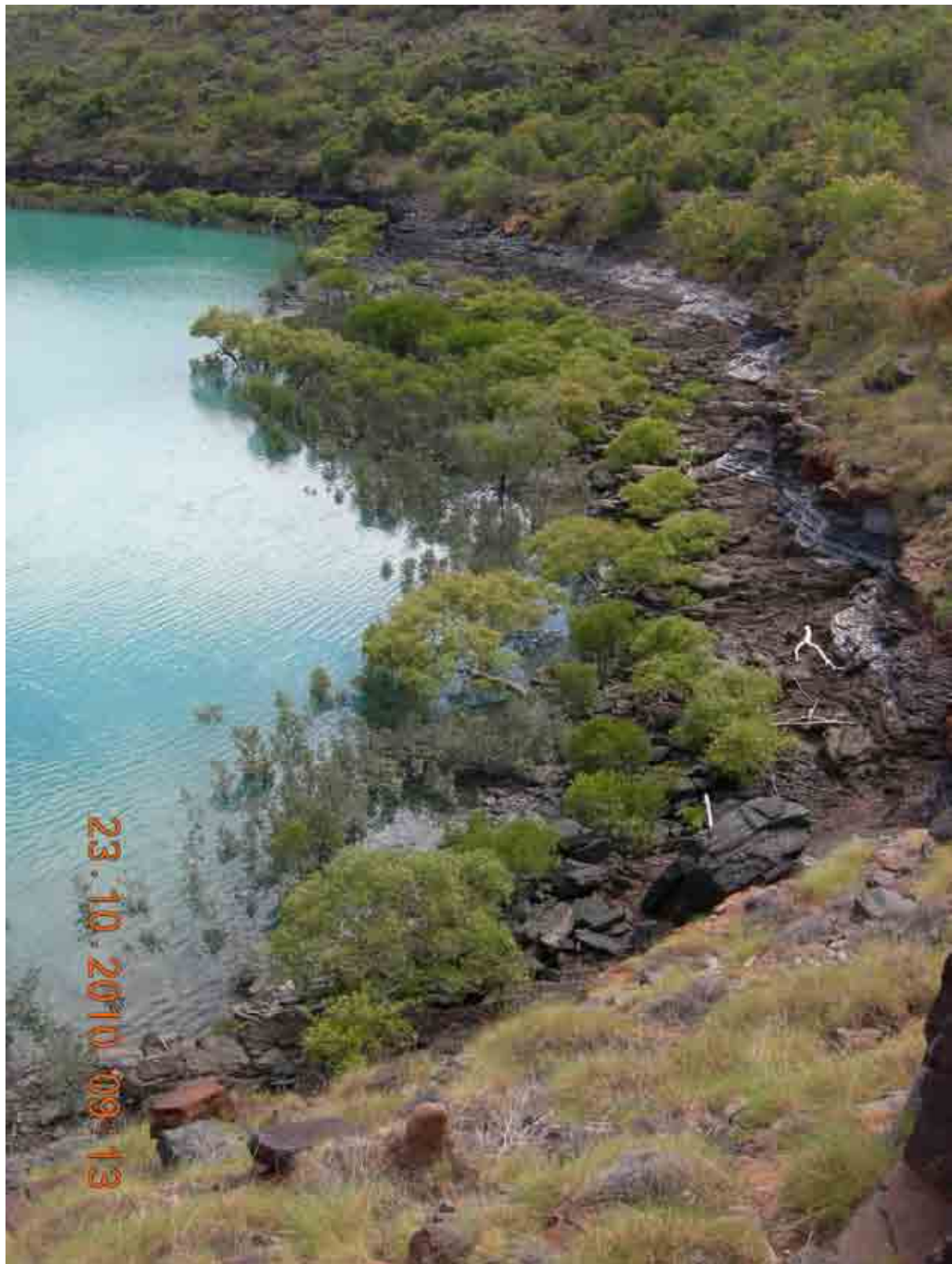
Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	1	4	
<i>Templetonia hookeri</i>	3	2	
<i>Calytrix exstipulata</i>	5	2	
<i>Cajanus cinereus</i>	0.5	2	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	6	1.5	
<i>Buchanania oblongifolia</i>	6	2	
<i>Triodia pungens</i>	65	Cl	
<i>Scaevola macrostachya</i>	0.5	<1	
<i>Polycarpaea involucrata</i>	<1	0.1	
<i>Acacia multisiliqua</i>	2	4	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	1	0.5	
* <i>Passiflora foetida</i> var. <i>hispida</i>	1	Cl	
<i>Trachymene didiscoides</i>	<1	1.5	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	<1	2	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	2	
<i>Terminalia canescens</i>	<1	2	
<i>Triumfetta albida</i>	<1	0.5	
<i>Cassytha filiformis</i>	<1	Cl	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	81.01
<i>Eriachne ciliata</i>	<1	0.2	
<i>Xenostegia tridentata</i>	<1	Cl	
<i>Corchorus pumilio</i>	<1	0.3	

<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	<1	2	
<i>Bonamia pannosa</i>	<1	Cr	81.02



Site	II 82
Date	23/10/2010
Recorder	JB
Photo	9081
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	557970
Northing	8226116
Habitat	Inlet magrove - fringing the inlet
Aspect	West
Soil	Not sampled due to inundation - probably grey mud
Rock Type	Sandstone- brdrocks and boulders
% Bare Ground	35
% Logs:Twigs:Leaves	1.5:1:<1
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Low Woodland of <i>Avicennia marina</i> , <i>Rhizophora stylosa</i> over Shrubland of <i>Aegiceras corniculatum</i>

Species	% Cover	Height	No.
<i>Avicennia marina</i>	25	4	82.03
<i>Aegialitis annulata</i>	1	1.5	82.02
<i>Aegiceras corniculatum</i>	25	2	82.01
<i>Rhizophora stylosa</i>	3	4	
<i>Camptostemon schultzei</i>	1.5	5	82.04



Site	II 83
Date	23/10/2010
Recorder	DB
Photo	DB 9
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558231
Northing	8225883
Habitat	Hillslope - mid
Aspect	South
Soil	Grey sandy loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	1:20:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Hummock Grassland of Triodia bynoei with Low Woodland of Corymbia confertiflora, Canarium australianum var. australianum over Low Shrubland of Acacia wickhamii subsp. wickhamii, Distichostemon hispidulus var. aridus with High Open Shrubland of Grevillea heliosperma, Calytrix exstipulata, Buchanania oblongifolia

Species	% Cover	Height	No.
Corymbia confertiflora	8-10	5	83.02
Corymbia cadophora subsp. cadophora	1	4	
Canarium australianum var. australianum	4	5	
Grevillea heliosperma	3	5	
Calytrix exstipulata	3	2.5	
Cajanus cinereus	<1	2	
Exocarpos latifolius	1.5	2	
Brachychiton viscidulus	1	3	
Acacia dunnii	<1	2	
Cassytha filiformis	6	Cl	
Scleria brownii	<1	0.3	
Sorghum plumosum	3	2	
Triodia bynoei	50	1	
Acacia wickhamii subsp. wickhamii	25	1	
Distichostemon hispidulus var. aridus	3	1	
Asparagus racemosus	0.5	Cl	
Gonocarpus leptothecus	0.5	0.5	
Templetonia hookeri	1	2	

<i>Tinospora smilacina</i>	<1	Cl	
<i>Vigna lanceolata</i> var. <i>filiformis</i>	<1	Cl	83.03
<i>Buchanania oblongifolia</i>	5	3	
<i>Verticardia verticillatus</i>	1.5	2	
<i>Flagellaria indica</i>	0.5	1.2	
<i>Trachymene didiscoides</i>	<1	1	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	0.5	2	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Triumfetta triandra</i>	<1	1	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	2.5	
<i>Scaevola macrostachya</i>	<1	1.2	
<i>Melochia umbellata</i>	<1	5	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	83.01



Site	II 84
Date	24/10/2010
Recorder	DB
Photo	DB 15 & 16 Film 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558900
Northing	8220700
Habitat	Hillslope
Aspect	South
Soil	Skeletal brown loamy sand
Rock Type	Sandstone - outcropping
% Bare Ground	15
% Logs:Twigs:Leaves	1:4:10
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Open Heath of Scaevola macrostachya, Acacia wickhamii subsp. wickhamii, Distichostemon hispidulus var. aridus over Open Hummock Grassland of Triodia bynoei with Low Open Woodland of Corymbia confertiflora over Open Shrubland of Grevillea wickhamii subsp. wickhamii, Calytrix exstipulata, Buchanania oblongifolia

Species	% Cover	Height	No.
Corymbia confertiflora	5-10	26	
Buchanania oblongifolia	1.5	2	
Scaevola macrostachya	15	0.5	
Acacia wickhamii subsp. wickhamii	8	0.5	
Santalum lanceolatum	<1	1.2	
Acacia multisiliqua	4	2	
Trachymene didiscoides	6	1.5	
Distichostemon hispidulus var. aridus	5	2.5	
Grevillea wickhamii subsp. wickhamii	5	1	
Xenostegia tridentata	0.5	Cl	
Triumfetta triandra	0.5	1	84.03
Cleome viscosa	5	1.5	
*Passiflora foetida var. hispida	<1	Cl	
Flueggea virosa subsp. melanthesoides	<1	2	
Bulbostylis barbata	1	0.2	
Corchorus pumilio	0.5	0.3	
Corchorus fascicularis	<1	0.2	
Hibiscus leptocladus	0.5	0.3	84.01

<i>Heliotropium glabellum</i>	0.5	0.6	
<i>Sauropus trachyspermus</i>	<1	0.6	
<i>Triodia bynoei</i>	15	0.5	
<i>Sorghum plumosum</i>	0.5	1.2	
<i>Brachychiton viridiflorus</i>	<1	2	
<i>Hybanthus aurantiacus</i>	0.5	0.5	
<i>Solanum echinatum</i>	0.5	0.3	
<i>Galactia tenuiflora</i>	<1	0.5	
<i>Eriachne ciliata</i>	<1	0.2	
<i>Evolvulus alsinoides</i> var. <i>decumbens</i>	<1	0.2	
<i>Calytrix exstipulata</i>	0.5	2	
<i>Cochlospermum fraseri</i>	0.5	2	
<i>Templetonia hookeri</i>	0.5	0.5	
<i>Xenostegia tridentata</i>	<1	Cl	84.02
<i>Tephrosia subpectinata</i>	0.5	0.5	



Site	II 85
Date	24/10/2010
Recorder	DB
Photo	DB 24 & 25
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558345
Northing	8221220
Habitat	Hillslope
Aspect	West
Soil	Brown sandy loam
Rock Type	Sandstone
% Bare Ground	20
% Logs:Twigs:Leaves	1:4:10
Vegetation Condition	Excellent
Disturbance Type	Fire
Fire Age	Young
Vegetation	Low Open Heath of <i>Scaevola macrostachya</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> with Open Shrubland of <i>Acacia tumida</i> , <i>Buchanania oblongifolia</i>

Species	% Cover	Height	No.
<i>Acacia tumida</i>	2	4	
<i>Buchanania oblongifolia</i>	7	2	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	10	<2	
<i>Scaevola macrostachya</i>	15	0.6	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	10	0.5	
<i>Hybanthus aurantiacus</i>	0.5	0.5	
<i>Bulbostylis barbata</i>	2	0.2	
<i>Tephrosia laxa</i> var. <i>angustata</i>	1	0.5	
<i>Triumfetta albida</i>	5	<1	
<i>Templetonia hookeri</i>	1.5	0.6	
<i>Corchorus fascicularis</i>	1.5	0.2	
<i>Phyllanthus exilis</i>	0.5	0.3	
<i>Calytrix exstipulata</i>	1	1	
<i>Triodia bynoei</i>	2	0.5	
<i>Cleome viscosa</i>	3	1.5	
<i>Santalum lanceolatum</i>	<1	2	
<i>Microstachys chamaelea</i>	<1	0.5	
<i>Callicarpa candicans</i>	<1	0.5	85.01
<i>Solanum echinatum</i>	<1	0.2	
<i>Corchorus pumilio</i>	0.5	0.4	
<i>Gonocarpus leptothecus</i>	3	0.5	

<i>Cymbopogon procerus</i>	<1	1.5
<i>Eriachne ciliata</i>	1	0.3
<i>Heliotropium glabellum</i>	<1	0.6



Site	II 86
Date	24/10/2010
Recorder	DB
Photo	DB 26 & 27 Film 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558484
Northing	8221547
Habitat	Hillslope
Aspect	South West
Soil	Grey loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	2:25:20
Vegetation Condition	Excellent
Disturbance Type	Fire, *Passiflora foetida
Fire Age	Young
Vegetation	Low Open Heath of Scaevola macrostachya, Gonocarpus leptothecus, Distichostemon hispidulus var. aridus over Herbs of Trachymene didiscoides, Cleome viscosa with Shrubland of Grevillea agrifolia subsp. agrifolia, Grevillea refracta subsp. refracta with Open Woodland of Eucalyptus cf. miniata, Eucalyptus tectifica over Low Open Woodland of Eucalyptus cf. miniata, Corymbia confertiflora, Corymbia cadophora subsp. cadophora

Species	% Cover	Height	No.
Eucalyptus cf. miniata	2	15	
Eucalyptus cf. miniata	5	6	
Corymbia confertiflora	2	5	
Eucalyptus tectifica	3	>10	
Eucalyptus tectifica	2	2	
Hibbertia sp. A Kimberley Flora (T.E.H. Aplin et al. 898)	<1	0.5	86.05
*Passiflora foetida var. hispida	<1	Cl	
Corymbia cadophora subsp. cadophora	3	4	
Ficus aculeata var. indecora	0.5	2.5	
Erythroxylum ellipticum	<1	2	
Acacia multisiliqua	0.5	2	
Cochlospermum fraseri	0.5	2	
Trachymene didiscoides	20	5	
Cleome viscosa	10	1.5	
Templetonia hookeri	1	1	
Acacia wickhamii subsp. wickhamii	5	1	
Distichostemon hispidulus var. aridus	4	0.3	

<i>Scaevola macrostachya</i>	20	1	
<i>Cajanus scarabaeoides</i>	1	Cr	86.01
<i>Gonocarpus leptothecus</i>	12	0.5	
<i>Flagellaria indica</i>	<1	2	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	2	2	
<i>Brachychiton viscidulus</i>	1	2	
<i>Microstachys chamaelea</i>	1	0.5	
<i>Sorghum plumosum</i>	0.5	1	
<i>Grevillea agrifolia</i> subsp. <i>agrifolia</i>	8	2	
<i>Cassytha filiformis</i>	1	Cl	
<i>Triodia bynoei</i>	2	0.5	
<i>Fimbristylis leucocolea</i>	3	0.3	86.02
<i>Solanum echinatum</i>	<1	0.2	
<i>Corchorus fascicularis</i>	<1	0.2	
<i>Buchanania oblongifolia</i>	<1	2	
<i>Tephrosia laxa</i> var. <i>angustata</i>	1	1	86.03
<i>Santalum lanceolatum</i>	<1	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	2	
<i>Hybanthus aurantiacus</i>	<1	0.5	
<i>Phyllanthus</i> cf. <i>reticulatus</i>	<1	1	86.04
<i>Hakea arborescens</i>	<1	2	



Site	II 87
Date	24/10/2010
Recorder	DB
Photo	DB 28 & 29 Film 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559055
Northing	8220628
Habitat	Mid Hillslope
Aspect	South
Soil	Brown loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	2:25:20
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Low Woodland of Eucalyptus cf. miniata, Corymbia confertiflora over Low Shrubland of Tephrosia laxa var. angustata, Triumfetta triandra, Distichostemon hispidulus var. aridus over Open Tussock Grassland of Sorghum plumosum over Open Herbs of Trachymene didiscoides, Cleome viscosa with Open Woodland of Eucalyptus cf. Miniata

Species	% Cover	Height	No.
Eucalyptus cf. miniata	10	15	
Eucalyptus cf. miniata	10	10	
Corymbia confertiflora	4	6	
Grevillea pyramidalis subsp. pyramidalis	1	3	
*Passiflora foetida var. hispida	5	Cl	
Trachymene didiscoides	10	1.5	
Cleome viscosa	15	1.5	
Triumfetta triandra	5	1	
Distichostemon hispidulus var. aridus	4	0.5	
Tephrosia laxa var. angustata	12	1	87.08
Sorghum plumosum	15	1.5	
Xenostegia tridentata	3	Cl	
Triodia bynoei	2	0.6	
Templetonia hookeri	0.5	1	
Ficus aculeata var. indecora	0.5	2	
Galactia tenuiflora	<1	0.5	
Jasminum didymum subsp. didymum	<1	1	
Microstachys chamaelea	0.5	1	

<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	<1	0.6	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1.2	
<i>Marsdenia geminata</i>	<1	Cl	87.03
<i>Grevillea heliosperma</i>	0.5	2	87.02
<i>Phyllanthus exilis</i>	<1	0.6	
<i>Hybanthus aurantiacus</i>	<1	0.5	87.05
<i>Canarium australianum</i> var. <i>australianum</i>	<1	2	
<i>Ampelocissus acetosa</i>	<1	1.5	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	0.5	0.5	
<i>Melhania oblongifolia</i>	<1	0.4	
<i>Panicum seminudum</i>	<1	0.8	
<i>Alleteropsis semialata</i>	<1	0.8	87.01
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	0.5	87.04
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	0.5	8	
<i>Cochlospermum fraseri</i>	<1	2	
<i>Santalum lanceolatum</i>	<1	3	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	0.5	5	
<i>Phyllanthus maderaspatensis</i>	<1	0.5	
<i>Scleria brownii</i>	<1	0.2	
<i>Exocarpos latifolius</i>	<1	1	
<i>Heliotropium</i> sp. <i>indet.</i>	-	-	87.06
OPP COLL			
<i>Gompholobium subulatum</i>	1	0.5	87.07



Site	II 88
Date	24/10/2010
Recorder	DB
Photo	DB 30 Film 3
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	559074
Northing	8220826
Habitat	Hillcrest
Aspect	North
Soil	Light brown loamy sand
Rock Type	Sandstone
% Bare Ground	25
% Logs:Twigs:Leaves	1:5:20
Vegetation Condition	Excellent
Disturbance Type	Fire, BHP exploration track adjacent
Fire Age	Young
Vegetation	Low Open Heath of <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i> , <i>Gompholobium subulatum</i> with Low Open Forest of <i>Eucalyptus</i> cf. <i>miniata</i> with Open Woodland of <i>Eucalyptus</i> cf. <i>miniata</i> over High Open Shrubland of <i>Acacia tumida</i> var. <i>tumida</i> , <i>Grevillea</i>

refracta subsp. refracta

Species	% Cover	Height	No.
Eucalyptus cf. miniata	5-10	15	
Eucalyptus cf. miniata	35	<10	
Acacia tumida var. tumida	4	3	88.03
Grevillea wickhamii subsp. wickhamii	6	1	
Grevillea refracta subsp. refracta	4	2	
Scaevola macrostachya	30	0.5	
Gompholobium subulatum	6	0.3	
Tephrosia subpectinata	2	0.5	
Gonocarpus leptothecus	3	0.5	
Distichostemon hispidulus var. aridus	10	0.3	
Fimbristylis schultzei	<1	3	88.02
Templetonia hookeri	0.5	1	
Sorghum plumosum	2	1.5	
Trachymene didiscoides	2	1.5	
Cleome viscosa	4	1.5	
Calytrix exstipulata	0.5	1	
Terminalia canescens	0.5	0.1	88.01
Grevillea heliosperma	0.5	2.5	
Buchanania oblongifolia	1	1.5	
Triodia bynoei	2	0.5	
Hybanthus aurantiacus	<1	0.3	
Acacia dunnii	<1	0.5	
Corymbia cadophora subsp. cadophora	<1	3	
Cochlospermum fraseri	<1	3	
Acacia hippuroides	<1	0.3	
Galactia tenuiflora	<1	Cr	



Site	II 89
Date	25/10/2010
Recorder	DB
Photo	DB 31 & 32
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	555885
Northing	8229048
Habitat	Low hillslope 9coastal)
Aspect	North
Soil	Light brown clay loam
Rock Type	Sandstone
% Bare Ground	15
% Logs:Twigs:Leaves	0:<1:1
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida
Fire Age	Very old
Vegetation	Closed Huumock Grassland of <i>Triodia pungens</i> with Low Shrubland of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>

Species	% Cover	Height	No.
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	20	0.6	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	3	0.6	
<i>Solanum echinatum</i>	<1	0.2	
<i>Ptilotus capitatus</i>	<1	0.3	89.04
<i>Acacia hippuroides</i>	1	0.5	
<i>Triodia pungens</i>	75	1	89.03
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Terminalia ferdinandiana</i>	<1	1.5	
<i>Grevillea wickhamii</i> subsp. <i>wickhamii</i>	2	1	
* <i>Passiflora foetida</i> var. <i>hispida</i>	<1	Cl	
<i>Triumfetta albida</i>	<1	0.5	
<i>Ficus aculeata</i> var. <i>indecora</i>	<1	1.2	
<i>Cassytha filiformis</i>	<1	Cl	89.02
<i>Calytrix exstipulata</i>	<1	0.5	
<i>Scaevola macrostachya</i>	<1	0.4	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	<1	1	89.01
<i>Eriachne ciliata</i>	<1	0.1	



Site

II 90

Date 25/10/2010
Recorder DB
Photo DB 34-37 Film 3
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 555525
Northing 8228729
Habitat Upper hillslope (coastal)
Aspect North
Soil Light brown loam
Rock Type Sandstone
% Bare Ground 2
% Logs:Twigs:Leaves <1:10:20
Vegetation Condition Excellent
Disturbance Type *Passiflora foetida var. hispida
Fire Age Very old
Vegetation Low Open Heath of Acacia wickhamii subsp. wickhamii, Distichostemon hispidulus var. aridus over Hummock Grassland of Triodia bynoei, Triodia pungens with Open Climbers of Cassytha aurea with Low Open Woodland of Corymbia confertiflora over Open Shrubland of Buchanania oblongifolia, Grevillea wickhamii subsp. wickhamii

Species	% Cover	Height	No.
Canarium australianum var. australianum	1	3	
Acacia wickhamii subsp. wickhamii	65	1.2	
Ficus aculeata var. indecora	1	3	
Mimusops elengi	1	4	
Flagellaria indica	1.5	4	
Trachymene didiscoides	1	2	
Triodia bynoei	15	1.5	
Triodia pungens	40	1	
Adenia heterophylla subsp. australis	0.5	Cl	
Distichostemon hispidulus var. aridus	4	1	
Gonocarpus leptothecus	1	0.5	
Jacquemontia paniculata	<1	Cl	90.01
Cassytha aurea	20	Cl	
Corymbia confertiflora	3	4	
*Passiflora foetida var. hispida	<1	Cl	
Flueggea virosa subsp. melanthesoides	0.5	2	
Buchanania oblongifolia	3	2	
Grevillea wickhamii subsp. wickhamii	3	3	
Acacia dunnii	<1	2	
Exocarpos latifolius	1	2	
Brachychiton viscidulus	0.5	3	

<i>Grevillea refracta</i> subsp. <i>refracta</i>	<1	3
<i>Calytrix exstipulata</i>	0.5	3



Site	II 91
Date	25/10/2010
Recorder	DB
Photo	DB 46-48
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	555632
Northing	8228165
Habitat	Foredune
Aspect	North West
Soil	Creamy beach sand
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	0:<1:8
Vegetation Condition	Very Good
Disturbance Type	*Passiflora foetida var. hispida, Tidal debris washed up
Fire Age	Very old
Vegetation	Closed Hummock Grassland of Spinifex longifolius with Open Climbers/Creepers of Cassytha filiformis , Ipomoea pes-caprae subsp. brasiliensis, Canavalia rosea

Species	% Cover	Height	No.
Spinifex longifolius	75	1	
Ipomoea pes-caprae subsp. brasiliensis	10	Cr	91.03
*Passiflora foetida var. hispida	2	Cl	
Canavalia rosea	4	Cr	91.05
Cassytha aurea	15	Cl	
Tinospora smilacina	1	Cr	
Abutilon indicum var. australiense	1	1	
Gomphrena cf. leptoclada	0.5	0.2	91.01
Salsola tragus ssp. tragus	0.5	0.3	91.06
Boerhavia dominii	0.5	Cr	91.02
Flagellaria indica	1	2	
Diospyros maritima	1.5	2	
Thespesia populneoides	<1	2	91.04
Hybanthus aurantiacus	-	0.2	



Site	II 92
Date	25/10/2010
Recorder	DB
Photo	DB 51 & 52
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	555795
Northing	8228156
Habitat	Hillslope
Aspect	West
Soil	brown loam
Rock Type	Sandstone
% Bare Ground	2
% Logs:Twigs:Leaves	2:10:80
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very Old
Vegetation	Open Heath of Acacia wickhamii subsp. wickhamii over Hummock Grassland of Triodia bynoei, Triodia pungens with Low Open Woodland of Eucalyptus cf. miniata, Eucalyptus tectifica over High Open Shrubland of Canarium australianum var. australianum, Ficus aculeata var. indecora, Mimusops elengi

Species	% Cover	Height	No.
Eucalyptus cf. miniata	5	<10	
Eucalyptus tectifica	4	7	
Corymbia cadophora subsp. cadophora	1	3	
Ficus aculeata var. indecora	3.5	4	
Canarium australianum var. australianum	4	5	
Exocarpos latifolius	2	3	
Sorghum plumosum	<1	1.5	
Flagellaria indica	1.5	4 Cl	
Cassytha aurea	10	Cl	
Triodia bynoei	40	1	
Tinospora smilacina	<1	Cl	
Trachymene didiscoides	4	1.5	
Hybanthus aurantiacus	<1	0.5	
Santalum lanceolatum	2	2	
Diospyros maritima	1.5	2.5	
Mimusops elengi	2	5	
Triodia pungens	20	1.3	
Gonocarpus leptothecus	1	0.5	
Asparagus racemosus	1	Cl	

Acacia dunnii	<1	1	
Brachychiton viscidulus	1	3	
Acacia wickhamii subsp. wickhamii	40	1.5	
Acacia neurocarpa	2	6	
Brachychiton diversifolius subsp. diversifolius	1.5	5	
Grevillea pyramidalis subsp. pyramidalis	<1	3	
Buchanania oblongifolia	0.5	3	
Distichostemon hispidulus var. aridus	2	1	
Adenia heterophylla subsp. australis	<1	Cl	
*Passiflora foetida var. hispida	3	CL	
Melochia umbellata	1	5	
Grewia breviflora	0.5	3	92.02
Cochlospermum fraseri	<1	3	
Jasminum didymum subsp. didymum	<1	2	
Triumfetta albida	<1	0.5	
Terminalia ferdinandiana	1	3	
Flueggea virosa subsp. melanthesoides	1	3	
Pavetta kimberleyana	<1	3	92.01
Marsdenia viridiflora ssp. tropica	<1	Cl	92.03
OPP COLL			
Ficus virens	<1	5	92.04



Site	II 93
Date	25/10/2010
Recorder	DB
Photo	DB 54 & 55
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	554440
Northing	8224905
Habitat	Hillcrest
Aspect	North East
Soil	Brown loam
Rock Type	Sandstone
% Bare Ground	5
% Logs:Twigs:Leaves	0:8:20
Vegetation Condition	Excellent
Disturbance Type	None Evident
Fire Age	Very old
Vegetation	Hummock Grassland of <i>Triodia bynoei</i> with Low Open Heath of <i>Acacia tumida</i> , <i>Scaevola macrostachya</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> , <i>Gonocarpus leptothecus</i> with Shrubland of <i>Acacia tumida</i> , <i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>

Species	% Cover	Height	No.
<i>Acacia tumida</i>	35	1.5	
<i>Scaevola macrostachya</i>	7	0.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	1.5	1.5	
<i>Hybanthus aurantiacus</i>	<1	0.4	
<i>Eriachne obtusa</i>	1.5	0.6	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	6	0.5	
<i>Cassytha capillaris</i>	2	Cl	93.01
<i>Gonocarpus leptothecus</i>	4	0.5	
<i>Triodia bynoei</i>	60	<1	
<i>Trachymene didiscoides</i>	2	1.5	
<i>Triodia pungens</i>	5	1	
<i>Acacia hippuroides</i>	<1	-	



Site

II 94

Date 25/10/2010
Recorder DB
Photo DB 56 & 57
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 554621
Northing 8224676
Habitat Hillslope - of Island peninsula
Aspect South
Soil Brown sandy loam
Rock Type Sandstone
% Bare Ground 10
% Logs:Twigs:Leaves 0:15:30
Vegetation Condition Excellent
Disturbance Type None evident
Fire Age Very old
Vegetation Low Open Heath of *Acacia tumida*, *Terminalia canescens*
over Hummock Grassland of *Triodia bynoei* with Open
Shrubland of *Acacia tumida*, *Terminalia canescens*

Species	% Cover	Height	No.
<i>Acacia tumida</i>	3	1.5	
<i>Acacia tumida</i>	15	<0.5	
<i>Terminalia canescens</i>	2	2	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	1	1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	20	1	
<i>Scaevola macrostachya</i>	5	0.5	
<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>	1.5	1	
<i>Tinospora smilacina</i>	<1	Cl	
<i>Euphorbia</i> sp. B Kimberley Flora (B.J. Carter 629)	<1	0.2	
<i>Canavalia rosea</i>	<1	Cr	
<i>Gonocarpus leptothecus</i>	2	0.5	
<i>Trachymene didiscoides</i>	1.5	1.5	
<i>Triodia bynoei</i>	65	1.2	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	3	0.5	
<i>Cassytha capillaris</i>	3	Cl	
<i>Cynanchum puberulum</i>	<1	Cl	
<i>Hybanthus aurantiacus</i>	<1	0.5	
<i>Acacia hippuroides</i>	0.5	0.5	
<i>Decaisnina signata</i> subsp. <i>cardiophylla</i>	<1	Cl	94.01
<i>Sauropus trachyspermus</i>	<1	0.6	



Site

II 95

Date 25/10/2010
Recorder DB
Photo DB 58 Film 3
Shape/Size 50m X 50m
Datum GDA94
Zone 50K
Easting 544927
Northing 8224431
Habitat Hillcrest - upper hillslope of Peninsula
Aspect South
Soil Light brown loam
Rock Type Sandstone
% Bare Ground 10
% Logs:Twigs:Leaves 0:5:15
Vegetation Condition Excellent
Disturbance Type None evident
Fire Age Very old
Vegetation Closed Hummock Grassland of *Triodia bynoei* with Low Open Heath of *Acacia wickhamii* subsp. *wickhamii*, *Distichostemon hispidulus* var. *aridus* with Shrubland of *Terminalia canescens*, *Grevillea refracta* subsp. *refracta*, *Acacia tumida*

Species	% Cover	Height	No.
<i>Corymbia confertiflora</i>	1	3	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	10	2	
<i>Acacia tumida</i>	2	2	
<i>Acacia tumida</i>	2	<1	
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	35	<1	
<i>Triodia bynoei</i>	75	<1	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	4	0.5	
<i>Scaevola macrostachya</i>	1	0.5	
<i>Trachymene didiscoides</i>	1	1.5	
<i>Cassythia filiformis</i>	3	Cl	
<i>Gompholobium subulatum</i>	0.5	0.2	
<i>Haemodorum gracile</i>	<1	0.6	
<i>Buchnera urticifolia</i>	<1	0.5	
<i>Sorghum plumosum</i>	1	1	
<i>Exocarpos latifolius</i>	<1	2	
<i>Terminalia canescens</i>	3	2	
<i>Acacia hippuroides</i>	0.5	0.5	
<i>Terminalia ferdinandiana</i>	0.5	2.5	
<i>Melochia umbellata</i>	0.5	2.5	
<i>Corymbia cadophora</i> subsp. <i>cadophora</i>	0.5	1-2	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	



Site	II 96
Date	25/10/2010
Recorder	JB
Photo	9123
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	551180
Northing	8224412
Habitat	Hillcrest/ plateau (on small westerly island)
Aspect	South East
Soil	Grey silty loam
Rock Type	Sandstone - grey
% Bare Ground	5
% Logs:Twigs:Leaves	<1:15:10
Vegetation Condition	Pristine
Disturbance Type	None evident
Fire Age	Very old
Vegetation	Low Open Heath of <i>Acacia wickhamii</i> subsp. <i>wickhamii</i> , <i>Acacia tumida</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> over Hummock Grassland of <i>Triodia bynoei</i> with Shrubland of <i>Grevillea refracta</i> subsp. <i>refracta</i> , <i>Acacia tumida</i> , <i>Distichostemon hispidulus</i> var. <i>aridus</i> with Low Open Woodland of <i>Corymbia confertiflora</i> , <i>Terminalia ferdinandiana</i>

Species	% Cover	Height	No.
<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>	40	1	
<i>Grevillea refracta</i> subsp. <i>refracta</i>	8	2.5	
<i>Terminalia canescens</i>	3	2.5	
<i>Cassytha filiformis</i>	15	Cl	
<i>Corymbia confertiflora</i>	4.5	4	
<i>Distichostemon hispidulus</i> var. <i>aridus</i>	6	1	
<i>Cochlospermum fraseri</i>	0.5	1.5	
<i>Triodia bynoei</i>	60	1.2	
<i>Terminalia ferdinandiana</i>	4	3	
<i>Calytrix exstipulata</i>	3	3	
<i>Eriachne obtusa</i>	<1	0.6	
<i>Amyema bifurcata</i>	<1	Cl	
<i>Acacia hippuroides</i>	2	0.5	
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	0.5	2	
<i>Acacia tumida</i>	4	0.5	
<i>Eriachne avenacea</i>	1	1	96.01
<i>Sorghum</i> sp. indet.	2	1	
<i>Trachymene didiscoides</i>	1	2	

Gonocarpus leptothecus	<1	0.5
Grevillea pyramidalis subsp. pyramidalis	0.5	3
Brachychiton viscidulus	0.5	2
Gompholobium subulatum	<1	0.5



Site	II 97
Date	26/10/2010
Recorder	DB
Photo	DB 64
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558266
Northing	8226347
Habitat	Hillcrest
Aspect	West
Soil	Grey/ brown powdery loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	<1:5:20
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	Closed Hummock Grassland of Triodia bynoei, Triodia pungens with Low Woodland of Corymbia confertiflora, Corymbia cadophora subsp. cadophora, Canarium australianum var. australianum over Open Shrubland of Calytrix exstipulata, Grevillea wickhamii subsp. wickhamii over Low Open Shrubland of Acacia wickhamii subsp. wickhamii, Distichostemon hispidulus var. aridus

Species	% Cover	Height	No.
Corymbia confertiflora	6	5	
Corymbia confertiflora	8	5	
Brachychiton viscidulus	3	3	
Canarium australianum var. australianum	2	4	
Grevillea pyramidalis subsp. pyramidalis	1	4	
Exocarpos latifolius	1	4	
Grevillea wickhamii subsp. wickhamii	2.5	2	
Acacia wickhamii subsp. wickhamii	8	1	
*Passiflora foetida var. hispida	1.5	Cl	
Distichostemon hispidulus var. aridus	2	1	
Brachychiton viridiflorus	1	5	
Flueggea virosa subsp. melanthesoides	3	2.5	
Triodia pungens	30	1.5	
Triodia bynoei	45	1.5	
Trachymene didiscoides	<1	1.5	
Decaisnina signata subsp. cardiophylla	<1	Cl	97.01
Calytrix exstipulata	2	2	

<i>Cymbopogon procerus</i>	<1	1	
<i>Scaevola macrostachya</i>	<1	0.5	
<i>Cochlospermum fraseri</i>	<1	3	
<i>Gonocarpus leptothecus</i>	1	0.5	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
<i>Phyllanthus</i> cf. <i>reticulatus</i>	<1	2	97.03
<i>Sauropus trachyspermus</i>	<1	0.5	
<i>Tephrosia laxa</i> var. <i>angustata</i>	<1	0.5	
<i>Marsdenia viridiflora</i> ssp. <i>tropica</i>	<1	Cl	97.02



Site	II 98
Date	26/10/2010
Recorder	Db
Photo	DB 65 & 66
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558098
Northing	8226283
Habitat	Cliff face (above inlet)
Aspect	West
Soil	Skeletal brown loamy sand
Rock Type	Sandstone - Ironstone dark infused
% Bare Ground	30
% Logs:Twigs:Leaves	1:3:10
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Very old
Vegetation	High Shrubland of Mimusops elengi, Buchanania oblongifolia, Canarium australicum var. australicum, Ficus platypoda over Open Hummock Grassland of Triodia pungens with Open Shrubland of Acacia wickhamii subsp. wickhamii, Flueggea virosa subsp. melanthesoides

Species	% Cover	Height	No.
Canarium australicum var. australicum	4	4	
Mimusops elengi	5	4	
Melochia umbellata	4.5	3	
Flagellaria indica	5	Cl 3	
Corchorus fascicularis	<1	0.5	
Cajanus cinereus	1	1	
Pterocaulon sphacelatum	<1	1	
Triodia pungens	25	1	
Cynanchum puberulum	<1	Cl	
Cassytha filiformis	6	Cl	
Distichostemon hispidulus var. aridus	1.5	1	
Canavalia rosea	<1	Cr	
Buchanania oblongifolia	10	4	
Acacia wickhamii subsp. wickhamii	6	1.5	
Flueggea virosa subsp. melanthesoides	2.5	2	
*Passiflora foetida var. hispida	1	Cl	
Euphorbia distans	<1	0.5	
Ficus platypoda	1	3	
Brachychiton viscidulus	1	3	

<i>Terminalia canescens</i>	1	3
<i>Sersalisia sericea</i>	0.5	4
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl
<i>Asparagus racemosus</i>	<1	Cl
<i>Exocarpos latifolius</i>	<1	5
<i>Callicarpa candicans</i>	<1	0.2
<i>Triumfetta albida</i>	<1	0.5
<i>Acacia hippuroides</i>	<1	0.5
<i>Templetonia hookeri</i>	0.5	0.8
<i>Solanum echinatum</i>	<1	0.2
<i>Microstachys chamaelea</i>	<1	0.5
<i>Jacquemontia paniculata</i>	<1	Cr



Site	II 99
Date	26/10/2010
Recorder	DB
Photo	DB 83 & 84
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558745
Northing	8222697
Habitat	Hillslope
Aspect	East
Soil	Grey/ brown powdery loam
Rock Type	Sandstone
% Bare Ground	10
% Logs:Twigs:Leaves	3:10:60
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Old
Vegetation	Low Open Forest of Mimusops elengi, Canarium australianum var. australianum, Sersalisia sericea over Open Hummock Grassland of Triodia bynoei with Open Woodland of Eucalyptus tectifica, Canarium australianum var. australianum , Brachychiton diversifolius subsp. diversifolius

Species	% Cover	Height	No.
Eucalyptus tectifica	5	15	
Brachychiton diversifolius subsp. diversifolius	2	12	
Canarium australianum var. australianum	10	12	
Sersalisia sericea	5	6	
Mimusops elengi	40	10	
Melochia umbellata	4	6	
Ficus aculeata var. indecora	2	3	
Flueggea virosa subsp. melanthesoides	7	2	
Exocarpos latifolius	3	4	
Scleria brownii	0.5	0.3	
Phyllanthus exilis	<1	0.4	
Cassytha capillaris	<1	Cl	
Cassytha filiformis	2	Cl	
Cassytha capillaris	1	2	99.04
Triodia bynoei	15	1	
Microstachys chamaelea	<1	0.5	99.02
Cynanchum puberulum	3.5	Cl	
Cymbopogon procerus	<1	1.2	
Asparagus racemosus	0.5	Cl	

<i>Chrystia australasica</i>	0.5	0.2	
<i>Adenia heterophylla</i> subsp. <i>australis</i>	<1	Cl	
* <i>Passiflora foetida</i> var. <i>hispida</i>	0.5	Cl	
<i>Hakea arborescens</i>	3	6	
<i>Corymbia confertiflora</i>	3	8	
<i>Euphorbia distans</i>	<1	0.3	
<i>Flagellaria indica</i>	0.5	Cl	
<i>Canavalia rosea</i>	<1	Cr	
<i>Brachychiton viscidulus</i>	1	4	
<i>Stemodia lythrifolia</i>	<1	0.3	
<i>Abrus precatorius</i> subsp. <i>precatorius</i>	<1	Cl	
Poaceae sp. indet.	15	<	99.01
<i>Galactia tenuiflora</i>	<1	Cr	99.03



Site	II 100
Date	26/10/2010
Recorder	JB
Photo	9144
Shape/Size	50m X 50m
Datum	GDA94
Zone	50K
Easting	558777
Northing	8222445
Habitat	Steep cliff lines & scree slope
Aspect	east
Soil	Grey clay loam - powdery
Rock Type	Sandstone - cliffs, boulders and scree
% Bare Ground	55
% Logs:Twigs:Leaves	<1:3:10
Vegetation Condition	Excellent
Disturbance Type	*Passiflora foetida var. hispida
Fire Age	Young
Vegetation	Open Herbs of Cleome viscosa with Low Open Woodland of Hakea arborescens, Ficus aculeata var. indecora, Brachychiton viscidulus over Open Shrubland of Terminalia canescens, Cajanus cinereus over Low Open Shrubland of Acacia wickhamii subsp. wickhamii, Cajanus cinereus, Triumfetta albida over Very Open Hummock Grassland of Triodia bynoei

Species	% Cover	Height	No.
Hakea arborescens	1.5	3	
Ficus aculeata var. indecora	1	1.5	
*Passiflora foetida var. hispida	1.5	Cl	
Cajanus cinereus	4	1.5	
Cleome viscosa	15	1.5	
Brachychiton viscidulus	1	2	
Acacia wickhamii subsp. wickhamii	4	0.6	
Crotalaria medicaginea var. neglecta	<1	0.6	
Hybanthus aurantiacus	<1	0.4	
Xenostegia tridentata	1	Cl	
Cynanchum puberulum	4	0.4	
Corchorus fascicularis	2	0.3	
Distichostemon hispidulus var. aridus	2	0.5	
Triodia bynoei	7	0.5	
Cymbopogon procerus	<1	1	

