

# **A Vegetation and Flora Survey of the Proposed Mesa A Transport Corridor, Warrambo Deposit and Yarraloola Borefield**



Prepared for  
**Robe River Iron Associates**

Prepared by  
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# A Vegetation and Flora Survey of the Proposed Mesa A Transport Corridor, Warramboos Deposit and Yarraloola Borefield

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# 1.0 Summary

## 1.1 Background to this Study

The Mesa A deposit (approximately 43 km west of Pannawonica, on the southern side of the North West Coastal Highway) has been identified as the next logical deposit for development by Robe River Iron Associates (Robe) in the Robe Valley. To service the proposed mine at Mesa A, a transport corridor linking this area to existing operations at Mesa J is necessary.

The Warramboos deposit (northwest of Mesa A, on the northern side of the North West Coastal Highway) has also been identified as a potential development area. Additional haul road corridor options have been proposed to link Warramboos to Mesa A.

In addition, a new borefield is required to supply water for both operations. The current proposed location for this is at Warramboos. A contingency option for a water supply area is near Yarraloola Station on the eastern side of the Robe River, with an associated pipeline linking the borefield to Mesa A. Other prospective water bore exploration areas also exist elsewhere along the transport corridor.

Biota Environmental Sciences was commissioned to survey the vegetation and flora of the above areas in 2005. Three options are currently proposed for the Mesa A transport corridor, of which two (the northern haul road and northern rail option) were considered as part of this study.

## 1.2 Methodology

A total of 144 person days were spent surveying the study area at various times between July 2004 and September 2005. Most of the surveys followed substantial rainfall and were optimal for the collection of ephemeral flora.

The survey included:

- assessment of 50 detailed flora recording quadrats (standard 50 m x 50 m) and 9 relevés (unbounded flora survey sites);
- mapping of vegetation types; and
- systematic searches for rare flora across the entire area (during which the locations of weed species were also noted).

Data from the floristic survey quadrats and relevés was included in a pattern analysis carried out using a numeric classification procedure within the PATN software package. This analysis compared the floristic composition of the quadrats and relevés in the study area with 787 sites from 10 other survey areas in the Pilbara.

## 1.3 Vegetation

### 1.3.1 Vegetation Types

Seventy-two vegetation types were identified within the study area. Broadly, these vegetation types included:

- Hard Spinifex *Triodia wiseana* and/or Soft Spinifex *Triodia epactia* hummock grasslands with a scattered to moderately dense shrub overstorey dominated by varying proportions of *Acacia ancistrocarpa*, *A. bivenosa* and/or *A. inaequilatera* on stony plains and low stony rises;
- Scattered trees of Snappy Gum *Eucalyptus leucophloia* subsp. *leucophloia* over hummock grasslands of *Triodia wiseana*, sometimes with an undescribed spinifex species *Triodia* sp.

nov., on stony hills and mesa crests; the shrub component was variable in both density and composition, but typically included *Acacia atkinsiana*, *A. arida* and/or *A. bivenosa*;

- Tall shrublands of Snakewood *Acacia xiphophylla* over an understorey of herbs (on low-lying clayey soils) or open spinifex (on more elevated areas);
- Open forests of River Gum *Eucalyptus camaldulensis* and Silver Cadjeput *Melaleuca argentea* in the Robe River;
- Open woodlands of Coolibah *Eucalyptus victrix*, or *Corymbia candida* and/or *C. hamersleyana*, over mixed tall shrublands in moderate-sized creeks; and
- Tall shrublands dominated by various combinations of *Acacia atkinsiana*, *A. bivenosa*, *A. pyrifolia*, *A. tumida* var. *pilbarensis*, *Gossypium australe*, *G. robinsonii* and *Grevillea pyramidalis* over hummock grasslands of *Triodia wiseana* and/or *T. epactia* in minor flowlines.

### 1.3.2 Conservation Significance of the Vegetation Types

One vegetation type is considered to be of Very High conservation significance:

- CzAtGeTs (vegetation of the sand dune and sand sheet adjacent to Mesa A) is considered likely to be restricted in distribution in both the local area and region, and supports species restricted to the deep sands of this particular habitat.

Twenty-four vegetation types are considered to be of High conservation significance;

- Most of the vegetation types occurring on heavy clay soils (CcCAoTwTe/h, AxCAoTwTe/h, AfAbPICAo/h, AbCAoTw/h, AsyCAoTw/h, AsyCAoTe/h and CAoTe/h), and the flowlines CcAcoTw and CcAfAxTwTeERlb, as these support habitat-restricted flora and are susceptible to erosion following physical disturbance;
- Snakewood shrublands (AxTw and AxTe), which support Priority flora and other restricted flora species;
- *Acacia synchronicia* shrublands on stony plains (AsyAbAaTw), which support Priority flora;
- *Acacia* shrublands over hummock grasslands dominated by *Triodia lanigera* (ChCzAtrAaTla, CcAsyCAoTla and CzAaTla), an uncommon species in the area;
- the small stand of Mulga (CcAanTw), which is an unusual dominant species in the area;
- vegetation types associated with the Robe River (particularly EcMaAtrPISg and EcEvAtrApyPITw), which support Priority flora and occur on the major local drainage feature;
- vegetation types of creeklines through stony plains (EvAtrGORPITw, EvCcAciTwTe, EvApyTER, CcAciAaAbTwTe and CcChAtrAbPITwTe), which support Priority flora and/or occur on significant local drainage features; and
- vegetation of flowlines through the sand sheet south of Mesa A (ChCzAtuAtrTe), which supports species restricted to this habitat.

One vegetation type is considered to be of Low conservation significance:

- vegetation type ChAiAsyHcTeCE in the vicinity of Yarraloola Homestead was extensively degraded by weeds (mainly *Cenchrus* spp.).

The remainder of the vegetation types are considered to be of Moderate conservation significance.

## 1.4 Flora

### 1.4.1 Overall Flora

A total of 437 taxa of native vascular flora from 160 genera belonging to 57 families was recorded from the entire study area. The study area is relatively more species rich than other areas surveyed previously in the locality (see Biota 2003, 2005a, 2005c), reflecting:

- the relatively greater size of the current study area, and larger number of habitats present (including extensive areas of clayey plains); and
- the excellent collecting conditions during the current study, resulting from the sizeable and sustained rainfall events experienced at Pannawonica in 2005.

As a comparison, 257 taxa of native vascular flora from 111 genera belonging to 48 families were recorded from the Mesa A and Mesa G survey areas combined (Biota 2005a), while 235 native taxa from 108 genera and 48 families were recorded at Bungaroo (Biota 2005c).

A breakdown of the number of native flora species, genera and families within each section of the study area is presented in Table 1.1.

**Table 1.1: Number of native flora species, genera and families for each component of the study area.**

| Component of Study Area           | No. native species | No. genera | No. families |
|-----------------------------------|--------------------|------------|--------------|
| Northern transport corridor       | 417                | 155        | 55           |
| Southern transport corridor       | 155                | 73         | 37           |
| Warramboos deposit and haul roads | 72                 | 45         | 30           |
| Yarraloola borefield and pipeline | 200                | 98         | 37           |

### 1.4.2 Flora of Conservation Significance

No Declared Rare Flora were recorded from the study area during the recent surveys, despite systematic targeted searches for rare species through the entire study area.

Five Priority 3 flora were recorded during the current survey (Table 1.2), all of which have been recorded previously in the locality.

**Table 1.2: Priority 3 flora recorded within the study area.**

| Family                                       | Number of Records                                                         | Distribution Within the Study Area |                   |            |            |
|----------------------------------------------|---------------------------------------------------------------------------|------------------------------------|-------------------|------------|------------|
| Species                                      |                                                                           | Northern Corridor                  | Southern Corridor | Warramboos | Yarraloola |
| Malvaceae                                    |                                                                           |                                    |                   |            |            |
| <i>Abutilon trudgenii</i> ms.                | 1,777 records (~11,000 individuals)                                       | √                                  | √                 | √          | √          |
| <i>Hibiscus brachysiphonius</i>              | 3 records (~20 individuals in total)                                      | √                                  | √                 | -          | -          |
| <i>Sida</i> sp. Wittenoom (W.R. Barker 1962) | 2,471 records (~62,000 individuals)                                       | √                                  | √                 | √          | √          |
| Euphorbiaceae                                |                                                                           |                                    |                   |            |            |
| <i>Phyllanthus aridus</i>                    | 19 records from 1 location (population estimated at over 585 individuals) | √                                  | -                 | -          | -          |
| Papilionaceae                                |                                                                           |                                    |                   |            |            |
| <i>Rhynchosia bungarensis</i>                | 70 records (~400 individuals)                                             | √                                  | √                 | -          | -          |
| Number of Species                            |                                                                           | 5                                  | 4                 | 2          | 2          |

### 1.4.3 Introduced Flora (Weeds)

Twenty species of introduced flora were recorded (Table 1.3). Parkinsonia is a Declared Plant under the *Agriculture and Related Resources Protection Act 1976*; Date Palms, Buffel Grass,

Birdwood Grass, Ruby Dock and Kapok are all considered to be serious environmental weeds by CALM.

**Table 1.3: Number of records and distribution of each weed species within the study area.**

| Family                                                 | Total<br>Number of<br>Records | Distribution within the Study Area |                      |            |            |
|--------------------------------------------------------|-------------------------------|------------------------------------|----------------------|------------|------------|
| Species                                                |                               | Northern<br>Corridor               | Southern<br>Corridor | Warramboos | Yarraloola |
| Caesalpiniaceae                                        |                               |                                    |                      |            |            |
| *Parkinsonia aculeata (Parkinsonia)                    | 2                             | -                                  | -                    | -          | √          |
| Arecaceae                                              |                               |                                    |                      |            |            |
| *Phoenix dactylifera (Date Palm)                       | 1                             | -                                  | -                    | -          | √          |
| Poaceae                                                |                               |                                    |                      |            |            |
| *Cenchrus ciliaris (Buffel Grass)                      | 299                           | √                                  | √                    | -          | √          |
| *Cenchrus setigerus (Birdwood Grass)                   | 121                           | √                                  | √                    | -          | √          |
| *Chloris barbata (Purpletop Chloris)                   | 2                             | √                                  | -                    | -          | -          |
| *Echinochloa colona (Awnless Barnyard Grass)           | 3                             | √                                  | -                    | -          | -          |
| *Setaria verticillata (Whorled Pigeon Grass)           | 49                            | √                                  | -                    | -          | √          |
| Papaveraceae                                           |                               |                                    |                      |            |            |
| *Argemone ochroleuca subsp. ochroleuca (Mexican Poppy) | 116                           | √                                  | -                    | -          | -          |
| Malvaceae                                              |                               |                                    |                      |            |            |
| *Malvastrum americanum (Spiked Malvastrum)             | 616                           | √                                  | √                    | -          | √          |
| Polygonaceae                                           |                               |                                    |                      |            |            |
| *Acetosa vesicaria (Ruby Dock)                         | 1                             | √                                  | -                    | -          | -          |
| Amaranthaceae                                          |                               |                                    |                      |            |            |
| *Aerva javanica (Kapok)                                | 32                            | √                                  | -                    | -          | √          |
| Asteraceae                                             |                               |                                    |                      |            |            |
| *Bidens bipinnata (Beggars Ticks)                      | 19                            | √                                  | -                    | -          | -          |
| *Sonchus oleraceus (Common Sowthistle)                 | 3                             | √                                  | -                    | -          | -          |
| Cucurbitaceae                                          |                               |                                    |                      |            |            |
| *Citrullus colocynthis (Colocynthis)                   | 65                            | √                                  | √                    | -          | √          |
| Euphorbiaceae                                          |                               |                                    |                      |            |            |
| *Euphorbia hirta (Asthma Plant)                        | 5                             | √                                  | -                    | -          | -          |
| Lamiaceae                                              |                               |                                    |                      |            |            |
| *Ocimum basilicum (Basil)                              | 1                             | √                                  | -                    | -          | -          |
| Papilionaceae                                          |                               |                                    |                      |            |            |
| *Indigofera oblongifolia (a pea)                       | 1                             | -                                  | -                    | -          | √          |
| Passifloraceae                                         |                               |                                    |                      |            |            |
| *Passiflora foetida (Stinking Passion Flower)          | 5                             | √                                  | -                    | -          | -          |
| Solanaceae                                             |                               |                                    |                      |            |            |
| *Datura leichhardtii (Native Thornapple)               | 4                             | √                                  | -                    | -          | √          |
| Sterculiaceae                                          |                               |                                    |                      |            |            |
| *Melochia pyramidata (Broom-wood, Pyramid Flower)      | 3                             | √                                  | -                    | -          | -          |
| No. of Species                                         |                               | 17                                 | 4                    | 0          | 10         |

#### 1.4.4 Conservation Significance of the Study Area for Native Flora

Given that the study area supports a relatively high number of species (for the locality), a number of which are either listed flora of conservation significance, uncommon, poorly known and/or apparently undescribed, the area is considered to have a moderate conservation value for overall flora. Specific areas, such as the sand sheet at Mesa A, the Robe River, and the areas of cracking clays, have higher conservation value as they support flora restricted to these habitats.

## 1.5 Management Recommendations

As the project layout has not yet been finalised (the preferred transport option has not been chosen, and the final alignment has not been selected), the following recommendations are necessarily largely generic strategies that are typical for projects of similar scale in the Pilbara.

The following management measures are recommended to minimise disturbance to the vegetation and flora of the current study area:

- Development areas outside the current study area should be subject to a vegetation and flora survey prior to commencement of the project.
- Consideration should be given to the following vegetation types during the project planning stage:
  - Disturbance to CzAtGeTs, which occurs on the extensive sand sheet on the southern side of Mesa A and is of Very High conservation significance, should be avoided.
  - Disturbance to vegetation types of High Conservation significance in the Robe River (particularly EcMaAtrPIsg and EcEvAtrApyPITw) should be avoided where possible and otherwise minimised.
  - Disturbance to vegetation types of High Conservation significance on the clayey plains (particularly CcCAoTwTe/h, AxCAoTwTe/h, AfAbPICAo/h, AbCAoTw/h, AsyCAoTw/h, AsyCAoTe/h and CAoTe/h, and the flowlines CcAcoTw and CcAfAxTwTeERlb) should be avoided where possible and otherwise minimised.
  - Disturbance to the other vegetation types identified as being of High conservation significance (ie. AxTw, AxTe, AsyAbAaTw, ChCzAtrAaTla, CcAsyCAoTla, CzAatTla, CcAanTw, EvAtrGOrPITw, EvCcAciTwTe, EvApyTER, CcAciAaAbTwTe, CcChAtrAbPITwTe and ChCzAtuAtrTe) should likewise be minimised wherever possible.
- Vegetation clearing should be kept to the minimum necessary for safe construction and operation of the project, particularly in areas adjacent to vegetation of higher conservation significance.
- Strict hygiene measures must be maintained to avoid the introduction and/or spread of weeds within the study area. A Weed Hygiene and Management Plan should be prepared in consultation with CALM prior to construction commencing.
- The stands of *Parkinsonia* in the Robe River in the Yarraloola borefield area should be eradicated.
- A Topsoil Management and Rehabilitation Plan should be prepared for all non-permanent cleared areas, in liaison with CALM, the Department of Environment and Department of Industry and Resources prior to the commencement of construction activities. This plan should include use of provenance collected native seed, characterisation and management of topsoil, and the respreading of cleared vegetative material. Recovery monitoring should also be carried out, with any rehabilitation failure subject to additional treatment to a suitable standard.
- As part of the environmental offsets package to be developed for the proposed projects, Robe River Iron Associates should consider contributing funding towards taxonomic research. Appropriate research topics could include:
  - a taxonomic revision of *Triodia* and development of an electronic key for identification of the species;
  - a revision of the Malvaceae family (particularly *Hibiscus*);
  - a revision of the Goodeniaceae family (particularly *Goodenia* and *Scaevola*).

## 2.0 Introduction

### 2.1 Background to the Projects

Robe River Iron Associates (Robe) currently produce pisolite ore from the Mesa J mine site, located approximately 15 km southwest of the town of Pannawonica. Current projections show that the Mesa J deposit will be mined to its maximum extent by the end of this decade. Production from the Mesa J mine site is predicted to begin to decline in 2008 as the quality of the available ore at Mesa J decreases.

The Mesa A deposit (approximately 43 km west of Pannawonica, on the southern side of the North West Coastal Highway) has been identified as the next logical deposit for development in the Robe Valley. To service the proposed mine at Mesa A, a transport corridor linking this area to existing operations at Mesa J is necessary (see Figure 2.1). Three options are currently proposed, of which two (the northern haul road and northern rail option) were considered as part of this study (see Figure 2.2).

The Warramboos deposit (northwest of Mesa A, on the northern side of the North West Coastal Highway) has also been identified as a potential development area. Additional haul road corridor options have been proposed to link Warramboos to Mesa A (see Figure 2.2).

In addition, a new borefield is required to supply water for both operations. The current proposed location for this is at Warramboos. A contingency option for a water supply area is near Yarraloola Station on the eastern side of the Robe River, with an associated pipeline linking the borefield to Mesa A (Figure 2.2). Other prospective water bore exploration areas also exist elsewhere along the transport corridor (Figure 2.2).

### 2.2 Study Area

The Mesa A transport corridor study area comprised two corridors (a haul road option and a rail option) linking Mesa A and existing operations at Mesa J (Figure 2.2). The haul road option heads east from Mesa A through a narrow pass between Mesa B and Mesa C, crosses the Robe River, then heads broadly eastwards on the northern side of the Deepdale Road before crossing the Robe River again at the Bungaroo Road crossing, finally heading south to link in to Mesa J. Bridges are proposed for both river crossings. The rail option follows the same general alignment for the majority of the route, overlapping in places, however at the Bungaroo Road it diverges significantly from the haul road option, heading east to link in with the Mesa J rail line in the vicinity of Mesa L Minor. A rail bridge is proposed for the single crossing of the Robe River between Mesa B and Mesa C.

The haul road and rail corridors were approximately 500 m and 200 m wide respectively, and numerous borrow pit areas were also identified along the rail corridor, along with eight water bore exploration areas (and tracks to access these). (Note that the easternmost section of the southern transport corridor option from Mesa A (south of the current corridors) was also surveyed prior to the northern alignments becoming the preferred options (see Figure 2.2). Results of this survey have been discussed in this report where appropriate for local context.)

The Warramboos deposit study area comprised an area of some 2.5 km by 2.5 km on the northern side of the North West Coastal Highway, together with some haul road and light vehicle road options linking this deposit to Mesa A (Figure 2.2).

The Yarraloola borefield study area included a proposed borefield area on Yarraloola Station, east of the Robe River, together with a pipeline corridor running from the borefield along the northern side of the Yarraloola Station access road, then southwest along the North West Coastal Highway to link in to Mesa A (Figure 2.2).

Where the term “study area” is used in this report without any further qualification, it refers to the combined area of the Mesa A transport corridor, Warramboos deposit and Yarraloola borefield study areas.

## 2.3 Aim of this Study

The vegetation and flora survey of the Mesa A transport corridor, Warramboos deposit and Yarraloola borefield was planned and implemented as far as practicable according to the Environmental Protection Authority (EPA) Position Statement No. 3 “Terrestrial Biological Surveys as an Element of Biodiversity Protection” (EPA 2002) and Guidance Statement No. 51 “Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia” (EPA 2004).

As such, the study aimed to:

- provide detailed baseline information regarding vegetation and flora values of the study area. This incorporated a desktop review of available information, together with a field study (utilising techniques generally accepted as standard for the region) which addressed: description and mapping of vegetation types occurring in the study area; identification of any vegetation types of particular conservation significance; cataloguing of the flora present within the study areas; and collation of information regarding any rare flora or other flora of conservation interest;
- place the information from the study area in regional context by comparison with available data from other localities; and
- provide management recommendations to minimise impact to vegetation types and flora species of particular conservation significance within the study area.

The purpose of this report is to provide baseline vegetation and flora data for use in the environmental impact assessment of the Mesa A transport corridor, Warramboos deposit and Yarraloola borefield developments.

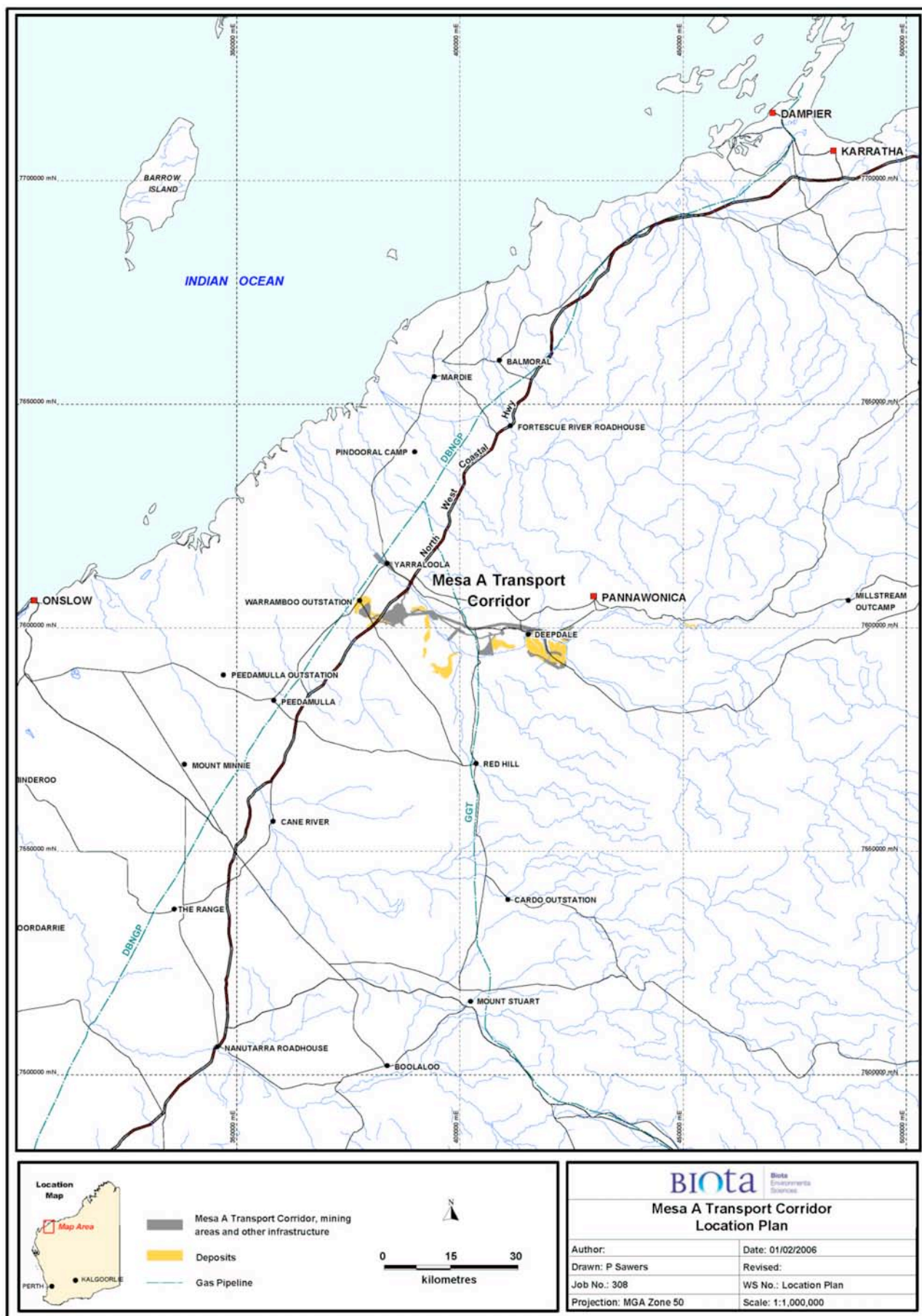


Figure 2.1: Location of the Mesa A transport corridor study area.

## 2.4 Geological and Physiographic Context of the Study Area

### 2.4.1 Geology

The Geological Survey of Western Australia 1:500,000 scale mapsheet (Thorne and Trendall 2001) shows a number of geological types in the vicinity of the Mesa A Transport Corridor study area. These comprise:

- Czp (Robe Pisolite: pisolite limonite deposits; developed along palaeodrainage lines) – at Mesa A and in the eastern end of the corridor near Mesa J;
- Ahd (Wittenoom Formation: thin- to medium-bedded dolomite, dolomitic mudstone, chert, and felsic to mafic volcanic sandstone; metamorphosed) – small areas north of Mesa L in the eastern section of the transport corridor;
- Pho (Boolgeeda Iron Formation: fine-grained, finely laminated iron-formation; mudstone, siltstone and chert; metamorphosed) – a small area immediately west of Deepdale Homestead;
- Qa (Alluvium – unconsolidated silt, sand, and gravel; in river channels) and Qx (Undivided Quaternary deposits; includes colluvium, reworked alluvium, eolian sand, and clay) – associated with the Robe River system itself;
- PWa (Ashburton Formation: mudstone, siltstone, thin- and thick-bedded sandstone; minor banded iron-formation, conglomerate, mafic and felsic volcanic rocks, and dolomite; metamorphosed) – a small area north of Mesa G in the central part of the transport corridor;
- Ahm (Marra Mamba Formation: chert, banded iron-formation, mudstone and siltstone; metamorphosed) – in the eastern extremity of the rail corridor north of Mesa J and the Robe River;
- Pwo (Duck Creek Dolomite: thin- to thick-bedded dolomite; local stromatolitic dolerite; minor chert and argillite; metamorphosed) – a very small area in the central haul road corridor north of Mesa G; and
- JK (Sandstone, conglomerate, siltstone, and mudstone; includes Callawa Formation, Frezier Sandstone, Jarlemai Siltstone, Nanutarra Formation, Parada Formation, Wallal Sandstone, and Yarraloola Conglomerate) – a very small area in the central haul road corridor north of Mesa G.

### 2.4.2 Major Physiographic Units

Beard (1975) identified four major physiographic units within the Fortescue Botanical District:

- Abydos Plain – extending from Cape Preston east to Pardoo Creek and south to the Chichester Range; it includes alluvial plains, low stony hills and granite outcrops, comprising largely granitic soils with alluvial soils on the coastal regions;
- Chichester Plateau – a predominantly basaltic plateau of siltstones, mudstones, shales, dolomite and jaspilite; it forms a watershed between drainage lines flowing north through the Abydos Plain and the Fortescue drainage to the south;
- Fortescue Valley – occupies a trough between the Chichester and Hamersley Plateaux, with the eastern portion draining into the Fortescue Marshes; and
- Hamersley Plateau – rounded hills and ranges comprised largely of dolomite and jaspilite, with some shale, siltstone and volcanics.

The study area lies towards the western end of the Hamersley Plateau.

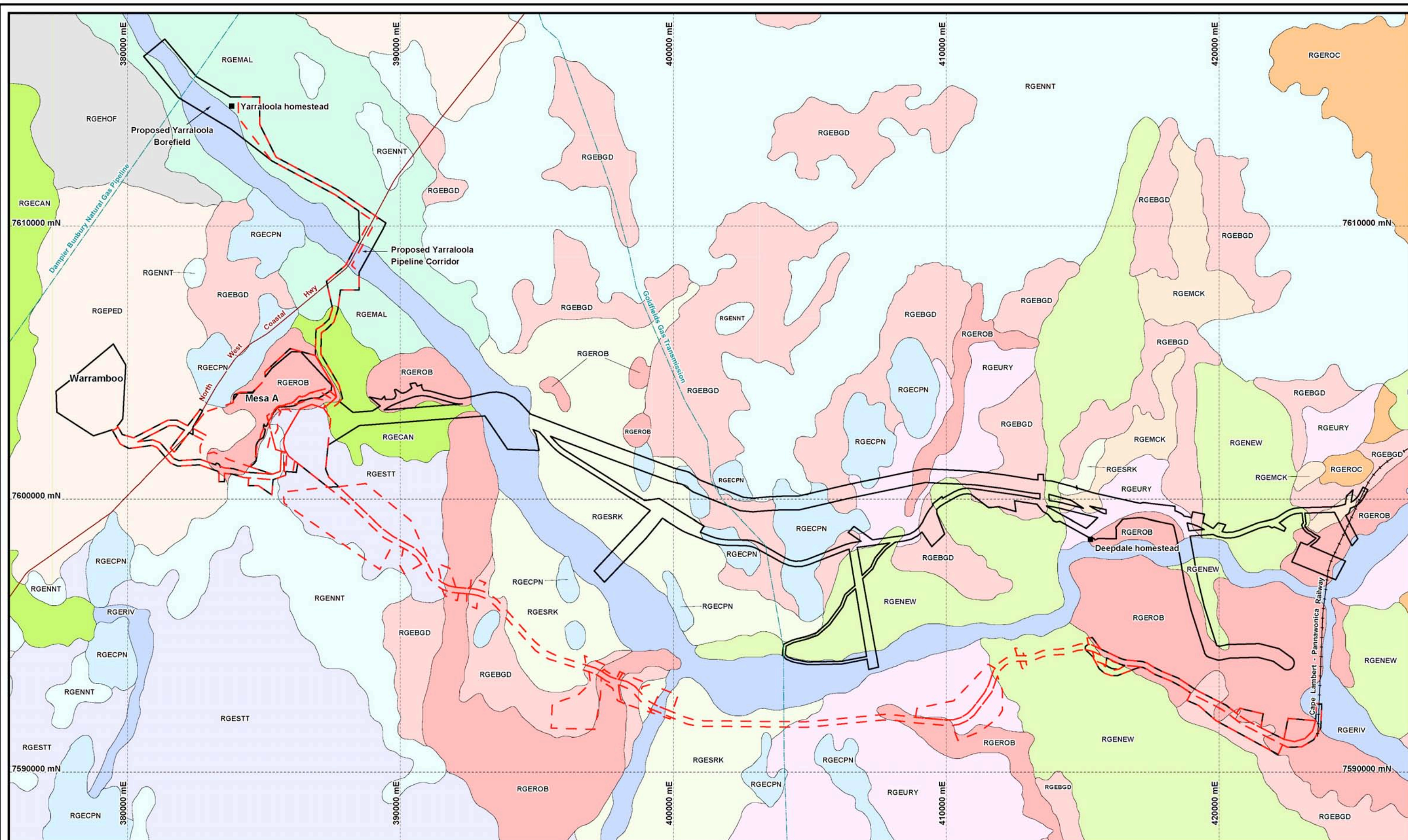
### 2.4.3 Land Systems (Rangelands)

Land System (Rangelands) mapping covering the study area has been prepared to a draft stage by the Western Australian Department of Agriculture (2002) (see Figure 2.2). These are broad units that each consist of a series of "land units" that occur on characteristic physiographic types within the Land System.

One hundred and seven (107) Land Systems occur in the Pilbara bioregion (see Section 2.5.1). [This information was obtained by merging the Ashburton Land System mapping (Payne et al. 1988) and Pilbara Land System mapping (Department of Agriculture 2002) and intersecting this with the Pilbara bioregion (Environment Australia 2000) in ArcView 3.2.]

A brief description of the 13 Land Systems intersected by the study area is given in Table 2.1. Less than 2% of the total mapped area for the Pilbara bioregion for each Land System lies within the study area (see Table 2.2).

Many of the Land Systems in the study area are relatively extensive in terms of their area within the Pilbara bioregion (eg. the Newman LS, which is the second largest Land System in the Pilbara bioregion, comprises 11% of the Pilbara). However, a number of the Land Systems are restricted in their distribution (eg. Cane, Nanutarra, Peedamulla, Sherlock and Stuart; see Table 2.1, Figure 2.2) and/or have a relatively small area (eg. the Sherlock Land System, ranked 44th smallest out of the 107 Land Systems in terms of area, has a total area of 38,638 ha or approximately 0.2% of the Pilbara bioregion). In addition, the study area is situated towards the limit of distribution of all but the Capricorn, Nanutarra, Peedamulla and River Land Systems in the Pilbara (see Table 2.1). Note that it is possible that the sandplain habitat south of Mesa A would be more appropriately mapped as Uaroo Land System (see Section 4.3.2).



#### Location Map



|                                |                               |                             |
|--------------------------------|-------------------------------|-----------------------------|
| RGEBGD Boolgeeda Land System   | RGEMCK McKay Land System      | RGESRK Sherlock Land System |
| RGECAN Cane River Land System  | RGENEW Newman Land System     | RGESTT Stuart Land System   |
| RGECPN Capricorn Land System   | RGENNT Nanutarra Land System  | RGEURY Urandy Land System   |
| RGEHOF Horseflat Land System   | RGEPED Peedamulla Land System | RGEROC Rocklea Land System  |
| RGEHOT Houndstooth Land System | RGERIV River Land System      |                             |
| RGEMAL Mallina Land System     | RGEROB Robe Land System       |                             |

— Mesa A Transport Corridor survey area - northern option and part southern option

- - - Mesa A Transport Corridor survey area - southern option

0 2.5 5  
kilometres



**BIOTA** Biota Environmental Sciences

#### Figure 2.2 Mesa A Transport Corridor Rangelands Mapping

|                                  |                             |
|----------------------------------|-----------------------------|
| Author: Dept of Agriculture 2002 | Date: 14/12/2005            |
| Drawn: P Sawers                  | Revised:                    |
| Job No.: 308                     | WS No.: WS 10305 Rangelands |
| Projection: MGA Zone 50          | Scale: 1 : 125,000          |

**Table 2.1: Land Systems intersected by the study area** (descriptions from Department of Agriculture 2002).

| Land System | Description                                                                                                                                                                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Boolgeeda   | Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands; occurring broadly in the eastern half of both the northern and southern transport corridors                                                                       |
| Cane        | Alluvial plains and flood plains supporting snakewood shrublands soft and hard spinifex grasslands and tussock grasslands; occurring in the southern section of the Yarraloola pipeline corridor, and the westernmost section of the northern transport corridor                      |
| Capricorn   | Rugged sandstone hills and ridges; hard spinifex or stony short grass forb pasture; occurring in the central section of the northern transport corridor                                                                                                                               |
| Mallina     | Sandy-surfaced alluvial plains supporting soft spinifex (and occasionally hard spinifex) grasslands; occurring in the Yarraloola borefield and the northern part of the Yarraloola pipeline corridor                                                                                  |
| McKay       | Hills, ridges, plateaux remnants and breakaways of metasedimentary and sedimentary rocks supporting hard spinifex grasslands; occurring in the northern transport corridor, east of the Deepdale Road and at the easternmost end of the rail corridor                                 |
| Nanutarra   | Low mesas and hills of sedimentary rocks supporting soft and hard spinifex grasslands; occurring in the northern transport corridor, south of Mesa A and east of the Gas Pipeline Road                                                                                                |
| Newman      | Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands; occurring in the northern and southern transport corridors from Mesa G eastwards                                                                                                                 |
| Peedamulla  | Stony and gravelly plains supporting hard spinifex grasslands and snakewood shrublands with patchy spinifex ground layer; occurring on the Warramboos deposit and the associated haul road options from Warramboos to Mesa A                                                          |
| River       | Active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands; along the Robe River, in the Yarraloola borefield and pipeline corridor, and at various points through both the northern and southern transport corridors |
| Robe        | Low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands; in both the northern and southern transport corridors, in the vicinity of Mesa A and east of the Mesa G Road                                                                      |
| Sherlock    | Stony alluvial plains supporting snakewood shrublands with patchy tussock grasses and spinifex grasslands; in the northern transport corridor between the Gas Pipeline Road and the Robe River crossing to the west, and also immediately east of the Deepdale Road                   |
| Stuart      | Undulating plains with snakewood; low hills with spinifex; stony chenopod and hard spinifex pastures; in the northern transport corridor south of Mesa A                                                                                                                              |
| Urandy      | Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands; in the northern transport corridor from north of Mesa G to the Bungaroo Road                                                                                                            |

**Table 2.2: Distribution of Land Systems within the study area\* and wider Pilbara bioregion** (data from Payne et al. 1988 and Department of Agriculture 2002).

| Land System          | Total Area in the Pilbara Bioregion (Rank†) | Number of Mapping Polygons in the Pilbara Bioregion | General Distribution through the Pilbara Bioregion                                                                                                                                                                                                | Amount of Land System within the Current Study Area* |                                 |
|----------------------|---------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------|
|                      |                                             |                                                     |                                                                                                                                                                                                                                                   | Hectares                                             | % of total in Pilbara Bioregion |
| Boolgeeda            | 961,634 ha (103 <sup>rd</sup> )             | 588                                                 | Widespread through the Pilbara with a large number of occurrences, particularly through the Hamersley subregion; study area is at the western limit of distribution of this Land System                                                           | 761.05                                               | 0.08                            |
| Cane                 | 81,775 ha (69 <sup>th</sup> )               | 7                                                   | Restricted to the westernmost section of the Pilbara bioregion, mainly in the Roebourne subregion; very few occurrences; study area is at the eastern limit of distribution of this Land System                                                   | 365.70                                               | 0.45                            |
| Capricorn            | 698,531 ha (102 <sup>nd</sup> )             | 252                                                 | Widespread through the Hamersley and Chichester subregions; numerous occurrences                                                                                                                                                                  | 302.83                                               | 0.04                            |
| Mallina              | 335,753 ha (97 <sup>th</sup> )              | 85                                                  | Widespread through the northern Pilbara, mainly in the Chichester and Roebourne subregions; only extending into the Hamersley subregion in the vicinity of the study area; study area is at the western limit of distribution of this Land System | 558.08                                               | 0.17                            |
| McKay                | 426,142 ha (99 <sup>th</sup> )              | 129                                                 | Widespread through the Pilbara; study area is at the western limit of distribution of this Land System                                                                                                                                            | 120.61                                               | 0.03                            |
| Nanutarra            | 77,384 ha (67 <sup>th</sup> )               | 52                                                  | Restricted to the western section of the Hamersley subregion; few occurrences                                                                                                                                                                     | 211.59                                               | 0.27                            |
| Newman               | 1,993,741 ha (106 <sup>th</sup> )           | 321                                                 | Widespread through the Hamersley Range, also occurring as a band along the Chichester Range to the north of the Fortescue Marsh; numerous occurrences; study area is at the western edge of distribution of this Land System                      | 531.68                                               | 0.03                            |
| Peedamulla           | 59,201 ha (57 <sup>th</sup> )               | 8                                                   | Restricted to a narrow band at the junction of the Hamersley and Roebourne subregions; very few occurrences                                                                                                                                       | 730.68                                               | 1.23                            |
| River                | 482,175 ha (101 <sup>st</sup> )             | 126                                                 | Widespread in major river systems through the Pilbara                                                                                                                                                                                             | 838.01                                               | 0.17                            |
| Robe                 | 128,859 ha (76 <sup>th</sup> )              | 251                                                 | Occurs throughout the Hamersley subregion, with a few occurrences in the Chichester subregion; study area is at the western edge of distribution of this Land System                                                                              | 1,142.42                                             | 0.89                            |
| Sherlock             | 38,638 ha (44 <sup>th</sup> )               | 39                                                  | Associated with river systems in the western sections of the Hamersley and Chichester subregions; few occurrences; study area is at the western limit of distribution of this Land System                                                         | 612.73                                               | 1.59                            |
| Stuart               | 276,685 ha (94 <sup>th</sup> )              | 53                                                  | Restricted to the western section of the Hamersley subregion; few occurrences; study area is at the northern edge of distribution of this Land System                                                                                             | 433.08                                               | 0.16                            |
| Urandy               | 131,976 ha (78 <sup>th</sup> )              | 23                                                  | Occurs along the boundary of the Hamersley and Fortescue Plains subregions, and in the western section of the Hamersley subregion; few occurrences; study area is towards the western end of distribution of this Land System                     | 436.76                                               | 0.33                            |
| <b>Pilbara Total</b> | <b>17,800,478 ha</b>                        | <b>5636</b>                                         |                                                                                                                                                                                                                                                   | <b>7,045.22</b>                                      |                                 |

\* Combined area of the Mesa A transport corridors, Warramboe deposit, and Yarraloola borefield and pipeline corridor.

† Ranking of Land System in terms of area out of the 107 Land Systems in the Pilbara bioregion; ranked from least abundant in terms of area (1) to most abundant (107).

## 2.5 Botanical Context of the Study Area

### 2.5.1 Pilbara IBRA Bioregion

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 85 bioregions (Environment Australia 2000). The study area lies within the Pilbara bioregion, at the north-western end of the Hamersley subregion; sections of the Warramboos deposit and Yarraloola borefield extend into the Roebourne subregion.

With increasing survey work in the Pilbara, it is becoming apparent that this region is one of the centres of biodiversity in the State. This appears to be related to the diversity of geological, altitudinal and climatic elements in the region, as well as a function of its location. The Pilbara is located in a transitional zone between the floras of the Eyrean (central desert) and southern Torresian (tropical) bioclimatic regions, and contains elements of both floras (see for example van Leeuwen and Bromilow (2002) for a detailed discussion of the significance of the Hamersley Range). In recognition of this high species diversity and the high levels of endemism in the region, the Pilbara has been nominated as one of 15 national biodiversity “hotspots” by the Minister for the Environment and Heritage (go to [www.deh.gov.au/minister/env/2003/mr03oct03.html](http://www.deh.gov.au/minister/env/2003/mr03oct03.html)).

The Pilbara bioregion is listed as a medium priority for funding for land purchase under the National Reserves System Co-operative Program due to the limited representation of the area in conservation reserves. Portions of various pastoral leases in the region have been nominated for exclusion for public purposes in 2015, when the leases come up for renewal. Many of the submissions are from the Department of Conservation and Land Management, with the intention of adding these areas to the existing conservation estate in order to provide a comprehensive, adequate and representative reserve system. None of these proposed exclusions are located in the vicinity of the study area. (While small sections of Yarraloola and Peedamulla Stations are proposed for exclusion for the purposes of reservation for a Conservation Park, these areas are approximately 30 km south of the Mesa A transport corridor.)

### 2.5.2 Beard's Vegetation Mapping

Beard (1975) mapped the vegetation of the Pilbara at a scale of 1:1,000,000. The study area lies entirely within the Fortescue Botanical District of the Eremaean Botanical Province as defined by Beard. The vegetation of this province is typically open, and frequently dominated by spinifex, wattles and occasional Eucalypts.

Beard's mapping units intersected by the study area include:

- *Acacia pyrifolia* and/or *A. bivenosa* sparse shrubs over *Triodia basedowii* and/or *T. wiseana* hummock grasslands; and
- riverine woodland dominated by eucalypts in the Robe River (Beard 1975).

Given the broad nature of Beard's mapping, these units are only broadly applicable to the vegetation occurring on site (see Section 4.0).

### 2.5.3 More Detailed Botanical Studies in the Area

Like much of the Pilbara region, the study area is relatively poorly known from a botanical perspective.

However, various other areas around Pannawonica have been surveyed as part of baseline vegetation and flora surveys for Robe River Iron Associates, including some work at Mesa A (see Trudgen 2003a, 2003b; Biota 2005a), Mesa G (Biota 2005a), at or near Mesa J (Trudgen 2002; Biota 2003, 2005b), Bungaroo Creek (Trudgen 2003c, Biota 2005c), and Mesa L and Mesa L Minor (Biota 2005d).

As mentioned previously, the Department of Agriculture (2002) has carried out a broadscale survey of parts of the Pilbara. This will result in brief descriptions of the vegetation of the Land Systems (Rangelands), however these are not yet available. CALM is also in the process of undertaking the Pilbara Region Biological Survey, which is expected to finish in 2007.

## 3.0 Methodology

### 3.1 Study Team and Timing of Surveys

The study area was visited a number of times by various botanists as follows:

- Brian Morgan (private consultant) surveyed proposed exploration drill-lines at Warramboos for rare flora between the 21<sup>st</sup> and 26<sup>th</sup> of July 2004 (6 person days); this study extended to the north of the current Warramboos deposit study area;
- Emil Thoma (Pilbara Iron) surveyed additional proposed drill-lines at Warramboos for rare flora on the 11<sup>th</sup> and 12<sup>th</sup> of August 2004 (2 person days); this study also included areas to the north of the current Warramboos deposit study area;
- Michi Maier, Raimond Orifici, Hana Eynon (all of Biota) and Brian Morgan surveyed the haul road corridors associated with the Warramboos deposit for rare flora and conducted a vegetation survey of the deposit between the 29<sup>th</sup> of March and 5<sup>th</sup> of April 2005 (25 person days in total);
- Raimond Orifici, Hana Eynon and Brian Morgan surveyed the Yarraloola borefield and associated pipeline corridor between the 6<sup>th</sup> and 10<sup>th</sup> of April 2005 (13 person days in total);
- Raimond Orifici, Hana Eynon, Myles Menz (Biota) and Brian Morgan surveyed the eastern end of the Mesa A transport corridor between the 4<sup>th</sup> and 11<sup>th</sup> of July 2005 (27 person days in total);
- Michi Maier, Raimond Orifici, Myles Menz and Brian Morgan surveyed parts of the western and central sections of the Mesa A transport corridor between the 1<sup>st</sup> and 13<sup>th</sup> of August 2005 (34 person days in total); and
- Michi Maier, Brian Morgan, Myles Menz and Hana Eynon surveyed the remainder of the western and central sections of the Mesa A transport corridor, and established additional quadrats along the Yarraloola pipeline corridor between the 5<sup>th</sup> and 19<sup>th</sup> of September 2005 (37 person days in total).

A total of 144 person days has thus been spent surveying the study area.

In addition, the easternmost section of an initially proposed southern transport corridor from Mesa A was surveyed by Michi Maier, Raimond Orifici, Brian Morgan and Hana Eynon between the 27<sup>th</sup> of April and 5<sup>th</sup> of May 2005 (34 person days in total).

#### 3.1.1 Seasonal Conditions at the Time of the Surveys

The rare flora searches at Warramboos in July and August 2004 were done approximately 3-4 months after major rainfall in the area in March associated with Cyclone Monty (Figure 3.1). The Pannawonica area received substantial and repeated rainfall events in 2005, beginning in February and continuing throughout the period over which the remaining five surveys were conducted (Figure 3.1). Conditions at the time of the surveys, particularly those in the latter part of 2005, were optimal for the collection of annual flora.

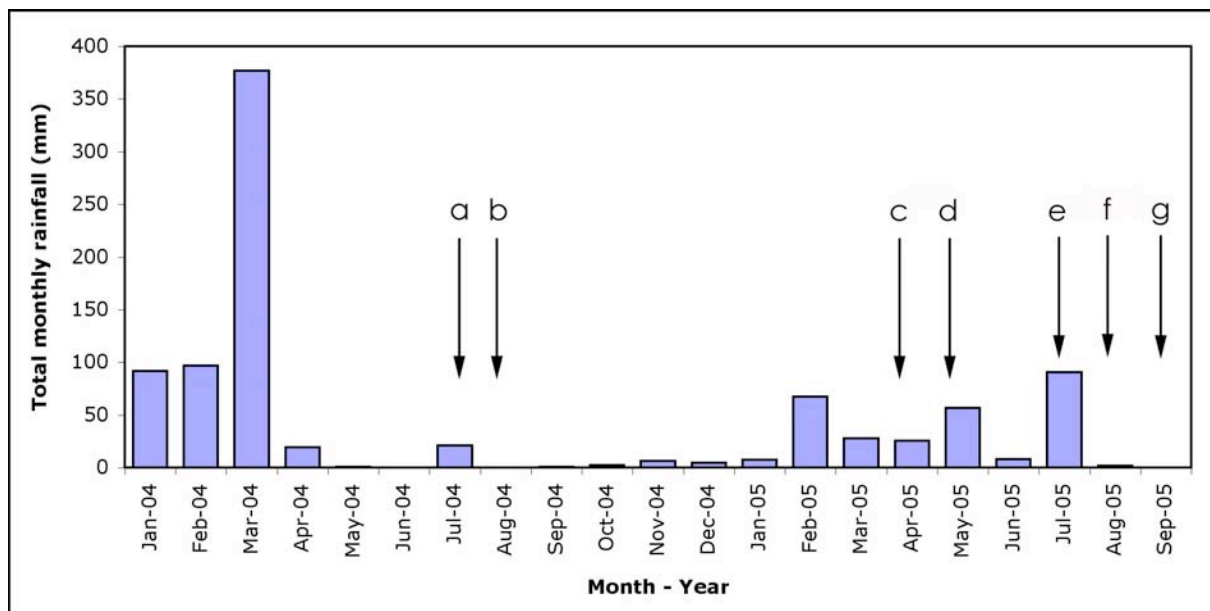


**Figure 3.1: Monthly rainfall for Pannawonica from January 2004 to September 2005 (data supplied by Bureau of Meteorology) and timing of botanical surveys in the study area:** a = rare flora searches at Warramboos by B. Morgan; b = rare flora searches at Warramboos by E. Thoma; c = Biota survey of Warramboos deposit and Yarraloola borefield; d = survey of westernmost section of initially proposed alignment of Mesa A southern transport corridor; e = survey of eastern section of Mesa A transport corridor; f = survey of parts of western and central sections of Mesa A transport corridor; g = survey of remainder of western and central sections of Mesa A transport corridor, and establishment of quadrats along Yarraloola pipeline.

## 3.2 Vegetation Description and Mapping

In the current study, terrestrial vegetation descriptions were based on the height and estimated cover of dominant species using Aplin's (1979) modification of the vegetation classification of Specht (1970) to include a hummock grassland category (see Appendix 2). Descriptions were made at each of 50 floristic survey quadrats (see Section 3.3), and at 9 relevés (unbounded flora survey sites). Additional brief vegetation descriptions were made and vegetation boundaries were ground-truthed during the systematic foot traverses required for the rare flora searches (see Section 3.4).

The vegetation descriptions were then grouped to arrive at vegetation units that were defined on the basis of a shared suite of perennial species with a similar range of cover values. These have been listed under the main landform/habitat types in which they were found to occur. Alternative approaches could utilise another framework, such as Land System (Rangelands) mapping or geology.

The coding system for the vegetation types incorporated the dominant flora species for the type, organised from tallest strata to lowest strata. Species names were abbreviated to capital letter/s for genus, followed by lower case letter/s for species, with multiple letters used where necessary to avoid confusion (eg. ChCzAtuAtrCE = dominant species *Corymbia hamersleyana*, *C. zygophylla*, *Acacia tumida*, *A. trachycarpa*, \**Cenchrus* spp.). Although this occasionally results in some large and unwieldy codes, this system at least allows for continual expansion of vegetation types while retaining original coding, allowing easier rationalisation of vegetation mapping between different studies.

To gather the spatial information, the quadrat and relevé vegetation descriptions were used together with the other mapping notes gathered in the field to prepare a draft map of vegetation, using rectified 1:20,000 scale colour digital photography as the background. Some of the vegetation units (mainly small flowlines) were frequently too small to show at the scale of mapping; only large occurrences of these were individually mapped.

The vegetation boundaries were subsequently digitised on-screen using the ArcView 3.2 package. The resulting shapefiles were "tagged" to provide each polygon with the vegetation unit code. Other point source datasets, such as locations of quadrats, weeds and priority flora, were generated into spatial data using MapInfo. These datasets were subsequently saved as separate MapInfo shapefiles.

These datasets, in conjunction with other data supplied from other organisations, were used in the production of the vegetation maps contained in this report. All maps were produced using the MapInfo package.

### 3.3 Assessment of Floristic Survey Quadrats

The locations of the 50 detailed flora recording quadrats were chosen to represent the range of terrestrial vegetation types occurring within the survey area. The quadrats were uniquely numbered (see Table 3.1). Nine relevés (unbounded flora survey sites comprising a similar area to a standard quadrat) were also sampled; these were labelled MATMA to MATMI (Table 3.1).

**Table 3.1: Quadrats and relevés assessed within each section of the study area.**

| Area                                                           | No. of Quadrats (Labels)                          | No. of Relevés (Labels)        |
|----------------------------------------------------------------|---------------------------------------------------|--------------------------------|
| Mesa A transport corridor (northern option)                    |                                                   |                                |
| - Haul road option                                             | 14 (MATH11 to MATH23; 2MATC09)                    | 4 (MATMA, MATMB, MATMC, MATMD) |
| - Rail option                                                  | 19 (MATC04; MATR11 to MATR20; 2MATC01 to 2MATC08) | 3 (MATME, MATMH, MATMI)        |
| Mesa A transport corridor (southern option)                    | 4 (MATC01, MATC02, MAT04, MAT05)                  | -                              |
| Warramboos deposit (including haul road connections to Mesa A) | 8 (MATC03; WAR01 to WAR07)                        | 1 (MATMG)                      |
| Yarraloola borefield and pipeline corridor                     | 5 (MATR21 to MATR24; YARPL01)                     | 1 (MATMF)                      |

Quadrats were typically 50 m x 50 m, as this size gives a good sample of flora presence in the Pilbara. It also gives a good indication of the shrub and grass layer vegetation structure for most vegetation types in the Pilbara that occur in 'uniform' habitats (eg. plains and hillslopes, where vegetation stands are typically greater than this quadrat size). Quadrat shape and/or size were adjusted as necessary to fit smaller or oddly shaped habitats (eg. flowlines).

Each quadrat was permanently marked using a steel fence dropper at one corner of the quadrat (usually the northwest corner). An optical square and measuring tapes were used to ensure that the quadrat sides were correctly positioned.

The following parameters were recorded for each quadrat:

1. **Location:** AMG coordinates recorded in WGS84 datum (within 1-2 m of GDA94) using a hand-held Global Positioning System (GPS), to an accuracy usually within 5 m; readings usually taken for all four corners of the quadrat;
2. **Vegetation Description:** Broad description based on the height and estimated cover of dominant species after Aplin's (1979) modification of the vegetation classification system of Specht (1970) (see Appendix 2);
3. **Habitat:** Description of landform and habitat;
4. **Soil:** Broad description of soil type and stony surface mantle;
5. **Disturbance Details:** Evidence of grazing, mining exploration activities, weed invasion, frequent fires etc. Note that fire effects are only considered as a negative impact if they are caused by repeated burning (such as that done for pastoral purposes). Fire is a

natural and frequent process in the Pilbara to which the vegetation has adapted, and to class areas as being in poor condition simply because they have been recently burnt is misleading; and

6. **Percentage Foliar Cover:** Cover was estimated visually for each species. Estimates were made to the nearest percent where possible, or a range (eg. 5-10%) was used. '+' was used where only occasional individuals were present, with a cover of less than 1%.

Colour photographs of the vegetation at each site were taken using a digital camera.

### 3.4 Rare Flora Searches

Pilbara Iron's internal "best practice" environmental management requires all new development areas to be systematically searched for rare flora. The entire study area was systematically traversed on foot by the survey team, with individual observers spaced between 50-70 m apart, depending on the terrain. The survey area was loaded onto Magellan hand-held GPS units to ensure that the observers were working within the exact boundaries.

Any locations of rare flora were recorded using a GPS (WGS84 datum), together with an indication of the number of individuals present, the habitat and associated plant species. Voucher specimens were also collected for lodgement with the Western Australian Herbarium. Rare Flora Report Forms have subsequently been completed and lodged with CALM.

Locations of introduced flora were also recorded as part of this exercise, and any additional native flora species that had not been previously recorded in the area by the survey team were also noted.

All records of rare flora and weeds are presented in Appendix 5.

### 3.5 Specimen Collection and Identification

Common species that were well known to the survey botanists were identified in the field. Voucher specimens of all other species were collected and assigned a unique number to facilitate tracking of data. These were pressed in the field, and dried in a drying oven.

These vouchers were then identified by keying out, reference to appropriate publications, use of reference collections and comparison to the collections held at the Western Australian Herbarium. Most specimens were identified by Michi Maier, Hana Eynon, Raimond Orifici and Andrew Wakefield of Biota, with assistance from Malcolm Trudgen of M.E. Trudgen and Associates for some taxa. Additional specialist taxonomists were consulted as required for assistance with difficult taxa (see Section 7.0).

Specimens will be lodged with the Western Australian Herbarium and Karratha Regional Herbarium for all taxa for which suitable material is available.

### 3.6 Taxonomy and Nomenclature

Nomenclature was checked against the current listing of scientific names recognised by the Western Australian Herbarium and updated as necessary.

The main outdated nomenclature retained was that relating to *Cassia*. This genus is currently recognised as *Senna* (see Randell 1989), however the older *Cassia* classification (Symon 1966) was perceived to be a more realistic level of separation of the taxa (eg. with taxa such as '*glutinosa*' and '*pruinosa*' recognised at specific rather than subspecific level). A more detailed discussion is contained in Trudgen and Casson (1998), while a comparison of the nomenclature under the two classifications is presented in Appendix 4.

Some other species names were retained where deemed appropriate (eg. although *Euphorbia careyi* is currently included under *E. schultzei* by the WA Herbarium, this taxon is believed worthy of recognition at the specific level; David Halford, Queensland Herbarium, pers. comm. 2004).

## 3.7 Data Management

All raw site data was entered into an Access database structure developed by Malcolm Trudgen (M.E. Trudgen and Associates) and Ted Griffin (private consultant) held at Biota, with species names entered following identification of the specimens.

## 3.8 Floristic Analysis

To provide an understanding of the floristic composition of vegetation of the study area in relation to the surrounding region, a pattern analysis was carried out using a numeric classification procedure within the PATN software package (Belbin 1987). The analysis was run by Mr Ted Griffin (private consultant). The flexible UPGMA classification strategy was used, together with the Bray-Curtis site similarity measure. All other PATN settings were set to the default options, consistent with use of this software by CALM to analyse data from the Swan Coastal Plain (Gibson et al. 1994).

The analysis compared the floristic composition of the 50m by 50m quadrats (and some relevés) recorded in the current study area with quadrats and relevés recorded in a series of survey areas from both nearby and some distance away in the Hamersley and Chichester Ranges. The dataset comprised some 846 sites (standard 50m by 50m floristic survey quadrats, or well-recorded relevés), including 59 sites from the current study area, together with 787 sites from 10 other survey areas in the Pilbara:

- 55 sites from the Mesa A and Mesa G areas (Biota 2005a);
- 119 sites from Cape Preston, west of Dampier (Biota and Trudgen 2001); ~90 km north of Pannawonica;
- 10 sites from the Mesa J Extension (Biota 2003); ~15 km southwest of Pannawonica;
- 102 sites from the West Angelas Millstream Rail Segment, extending from the Fortescue Slopes study area along the lower slopes of the Chichester Range parallel to the existing Hamersley Iron rail line, then to Barowanna Hill; ~80 km east of Pannawonica;
- 66 sites from the Brockman Syncline 4 study area, near Tom Price (Biota 2005e); ~140 km southeast of Pannawonica;
- 46 sites from a rail corridor in the Four Corners Bore area on Hamersley Station (Trudgen and Casson 1998); ~160 km east-southeast of Pannawonica;
- 2 sites from near Eight Mile Well on Hamersley Station (Trudgen and Casson 1998); ~160 km east-southeast of Pannawonica;
- 305 sites from the core area surveyed for Robe River Iron Associates' West Angelas mine (Trudgen and Casson 1998); ~310 km southeast of Pannawonica;
- 45 sites from Hamersley Iron's Yandi Expansion area (Biota 2004a); ~320 km east-southeast of Pannawonica; and
- 37 sites from the Mindy Mindy area (Biota 2004b); ~340 km east-southeast of Pannawonica.

The dataset included presence/absence data (rather than estimated percent cover) for each species present at each site, as it has been shown that when undertaking analysis of large regional datasets, floristic differences between areas tend to over-ride variation arising from the inclusion of more detailed quantitative data (M. Trudgen, ME Trudgen and Associates, pers. comm.). Incompletely recorded floristic survey quadrats were excluded from the analysis, and relevés (unbounded floristic survey sites) were included where the list of species recorded was believed to be a good sample of the available flora.

The combined species list from the 11 projects was reviewed for errors and inconsistencies in nomenclature. Where there were multiple taxa that were considered likely to represent the same species, these were all referred to a single taxon identification code and thus treated as a single entity in the analysis (eg. records of *Convolvulus* "angustissimus" and *C. "clementii"* were treated as belonging to the same taxon, as were records of *Triodia epactia* and *Triodia pungens*). Where a taxon name could potentially refer to more than one entity across different projects (eg. *Euphorbia* sp., *Tephrosia* sp.), it was excluded from the analysis.

## 3.9 Assessment of Vegetation Conservation Significance

A description of the methodology employed to assess the conservation significance of the various vegetation types identified within the current study area is given in Section 4.3.4.

## 3.10 Limitations of this Study

A number of limitations of the field survey and subsequent conservation assessments are discussed in the following section. These are factors that must be considered when reviewing and applying the results of this study. Despite these limitations, the field study and the subsequent analyses are believed to give a good representation of the flora and vegetation values of the study area.

The main limitations of this study are as follows:

- Fungi and nonvascular flora (eg. algae, mosses and liverworts) were not specifically sampled, although some samples were opportunistically collected.
- Although the field work was done at an appropriate time for detecting most ephemeral flora, some species may not have been present or identifiable at the time of survey. Nonetheless, it is estimated that over 90% of the flora species in the area would have been recorded.
- As the flora quadrats were only sampled once, additional species would probably be recorded if the sites were revisited. In addition, each section of the study area was only visited once. The species lists should therefore be taken as indicative rather than exhaustive.
- The vegetation units for this study were defined based on interpretation of aerial photography signatures combined with the site data and field mapping notes recorded during the field survey. As it was not possible to map areas outside the study area in this way, the distribution of these units outside the study area can only be inferred by their correlation with the Land Systems mapping prepared by the Department of Agriculture. This means that there is a level of uncertainty regarding the assessment of distribution of these vegetation types outside the current study area.
- The PATN floristic analysis is fundamentally limited by the data currently available for the region, which is typically patchily distributed through the Pilbara and concentrated in development areas.
- As the preferred transport option from Mesa A has not yet been selected and the layouts of the Warramboos project and borefield have not yet been finalised, the discussion of management measures is largely limited to generic strategies typically associated with developments of similar scale in the Pilbara region. An attempt has been made to quantify disturbance areas, however these should be taken as preliminary estimates only.

## 4.0 Vegetation

### 4.1 Overview of Vegetation Types

Seventy-two vegetation types were identified within the study area. Broadly, these vegetation types included:

- Hard Spinifex *Triodia wiseana* and/or Soft Spinifex *Triodia epactia* hummock grasslands with a scattered to moderately dense shrub overstorey dominated by varying proportions of *Acacia ancistrocarpa*, *A. bivenosa* and/or *A. inaequilatera* on the stony plains and low stony rises;
- Scattered trees of Snappy Gum *Eucalyptus leucophloia* subsp. *leucophloia* over hummock grasslands of *Triodia wiseana*, sometimes with an undescribed spinifex species *Triodia* sp. nov., on stony hills and mesa crests; the shrub component was variable in both density and composition, but typically included *Acacia atkinsiana*, *A. arida* and/or *A. bivenosa*;
- Tall shrublands of Snakewood *Acacia xiphophylla* over an understorey of herbs (on low-lying clayey soils) or open spinifex (on more elevated areas);
- Open forests of River Gum *Eucalyptus camaldulensis* and Silver Cadjeput *Melaleuca argentea* in the Robe River;
- Open woodlands of Coolibah *Eucalyptus victrix*, or *Corymbia candida* and/or *C. hamersleyana*, over mixed tall shrublands in moderate-sized creeks; and
- Tall shrublands dominated by various combinations of *Acacia atkinsiana*, *A. bivenosa*, *A. pyrifolia*, *A. tumida* var. *pilbarensis*, *Gossypium australe*, *G. robinsonii* and *Grevillea pyramidalis* over hummock grasslands of *Triodia wiseana* and/or *T. epactia* in minor flowlines.

### 4.2 Description of Individual Vegetation Types

#### 4.2.1 Level of the Vegetation Types

The vegetation types defined for the study would each incorporate a range of structural and floristic variants. The units described are considered to range from at, to somewhat higher than, the vegetation association level, although they are not strictly defined as vegetation associations. The structural and floristic variation they include undoubtedly covers a large number of vegetation communities. The broad nature of the units defined needs to be taken into account when using them for assessing conservation value of the vegetation.

It should be noted that the description and mapping of vegetation in the study area represents a temporal “snapshot” view of the existing vegetation at the time of survey, given the often profound effects of fire on vegetation in the region.

#### 4.2.2 Vegetation of Clayey Plains

The mesic, heavy clay substrates of these plains supported patches of dense herbs, particularly *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Ptilotus gomphrenoides* var. *gomphrenoides*, and various annual daisies including *Streptoglossa bubakii* and *Calocephalus* species.

**CcCAoTwTe/h**      ***Corymbia candida* low woodland over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia wiseana*, *T. epactia* open hummock grassland with patches of herbland**

This vegetation occurred in patches through both the northern and southern transport corridors. Robe, Sherlock and Urandy LS were the most common units corresponding with this vegetation type, although it would be the latter two Land Systems that are most strongly associated. An open cover of *Acacia bivenosa* was also sometimes present in the shrub stratum. Herbs included *Dysphania rhadinostachya*,

*Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Acacia ancistrocarpa*, *A. synchronicia*, *Hakea lorea*. No sites from this study.

**AxCAoTwTe/h      *Acacia xiphophylla* low woodland over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia wiseana*, *T. epactia* open hummock grassland with patches of hermland**

This vegetation occurred in the northern transport corridor from southeast of Mesa A to east of the Deepdale Road. The main Land Systems mapped in the areas supporting this vegetation type appear to be Cane and McKay LS (to a lesser extent Sherlock and Urandy LS), however based on the broad descriptions of the Land Systems, this vegetation type would probably be most closely associated with the Cane and Sherlock LS. The hummock grassland was dominated by *Triodia wiseana* and/or *T. epactia*, and patches of the tussock grass *Eriachne bentharii* were also present. Herbs were dominated by *Euphorbia boophthona* (large seed form), *Ptilotus gomphrenoides* var. *gomphrenoides*, *Streptoglossa bubakii* and other annual daisies such as *Calocephalus knappii*. Other associated species: *Acacia sclerosperma*, *A. tetragonophylla*, *Alternanthera nana*, *Cleome viscosa*, *Eremophila forrestii* subsp. *forrestii*, *Ipomoea muelleri*, *Rhagodia eremaea*, *Sida* aff. *fibulifera* (various forms), *Solanum horridum*. Site MATR13 of this study (PATN group 1/5).

**AfAbPICAO/h      *Acacia farnesiana* tall open shrubland over *A. bivenosa*, *Petalostylis labicheoides* open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over mixed hermland**

This vegetation occurred in the northern haul road east of the Deepdale Road. The areas of this vegetation type correspond with areas mapped as the McKay and Sherlock Land Systems, however the latter Land System is probably more closely associated. Spinifex was absent from these very wet areas. Herbs were dominated by *Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Acacia coleii*. No sites from this study.

**AatAbAaCAoTe/h      *Acacia atkinsiana*, *A. bivenosa*, *A. ancistrocarpa* open shrubland to open heath over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia epactia* open hummock grassland with patches of hermland**

This vegetation occurred in a single area in the northern haul road corridor, north of Mesa G, and was associated with the Urandy Land System. Herbs were dominated by *Streptoglossa bubakii* and *Ptilotus appendiculatus*. Other associated species: *Acacia synchronicia*, *Corymbia candida*. No sites from this study.

**AbCAoTw/h      *Acacia bivenosa* open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia wiseana* open hummock grassland with patches of hermland**

This vegetation occurred north of the Deepdale Homestead in the northern transport corridor, mainly in the haul road option and to a lesser extent in the rail option. The mapped areas occur across three Land Systems (McKay, Sherlock and Urandy), however it would be most closely associated with Sherlock and Urandy LS. Herbs were dominated by *Streptoglossa bubakii*. Other associated species: *Acacia xiphophylla*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia tannensis* subsp. *eremophila* (Hamersley form), *Ptilotus gomphrenoides* var. *gomphrenoides*, *Sida* aff. *fibulifera* (various forms), *Solanum horridum*, *Sporobolus australasicus*. Site MATH20 of this study (PATN group 1/1).

**AsyCAoTw/h      *Acacia synchronicia* open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) shrubland over *Triodia wiseana* open hummock grassland with patches of hermland**

This vegetation occurred in the northern rail option, west of the Gas Pipeline Road, on the Sherlock Land System. Herbs were dominated by *Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Acacia farnesiana*. No sites from this study.

**AsyCAoTe/h      *Acacia synchronicia* open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia epactia* open hummock grassland with patches of hermland**

This vegetation occurred in the northern haul road option, north of Mesa G, and in the water bore exploration area west of the Gas Pipeline Road. It was recorded from the Urandy and Sherlock Land Systems. Herbs were dominated by *Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Acacia farnesiana*. No sites from this study.

**CAoTe/h      *Cassia* aff. *oligophylla* (thinly sericeous) low shrubland over *Triodia epactia* hummock grassland with patches of hermland**

This vegetation occurred more generally through the study area, but only larger areas were mapped; these were in the northern haul road option, west of the Mesa G Road and east of the Deepdale Road, on the Urandy Land System. Herbs were dominated by *Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Acacia farnesiana*, *Alternanthera nana*, *Cleome viscosa*, *Rhynchosia minima* var. *australis*. No sites from this study.

## 4.2.3 Vegetation of Stony Plains

### Snakewood Shrublands

#### **AxTw                      *Acacia xiphophylla* low woodland to tall shrubland over *Triodia wiseana* open hummock grassland**

This vegetation occurred in numerous patches on stony plains through the northern transport corridor, from approximately the Deepdale Road to the west. It was more common in the northern haul road option. Although it occurred on various Land Systems, Boolgeeda and Sherlock LS would appear to be the most closely associated. Other associated species: *Acacia bivenosa*, *A. synchronicia*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Cassia glutinosa*, *C. luerssenii*, *C. notabilis*, *C. pruinosa*, *Euphorbia* spp., *Ptilotus axillaris*, *P. exaltatus* var. *exaltatus*, *P. fusiformis* var. *fusiformis*, *Salsola tragus*, *Solanum horridum*, *Streptoglossa bubakii*, *Trianthema triquetra*, *Tribulus* spp., *Trichodesma zeylanicum* var. *zeylanicum*. Site MATH17 of this study (PATN group 1/5); site MESG13 at Mesa G and site MEA08 at Mesa A (Biota 2005a).

#### **AxTe                      *Acacia xiphophylla* low woodland to tall shrubland over *Triodia epactia* open hummock grassland**

This vegetation was less common than AxTw. It occurred on stony plains in patches through the northern transport corridor, particularly in the water bore exploration area west of the Gas Pipeline Road. A small area of intermingled AxTw/AxTe also occurred at the eastern end of the southern transport corridor. The most strongly associated Land System would appear to be Sherlock LS. Other associated species were similar to AxTw. No sites from this study.

#### **scald                      *Triodia wiseana*, *T. epactia* scattered hummock grasses with scattered herbs**

Some "scald" areas were noted within the general clayey plains, particularly within Snakewood vegetation. Only larger occurrences have been individually mapped, and these are within the central section of the northern rail corridor, associated with the Sherlock and Urandy Land Systems. These areas supported only scattered perennial species, mainly hummock grasses, and a variable cover of herbs and annual grasses including *Ptilotus aeroides* and *Streptoglossa bubakii*. No sites from this study.

### *Acacia synchronicia*, *A. bivenosa* Shrublands

#### **AsyAbAaTw                      *Acacia synchronicia*, *A. bivenosa*, *A. ancistrocarpa* open shrubland over *Triodia wiseana* open hummock grassland**

This vegetation occurred through the northern transport corridor from approximately the Mesa G Road west, and was also recorded at Warramboos. Although it was recorded over several Land Systems, it is probably most closely linked with Cane and Sherlock. Scattered low trees of *Corymbia hamersleyana* were often present, together with a scattered to open shrub cover of *Cassia* aff. *oligophylla* (thinly sericeous). Other associated species: *Amaranthus pallidiflorus*, *Boerhavia coccinea*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Heliotropium heteranthum*, *Ipomoea muelleri*, *Phyllanthus erwinii*, *Ptilotus calostachyus* var. *calostachyus*, *P. exaltatus* var. *exaltatus*, *Solanum horridum*, *Sporobolus australasicus*, *Streptoglossa bubakii*, *Tribulus astrocarpus*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triumfetta clementii*. Sites MATR14, WAR05 and relevé MATME of this study (PATN groups 1/5, 23/89); sites MESG05, MESG07 of the Mesa G study (Biota 2005a).

#### **AsyAbAaTe                      *Acacia synchronicia*, *A. bivenosa*, *A. ancistrocarpa* open shrubland to shrubland over *Triodia epactia* open hummock grassland**

This vegetation occurred in the Yarraloola borefield and pipeline corridor, and through the northern transport corridor, mainly in the haul road option and to a lesser extent in the rail option. It occurred mainly in the Cane LS, with smaller occurrences in the Mallina, Sherlock and Urandy LS. Scattered tall shrubs of *Acacia xiphophylla* were often present, together with a scattered to open shrub cover of *Cassia* aff. *oligophylla* (thinly sericeous). Other associated species: *Alternanthera nana*, *Cassia notabilis*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Eriachne benthamii*, *Euphorbia boophthona* (large seed form), *Evolvulus alsinoides* var. *villosicalyx*, *Flaveria australasica*, *Goodenia forrestii*, *Indigofera linifolia*, *Ipomoea muelleri*, *Portulaca oleracea*, *Rhynchosia minima* var. *australis*, *Sida* aff. *fibulifera* (various forms), *Sida* sp. Wittenoom (W.R. Barker 1962), *Solanum horridum*, *Sporobolus australasicus*, *Streptoglossa bubakii*, *Tribulus macrocarpus*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triumfetta clementii*. Sites MATH13, MATR24 and relevé MATMF of this study (PATN group 1/5).

#### **AsyAbTlo                      *Acacia synchronicia*, *A. bivenosa* open shrubland over *Triodia longiceps* hummock grassland**

This vegetation was not common in the study area, occurring only on small areas of plains with calcareous soils. It was recorded from south of Mesa A; from the northern rail option, west of Mesa G; and from the south-eastern corner of the Mesa K area. Although it was recorded from three Land Systems (Nanutarra, Boolgeeda and River), it was probably most closely linked with Nanutarra LS, as

additional vegetation dominated by *Triodia longiceps* was noted on this Land System outside the study area, south of the Pannawonica Road. Other associated species: *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Streptoglossa bubakii*, *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study.

### **Acacia atkinsiana, A. bivenosa Shrublands**

#### **AatAbTw      Acacia atkinsiana open tall shrubland over Acacia bivenosa open shrubland over Triodia wiseana hummock grassland**

This vegetation type occurred broadly over the stony undulating plains and some low stony rises of the northern transport corridors between roughly the Deepdale Road and the Gas Pipeline Road; it was more abundant in the rail option. There was also one small occurrence east of Mesa A. Although there were some small areas on Newman LS, the main associated Land System was the Boolgeeda LS. Other associated species: *Abutilon trudgei*, *Acacia ancistrocarpa*, *A. inaequilatera*, *Cassia notabilis*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Evolvulus alsinoides* var. *villosicalyx*, *Gossypium australe* (Burrup form), *Petalostylis labicheoides*, *Phyllanthus erwinii*, *Ptilotus astrolasius* var. *astrolasius*, *Sida* sp. Wittenoom (W.R. Barker 1962), *Solanum diversiflorum*, *S. horridum*, *Streptoglossa bubakii*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triumfetta clementii*. Sites MATR16, MATR18 of this study (PATN group 1/5).

#### **AatAbTe      Acacia atkinsiana open heath to tall shrubland over Acacia bivenosa open shrubland over Triodia epactia hummock grassland**

This vegetation type was recorded mainly in the northern haul road and rail options north of Mesa G, although there was also one occurrence south of Mesa A. Although it occurred on a number of Land Systems, it would appear to be most closely linked to the Urandy LS. Other associated species: *Acacia ancistrocarpa*, *A. citrinoviridis*, *Alternanthera nana*, *Bonamia rosea*, *Cassia* aff. *oligophylla* (thinly sericeous), *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Evolvulus alsinoides* var. *villosicalyx*, *Goodenia forrestii*, *Indigofera brevidens*, *Portulaca oleracea*, *Ptilotus appendiculatus*, *P. astrolasius* var. *astrolasius*, *Rhynchosia minima* var. *australis*, *Sida* aff. *fibulifera* (various forms), *Sida* sp. Wittenoom (W.R. Barker 1962), *Solanum diversiflorum*, *S. ellipticum*, *Triumfetta clementii*. Site MATH19 of this study (PATN group 1/5).

### **Acacia bivenosa, A. ancistrocarpa Shrublands**

#### **CcAaAbAsyTeTw      Corymbia candida scattered low trees over Acacia ancistrocarpa, A. bivenosa, A. synchronicia open shrubland over Triodia epactia, T. wiseana hummock grassland**

This vegetation type occurred widely through the study area, from the Yarraloola pipeline corridor, through the northern transport corridor, to the eastern end of the southern transport corridor. It was recorded over various Land Systems, including Cane, Mallina, Robe and Sherlock LS. *Acacia synchronicia* was frequently present. The hummock grassland was dominated by *Triodia epactia*, *T. wiseana* or a combination of both. Other associated species: *Abutilon trudgei*, *Acacia inaequilatera*, *Cassia* aff. *oligophylla* (thinly sericeous), *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Hakea chordophylla*, *H. lorea*, *Indigofera brevidens*, *Ipomoea muelleri*, *Phyllanthus erwinii*, *Portulaca oleracea*, *Ptilotus aervoides*, *P. axillaris*, *Streptoglossa bubakii*. Sites MATC01, MATR15, MATR21 of this study (PATN group 1/5).

#### **AiAaAbTw      Acacia inaequilatera scattered tall shrubs over Acacia ancistrocarpa, A. bivenosa open shrubland to shrubland over Triodia wiseana hummock grassland**

This vegetation occurred in scattered patches through both the northern and southern transport corridors, and in the Yarraloola pipeline corridor. Although it occurred across a variety of Land Systems (Boolgeeda, Cane, Capricorn, Mallina, Nanutarra, Newman and Sherlock), it would probably be most closely linked with Boolgeeda. *Acacia ancistrocarpa* was usually dominant in small flowlines through these areas, and scattered *A. synchronicia* were sometimes present. A number of herbaceous species more typical of clayey areas were recorded, indicating relatively mesic conditions. Other associated species: *Alysicarpus muelleri*, *Aristida holathera* var. *holathera*, *Bonamia media* var. *villosa*, *Bulbostylis barbata*, *Cassia notabilis*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Hakea chordophylla*, *Indigofera linifolia*, *I. linnaei*, *Leptopus decaisnei* var. *decaisnei*, *Paraneurachne muelleri*, *Rhynchosia minima* var. *australis*, *Sporobolus australasicus*, *Streptoglossa bubakii*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triodia epactia*, *Triumfetta clementii*. Site MATR23 of this study (PATN group 1/5).

#### **AiAaAbTe      Acacia inaequilatera scattered tall shrubs over Acacia ancistrocarpa, A. bivenosa open shrubland to shrubland over Triodia epactia hummock grassland**

This vegetation occurred in scattered patches through the northern transport corridor. It was recorded from a number of Land Systems (including Cane, Capricorn, Robe, Sherlock and Urandy) but is most probably linked most closely with Cane and Urandy LS. It was similar to AiAaAbTw, differing mainly in the dominance of *Triodia epactia* in the hummock grassland stratum. No sites from this study.

**ChAbTw**                      ***Corymbia hamersleyana* scattered low trees over *Acacia bivenosa* open shrubland to open heath over *Triodia wiseana* hummock grassland**

This vegetation type occurred broadly over the stony undulating plains and some low stony rises of both the northern and southern transport corridors, and in the Yarraloola pipeline corridor. While this vegetation type was mapped across a variety of Land Systems, Newman and Robe LS would appear to be the most strongly associated. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *A. synchronicia*, *Bonamia media* var. *villosa*, *Cassia* spp., *Corchorus sidoides* subsp. *sidoides*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Goodenia microptera*, *Hakea chordophylla*, *H. lorea*, *Haloragis gossei*, *Mollugo molluginis*, *Portulaca oleracea*, *Ptilotus aeroides*, *P. astrolasius* var. *astrolasius*, *P. axillaris*, *Ptilotus calostachyus* var. *calostachyus*, *P. exaltatus* var. *exaltatus*, *P. fusiformis* var. *fusiformis*, *Sida* spp., *Solanum diversiflorum*, *Streptoglossa bubakii*, *Triumfetta clementii*. Sites 2MATC05, 2MATC07, 2MATC08, MATH15, MATH16, MATH18, MATR11, MATR12 of this study (PATN groups 1/3, 1/5); sites MESG14, MESG18 of the Mesa G study (Biota 2005a); site BUN09 at Bungaroo (Biota 2005c).

**ChAbTe**                      ***Corymbia hamersleyana* scattered low trees over *Acacia bivenosa* open shrubland over *Triodia epactia* hummock grassland**

This vegetation type was similar to ChAbTw but tended to occur in lower parts of the landscape or in drainage areas, hence the dominance of *Triodia epactia*. It was recorded from the northern transport corridor, between Mesa B/Mesa C and the Gas Pipeline Road, and occurred on the Sherlock Land System. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *Bonamia rosea*, *Goodenia microptera*, *Gossypium australe* (Burrup form), *Hakea lorea*, *Jasminum didymum* subsp. *lineare*, *Paraneurachne muelleri*, *Ptilotus astrolasius* var. *astrolasius*, *P. axillaris*, *Rhynchosia minima* var. *australis*, *Scaevola spinescens* (broad form), *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study; site BUN10 at Bungaroo (Biota 2005c).

**ChAbTwTe**                      ***Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa* open shrubland over *Triodia wiseana*, *T. epactia* hummock grassland**

This vegetation was similar to ChAbTe but had a mixed hummock grassland of both *Triodia wiseana* and *T. epactia*. It was recorded from both the northern and southern transport corridors, from approximately Mesa G to the east, and was correlated with the Boolgeeda and to a lesser extent Robe Land Systems. A number of shrub species associated with drainage areas were also recorded, indicating a more mesic habitat than that of vegetation type ChAbTw. Other associated species: *Acacia coleii*, *A. inaequilatera*, *A. tumida* var. *pilbarensis*, *Cassia glutinosa*, *Eremophila longifolia*, *Goodenia forrestii*, *Gossypium australe* (Burrup form), *Grevillea pyramidalis*, *G. wickhamii*, *Petalostylis labicheoides*, *Ptilotus astrolasius* var. *astrolasius*, *Rhynchosia minima* var. *australis*, *Solanum horridum*, *Stylobasium spathulatum*, *Trichodesma zeylanicum* var. *zeylanicum*. Site MATC02 of this study (PATN group 1/1).

***Acacia* Shrublands over *Triodia lanigera***

**ChCzAtrAaTla**                      ***Corymbia hamersleyana*, *C. zygophylla* scattered low trees over *Acacia trachycarpa*, *A. ancistrocarpa* shrubland to open heath over *Triodia lanigera* hummock grassland**

This vegetation type occurred on a broad plain south of Mesa A, associated mainly with the Stuart and to a lesser extent Nanutarra Land Systems. Scattered low trees of *Corymbia candida* were quite common, and other spinifex species were often intermixed with the *Triodia lanigera* (particularly *T. wiseana*). Other associated species: *Acacia atkinsiana*, *A. bivenosa*, *Bulbostylis barbata*, *Cassia notabilis*, *Corchorus sidoides* subsp. *sidoides*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Eriachne pulchella*, *Goodenia microptera*, *Grevillea wickhamii*, *Ptilotus astrolasius* var. *astrolasius*, *P. calostachyus* var. *calostachyus*, *P. fusiformis* var. *fusiformis*, *Sida* aff. *cardiophylla* (site 1215), *S. echinocarpa*, *S. sp.* Wittenoom (W.R. Barker 1962), *Tribulus astrocarpus*, *T. macrocarpus*. Sites MATC04, MATR20 and relevé MATMH of this study (PATN groups 1/3, 18/73, 23/89).

**CcAsyCAoTla**                      ***Corymbia candida* scattered low trees over *Acacia synchronicia* tall open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) shrubland over *Triodia lanigera* hummock grassland**

This vegetation type occurred south-east of Mesa A, between vegetation types ChCzAtrAaTla and AxCAoTwTe/h and was basically an interzone between the two. It occurred on the Cane Land System. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *A. xiphophylla*, *Triodia epactia*, *T. wiseana*. No sites from this study.

**CzAaTla**                      ***Corymbia zygophylla* scattered low trees over *Acacia atkinsiana* shrubland to open heath over *Triodia lanigera* hummock grassland**

This vegetation type occurred on the broad plain south of Mesa A, on the Stuart Land System. Other associated species: *Acacia ancistrocarpa*, *A. bivenosa*, *Corchorus sidoides* subsp. *sidoides*, *Ptilotus astrolasius* var. *astrolasius*. No sites from this study.

## Miscellaneous

**ChAiAsyHcTe** *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera*, *A. synchronicia*, *Hakea chordophylla* scattered tall shrubs over *Triodia epactia* hummock grassland

This vegetation occurred on the broad loamy plain within the Yarraloola borefield and the western section of the Yarraloola pipeline corridor. It was associated with the Mallina Land System. Other associated species: *Abutilon otocarpum* (acute leaf form), *Acacia bivenosa*, *Bonamia media* var. *villosa*, *Cassia notabilis*, *Chenopodium melanocarpum*, *Eremophila longifolia*, *Euphorbia* spp., *Flaveria australasica*, *Goodenia microptera*, *Grevillea pyramidalis*, *Indigofera colutea*, *I. linifolia*, *Keraudrenia nephrosperma*, *Mukia maderaspatana*, *Paraneurachne muelleri*, *Ptilotus appendiculatus*, *P. axillaris*, *Solanum phlomoides*, *Tribulus macrocarpus*. Site MATR22 of this study (PATN group 1/5).

**ChAiAsyHcTeCE** *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera*, *A. synchronicia*, *Hakea chordophylla* scattered tall shrubs over *Triodia epactia* hummock grassland and *\*Cenchrus* spp. tussock grassland

This vegetation, essentially a degraded version of ChAiAsyHcTe heavily infested with the perennial grasses *\*Cenchrus ciliaris* and *\*C. setigerus*, occurred in the area of the proposed Yarraloola borefield and around the Yarraloola Homestead. It was again associated with the Mallina Land System. This vegetation was in poor condition, invaded by weeds and heavily grazed by cattle. No sites from this study.

**CcAanTw** *Corymbia candida* low open woodland over *Acacia aneura* tall shrubland over *Triodia wiseana* open hummock grassland

Only one, very small stand of this vegetation was recorded, from the northern haul road option, east of the Robe River crossing between Mesa B and Mesa C. The associated Land system was Sherlock LS. No sites from this study.

**AsclAbTeTw** *Acacia sclerosperma* tall open scrub over *A. bivenosa* open shrubland over *Triodia epactia*, *T. wiseana* open hummock grassland

This vegetation occurred on broad plains surrounding creeklines in the northern rail corridor option, north of Mesa G. It occurred on the Newman and Urandy Land Systems. Other associated species: *Acacia ancistrocarpa*, *A. atkinsiana*, *A. synchronicia*, *A. tumida* var. *pilbarensis*, *Corymbia candida*, *Grevillea wickhamii*. No sites from this study.

## 4.2.4 Vegetation of Stony Hills and Breakaways

### Snappy Gum over scattered shrubs on large hills

**EIAiAptTw** *Eucalyptus leucophloia* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over *Acacia ptychophylla* low open shrubland over *Triodia wiseana* hummock grassland

This vegetation occurred on stony hills in the southern transport corridor, and the eastern section of the northern rail option. It appears most strongly associated with the Robe, Newman and Boolgeeda Land Systems. Other associated species: *Abutilon trudenii*, *Bonamia media* var. *villosa*, *Bulbostylis barbata*, *Cassia glutinosa*, *C. notabilis*, *C. pruinosa*, *Dampiera candidans*, *Gomphrena affinis* subsp. *pilbarensis*, *G. cunninghamii*, *Indigofera monophylla*, *Mollugo molluginis*, *Polycarpaea holtzei*, *Ptilotus auriculifolius*, *P. calostachyus* var. *calostachyus*, *P. fusiformis* var. *fusiformis*, *P. incanus*, *Sida arenicola*, *Solanum horridum*, *Tribulus platypterus*. Site 2MATC04 of the current study (PATN group 1/3).

**EIAiAbTw** *Eucalyptus leucophloia* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over *Acacia bivenosa* scattered shrubs to open shrubland over *Triodia wiseana* hummock grassland

This vegetation type occurred on stony hills throughout the northern transport corridor and in the western section of the area that was sampled within the southern transport corridor. Again, it appears most strongly associated with the Robe, Newman and Boolgeeda Land Systems, although it was also recorded on the McKay LS. The sparse to sometimes open shrub cover was typically dominated by *Acacia bivenosa*. Early seral stages of this vegetation type (ie. recently burnt) tended to have a more dense cover of *Acacia bivenosa*, with scattered *Petalostylis labicheoides* and *Gossypium australe* (Burrup form). Some of the hills had scattered individuals of the undescribed spinifex *Triodia* sp. nov. Other associated species: *Cassia luerssenii*, *Cassia pruinosa*, *Corchorus sidoides* subsp. *sidoides*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Gomphrena cunninghamii*, *Goodenia stobbsiana*, *Hakea chordophylla*, *Ptilotus calostachyus* var. *calostachyus*, *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study.

**EIAatAarTw      *Eucalyptus leucophloia* scattered low trees over *Acacia atkinsiana* (*A. arida*) open shrubland to tall shrubland over *Triodia wiseana* hummock grassland**

This vegetation occurred broadly over the crest of Mesa A, Mesa K and Warramboos, and was associated with the Robe and Peedamulla Land Systems. The shrub overstorey was dominated by *Acacia atkinsiana*, with a variable amount of *A. arida*. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *Cassia notabilis*, *Corchorus sidoides* subsp. *sidoides*, *Ptilotus calostachyus* var. *calostachyus*, *Solanum sturtianum*, *Triumfetta clementii*. Sites WAR01, WAR07 and relevé MATMG of this study (PATN group 23/89); sites MEA01, MEA02, MEA07, MEA09, MEA12, MEA13, MEA16, MEA18, MEA20, MEA22 of the Mesa A study (Biota 2005a).

**EIAarTw      *Eucalyptus leucophloia* scattered low trees over *Acacia arida* shrubland to tall shrubland over *Triodia wiseana* hummock grassland**

This vegetation occurred over the crest of Mesa A, Mesa B and Mesa C, and was associated with the Robe Land System. Although *Acacia atkinsiana* was often recorded from this vegetation type, it was only typically present as very scattered individuals. Other associated species: *Acacia ancistrocarpa*, *A. tumida* var. *pilbarensis*, *Bonamia media* var. *villosa*, *Cassia glutinosa*, *C. notabilis*, *Eriachne pulchella*, *Grevillea wickhamii*, *Mollugo molluginis*, *Ptilotus calostachyus* var. *calostachyus*, *Solanum horridum*, *S. phlomoides*, *Tephrosia uniovulata*, *Trichodesma zeylanicum* var. *zeylanicum*. Site MATC03 of this study (PATN group 23/89); sites MEA11, MEA17 of Mesa A (Biota 2005a).

**EIGwAacTw      *Eucalyptus leucophloia* scattered low trees over *Grevillea wickhamii* scattered tall shrubs to tall shrubland over *Acacia acradenia* scattered shrubs to shrubland over *Triodia wiseana* hummock grassland**

This vegetation was recorded from the crest of Mesa I within the northern transport corridor, between the Deepdale Road and Bungaroo Road, and was associated with the Robe Land System. It was also recorded from Mesa G (Biota 2005a). Other associated species: *Acacia inaequilatera*, *Corchorus sidoides* subsp. *sidoides*, *Dampiera candidans*, *Keraudrenia nephrosperma*, *Petalostylis labicheoides*, *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study; site MESG22 from the Mesa G study area (Biota 2005a) (PATN group 22/84).

**EIAtuAbTwERIm      *Eucalyptus leucophloia* scattered low trees over *Acacia tumida* and/or *A. bivenosa* open shrubland over *Triodia wiseana* open hummock grassland and *Eriachne mucronata* open tussock grassland**

This vegetation occurred on breakaways and rocky areas of hills throughout the central section of the northern transport corridor, and within the southern transport corridor. Newman and Robe LS would be the most likely associated Land Systems. Other associated species: *Cassia glutinosa*, *Cheilanthes sieberi* var. *sieberi*, *Cymbopogon ambiguus*, *Ficus brachypoda*, *F. opposita*, *Flueggea virosa* subsp. *melanthesoides*, *Gossypium australe* (Whim Creek form), *Jasminum didymum* subsp. *lineare*, *Mukia maderaspatana*, *Nicotiana benthamiana*, *Paspalidium clementii*, *Rhodanthe margarethae*, *Solanum horridum*, *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triodia* sp. nov. Sites MAT05, MATR17 of this study (PATN groups 3/12, 22/86).

**EIAatAtuGwTw      *Eucalyptus leucophloia* low open woodland over *Acacia atkinsiana*, *A. tumida*, *Grevillea wickhamii* tall shrubland over *Triodia wiseana* hummock grassland**

This vegetation was recorded from rocky hillslopes leading down to a rocky creekline on Warramboos, associated with the Peedamulla Land System. Other associated species: *Acacia arida*, *A. bivenosa*, *Cassia luerssenii* x *stricta*, *Goodenia stobbsiana*, *Hibiscus sturtii* var. *campylochlamys*, *Indigofera monophylla*. Site WAR03 of this study (PATN group 23/90).

**Shrublands on low hills and slopes of taller hills****AIAbTw      *Acacia inaequilatera* scattered tall shrubs over *A. bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland**

This vegetation was similar to EIAiAbTw, but occurred on lower stony hills or baseslopes. It occurred throughout the northern and southern transport corridors. It was recorded from various Land Systems including Boolgeeda, Capricorn, McKay, Newman, Robe and Sherlock, but would probably be most closely linked with Boolgeeda, Newman, Robe and McKay LS. It typically lacked the *Eucalyptus leucophloia* tree stratum, although scattered trees of *Corymbia hamersleyana* were often recorded. Other scattered shrubs included *Cassia pruinosa*, *Grevillea wickhamii* and *Hakea chordophylla*. The undescribed spinifex *Triodia* sp. nov. was also often recorded from this vegetation type. Other associated species: *Acacia ancistrocarpa*, *A. synchronica*, *Bonamia media* var. *villosa*, *Cassia glutinosa*, *C. luerssenii*, *Corchorus sidoides* subsp. *sidoides*, *Dodonaea coriacea*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Gomphrena cunninghamii*, *P. astrolasius* var. *astrolasius*, *P. auriculifolius*, *P. axillaris*, *Ptilotus calostachyus* var. *calostachyus*, *P. fusiformis* var. *fusiformis*, *P. incanus*, *Sida* aff. *cardiophylla* (site 1215), *Trichodesma zeylanicum* var. *zeylanicum*. Sites 2MATC03, MAT04, MATH22 and relevé MATMA of this study (PATN groups 1/3, 1/4, 22/84); sites BUN06, BUN13, BUN15 at Bungaroo (Biota 2005c).

**AatAiAarAbTw      *Acacia atkinsiana*, *A. inaequilatera* (*A. arida*) tall open shrubland over *Acacia bivenosa* open shrubland over *Triodia wiseana* hummock grassland**

This vegetation occurred in broad swathes on the crest of Mesa A and to a lesser extent at Warramboos. The main associated Land System appears to be Peedamulla LS. Other associated species: *Acacia ancistrocarpa*, *Cassia notabilis*, *Corchorus sidoides* subsp. *sidoides*, *Hakea chordophylla*, *Indigofera monophylla*, *Solanum horridum*, *S. sturtianum*, *Tephrosia uniovulata*, *Trachymene oleracea* subsp. *oleracea*. Site WAR04 of this study (PATN group 23/89); sites MEA10, MEA21, MEA23 of the Mesa A study (Biota 2005a).

**AiAarTw      *Acacia inaequilatera* scattered tall shrubs over *A. arida* open shrubland to open heath over *Triodia wiseana* hummock grassland**

This vegetation occurred mainly on baseplains and hillslopes, and was recorded at Warramboos and in the northern transport corridor surrounding Mesas B and C. The associated Land Systems were Peedamulla and Robe. Occasional trees of *Corymbia hamersleyana* were sometimes present, and there were often reasonable amounts of *A. bivenosa* in the mid-height shrub layer. Other associated species: *Cassia oligophylla*, *Corchorus sidoides* subsp. *sidoides*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Gomphrena cunninghamii*, *Polycarpaea holtzei*, *Portulaca oleracea*, *Ptilotus aervoides*, *P. incanus*, *Solanum ellipticum*, *S. gabrielae*, *Trachymene oleracea* subsp. *oleracea*, *Triumfetta chaetocarpa*, *T. clementii*. Site MATH11 of this study (PATN group 1/5).

**AacTw      *Acacia acradenia* open shrubland to open heath over *Triodia wiseana* hummock grassland**

This vegetation occurred broadly over the flattened crest and slopes of Mesa G and was associated with the Newman Land System. Low trees of *Eucalyptus leucophloia* were common on mesa slopes. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *A. maitlandii*, *Goodenia stobbsiana*, *Petalostylis labicheoides*, *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study; sites MESG04, MESG10 of the Mesa G study (Biota 2005a).

**ERfTw      *Eremophila fraseri* open shrubland over *Triodia wiseana* hummock grassland**

This vegetation occurred on some low stony hills in the northern transport corridor, from the Mesa G Road to west of the Gas Pipeline Road. The associated Land System was the Capricorn LS. There was also a stand of structurally similar vegetation in the Mesa J Extension study area (Biota 2003), although this occurred on a different substrate. This vegetation type does not appear common in the area. Other associated species: *Calotis hispidula*, *Cleome viscosa*, *Clerodendrum floribundum* var. *angustifolium*, *Cymbopogon ambiguus*, *Enneapogon caeruleus*, *Euphorbia coghlani*, *Flueggea virosa* subsp. *melanthesoides*, *Gomphrena cunninghamii*, *Nicotiana benthamiana*, *N. occidentalis* subsp. *obliqua*, *Oldenlandia crouchiana*, *Paspalidium clementii*, *P. tabulatum*, *Pentalepis trichodesmoides*, *Polycarpaea longiflora*, *Ptilotus auriculifolius*, *Solanum horridum*, *Tephrosia* sp. B Kimberley Flora (C.A. Gardner 7300), *Trachymene oleracea* subsp. *oleracea*, *Tribulus hirsutus*, *T. platypterus*, *Triumfetta clementii*. Relevé MATMB of this study (PATN group 6/25); site MJ05 from the Mesa J extension study area (Biota 2003).

## 4.2.5      **Vegetation of Major Creeklines and Floodplains**

**EcMaAtrPISg      *Eucalyptus camaldulensis*, *Melaleuca argentea* open forest over *Acacia trachycarpa*, *Petalostylis labicheoides* tall open scrub over *Stemodia grossa* low shrubland**

This vegetation type occurred in the Robe River in the northern transport corridor, east of the crossing between Mesa B and Mesa C, in the southern section of the water bore exploration area west of the Gas Pipeline Road, and along the Bungaroo Road. It is associated with the River Land System. Other associated species: *Acacia pyrifolia*, *Amaranthus pallidiflorus*, *Chenopodium melanocarpum*, *Cleome viscosa*, *Corchorus sidoides* subsp. *sidoides*, *Cyperus vaginatus*, *Euphorbia* spp., *Goodenia lamprosperma*, *Gossypium robinsonii*, *Hibiscus panduriformis*, *Hybanthus aurantiacus*, *Melaleuca glomerata*, *Mukia maderaspatana*, *Phyllanthus erwinii*, *P. maderaspatensis*, *Pluchea rubelliflora*, *Rhynchosia bungarensis*, *Sesbania cannabina*, *S. formosa*, *Tephrosia rosea* var. *glabrior*, *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum*, *Typha domingensis*. Sites MATH12, MATH14, relevés MATC (sparse tree overstorey) and MATMD (dense tree overstorey) of this study (PATN groups 1/1, 1/2).

**Ec/h      *Eucalyptus camaldulensis* scattered trees over open herbland**

This vegetation occurred in open gravelly areas of the Robe River in the southern section of the water bore exploration area west of the Gas Pipeline Road. It is associated with the River Land System. The open herbland included species such as *Cleome viscosa* and *Stemodia grossa*. No sites from this study.

**EcEvAtrApyPITw** *Eucalyptus camaldulensis* woodland over *Eucalyptus victrix* low woodland over *Acacia trachycarpa*, *A. pyrifolia*, *Petalostylis labicheoides* tall open shrubland over mixed open herbland and *Triodia wiseana* very open hummock grassland

This vegetation type occurred in the Robe River within the Yarraloola borefield, the Yarraloola pipeline corridor and south of Mesa G, and was associated with the River Land System. The broad gravelly, cobbly bed of the river supported *Eucalyptus camaldulensis* woodland over an open cover of herbs, while the slightly higher banks supported Coolibah *Eucalyptus victrix* low woodland over an open cover of tall shrubs dominated by *Acacia trachycarpa* and a very open hummock grassland of *Triodia wiseana*. Other associated species: *Amaranthus pallidiflorus*, *Cleome viscosa*, *Cyperus vaginatus*, *Flueggea virosa* subsp. *melanthesoides*, *Goodenia lamprosperma*, *Gossypium robinsonii*, *Grevillea wickhamii*, *Leptopus decaisnei* var. *decaisnei*, *Waltheria indica*. No sites from this study; site MESG21 and relevés MESG-MA and MESG-MB of the Mesa G study (Biota 2005a).

**AtrTe** *Acacia trachycarpa* tall shrubland over *Triodia epactia* open hummock grassland

This vegetation occurred on floodplains of the Robe River or its tributaries, extending from the Yarraloola pipeline corridor, to south of Mesa G, and east of the Deepdale Road. The corresponding Land System would be River LS. *Triodia wiseana* was sometimes codominant in the hummock grassland stratum. Other associated species: *Acacia inaequilatera*, *A. synchronicia*, *Bonamia linearis*, *B. media* var. *villosa*, *Cassia notabilis*, *Cleome viscosa*, *Corymbia hamersleyana*, *Cullen leucanthum*, *Euphorbia* spp., *Grevillea pyramidalis*, *Indigofera brevifolia*, *Ipomoea muelleri*, *Ptilotus astrolasius* var. *astrolasius*, *P. axillaris*, *Sida echinocarpa*, *S. sp.* Wittenoom (W.R. Barker 1962), *Triumfetta clementii*. Site YARPL01 from this study (PATN group 1/3).

**EvAtrApyAbGOrTeCE** *Eucalyptus victrix* woodland over *Acacia trachycarpa*, *A. pyrifolia*, *A. bivenosa*, *Gossypium robinsonii* tall open scrub over *Tephrosia rosea* var. *glabrior* low open shrubland over *Triodia epactia* very open hummock grassland and *\*Cenchrus* spp. open tussock grassland

This vegetation occurred in creeklines through the northern transport corridor, east from approximately Deepdale Homestead. It was associated with the Urandy and Robe Land Systems. The understorey was invaded by *\*Cenchrus ciliaris* and *\*C. setigerus*. Other associated species: *Corchorus sidoides* subsp. *sidoides*, *Petalostylis labicheoides*, *Stylobasium spathulatum*. No sites from this study.

**EvAtrGOrPITw** *Eucalyptus victrix* scattered trees to low woodland over *Acacia trachycarpa*, *Gossypium robinsonii*, *Petalostylis labicheoides* tall open shrubland over *Triodia wiseana* very open hummock grassland

This vegetation occurred in creeklines throughout the northern transport corridor, and was associated mainly with the Newman Land System. Other associated species: *Acacia bivenosa*, *A. farnesiana*, *A. pyrifolia*, *A. tumida* var. *pilbarensis*, *Alternanthera nana*, *Amaranthus pallidiflorus*, *Chenopodium melanocarpum*, *Chrysopogon fallax*, *Cleome viscosa*, *Cyperus vaginatus*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Flueggea virosa* subsp. *melanthesoides*, *Goodenia lamprosperma*, *Gossypium australe* (Burrup form), *Ipomoea muelleri*, *Jasminum didymum* subsp. *lineare*, *Phyllanthus erwinii*, *P. maderaspatensis*, *Ptilotus* spp., *Sesbania cannabina*, *Stemodia grossa*, *Stylobasium spathulatum*, *Tephrosia rosea* var. *glabrior*, *Trichodesma zeylanicum* var. *zeylanicum*, *Triodia epactia*, *Triumfetta clementii*, *T. johnstonii*, *Waltheria indica*. Site 2MATC06 of this study (PATN group 1/1).

**EvCcAcITwTe** *Eucalyptus victrix*, *Corymbia candida* woodland over *Acacia citrinoviridis* tall open scrub over *Triodia wiseana*, *T. epactia* open hummock grassland

This vegetation occurred in a creekline in the northern rail corridor, west of the Gas Pipeline Road, and was associated with the Sherlock Land System. Scattered tussock grasses such as *Themeda triandra* were also present. No sites from this study.

**EvApyTeR** *Eucalyptus victrix* low woodland over *Acacia pyrifolia* open shrubland over *Tephrosia rosea* var. *glabrior* low open shrubland

This vegetation occurred in a creekline towards the eastern end of the northern haul road corridor, and was associated with the Robe Land System. Associated species: *Acacia trachycarpa*, *Cyperus vaginatus*, *Eriachne tenuiculmis*, *Gossypium robinsonii*, *Petalostylis labicheoides*, *Stylobasium spathulatum*, *Triodia epactia*. No sites from this study; site MJ02 and relevé MJB from the Mesa J Extension study (Biota 2003).

**CcTe** *Corymbia candida* scattered low trees to low woodland over *Triodia epactia* hummock grassland

This vegetation occurred on broad floodplain areas near the Robe River, and was recorded from the Yarraloola borefield, the water bore exploration area west of the Gas Pipeline Road, and from the Mesa K area. The associated Land System would be River LS. Scattered tall shrubs of *Acacia inaequilatera*, *A. synchronicia*, *A. trachycarpa*, *Hakea chordophylla* and *Petalostylis labicheoides* were typically present. Other associated species: *Abutilon otocarpum* (acute leaf form), *Acacia sclerosperma*, *Alternanthera*

*nana*, *Boerhavia coccinea*, *Calotis hispidula*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Goodenia forrestii*, *Gossypium australe* (Burrup form), *Indigofera colutea*, *Mukia maderaspatana*, *Rhynchosia minima* var. *australe*, *Sida rohlenae* subsp. *rohlenae*, *Solanum horridum*, *Themeda triandra*, *Triodia wiseana*. Site MATR19 of this study (PATN group 1/5).

**ChAiApyTw** ***Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over *Acacia pyrifolia* open shrubland over *Triodia wiseana* open hummock grassland**

This vegetation occurred on floodplains bordering the Robe River east of the northern transport corridor crossing between Mesa B and Mesa C, and was associated with the River Land System. Other associated species: *Corchorus sidoides* subsp. aff. *vermicularis* (MATH15-02), *Sida kingii*. No sites from this study.

## 4.2.6 Vegetation of Minor Creeklines and Flowlines

**CcAciAaAbTwTe** ***Corymbia candida* low open woodland over *Acacia citrinoviridis* tall open shrubland over *Acacia ancistrocarpa*, *A. bivenosa* open shrubland over *Triodia wiseana*, *T. epactia* hummock grassland**

This vegetation occurred through drainage plains in the northern transport corridor between Mesa B/Mesa C and Mesa G, on the Sherlock Land System. Dense patches of tall shrubs including *Acacia tumida* and *Gossypium robinsonii* occurred in places, and there were often patches of herbs, mainly *Ptilotus gomphrenoides* var. *gomphrenoides* and *Streptoglossa bubakii*. Other associated species: *Abutilon trudenii*, *Alternanthera nana*, *Amaranthus pallidiflorus*, *Cassia notabilis*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Eragrostis cumingii*, *E. leptocarpa*, *Euphorbia boophthona* (large seed form), *Evolvulus alsinoides* var. *villosicalyx*, *Ipomoea muelleri*, *Mimulus gracilis*, *Phyllanthus erwinii*, *Ptilotus appendiculatus*, *P. exaltatus* var. *exaltatus*, *Rhynchosia minima* var. *australis*, *Sida* aff. *fibulifera* (various forms), *Solanum horridum*, *Triumfetta clementii*. Relevé MATM1 of this study (PATN group 1/5).

**CcAcoTw** ***Corymbia candida* low open forest over *Acacia colei* tall open shrubland over *Triodia wiseana* very open hummock grassland**

This vegetation was recorded from a single soak in the northern haul road option, east of the Deepdale Road. Although the underlying Land System is mapped as McKay, this vegetation type would more likely be associated with Sherlock LS. Other associated species: *Acacia farnesiana*, *A. synchronica*, *A. xiphophylla*, *Cassia* aff. *oligophylla* (thinly sericeous), *Cymbopogon ambiguus*, *Cyperus vaginatus*, *Ehretia saligna* var. *saligna*, *Eremophila longifolia*, *Flueggea virosa* subsp. *melanthesoides*, *Hibiscus panduriformis*, *Jasminum didymum* subsp. *lineare*, *Phyllanthus maderaspatensis*, *Rhynchosia minima* var. *australis*, *Sesbania cannabina*, *Sida rohlenae* subsp. *rohlenae*, *Tephrosia rosea* var. *glabrior*, *Waltheria indica*. Site MATH21 from this study (PATN group 1/1).

**CcAfAxTwTeERlb** ***Corymbia candida* scattered low trees to low open woodland over *Acacia farnesiana*, *A. xiphophylla* scattered tall shrubs to tall open shrubland over *Triodia wiseana*, *T. epactia* very open hummock grassland and *Eriachne benthamii* tussock grassland**

This vegetation was recorded from some creeklines and low-lying, wetter patches within cracking clay areas of the northern transport corridor, from approximately the Deepdale Road to the west. Only larger occurrences have been individually mapped. The associated Land Systems were Cane LS, and to a lesser extent, Urandy LS. Other associated species: *Cullen graveolens*, *Ptilotus gomphrenoides* var. *gomphrenoides*. No sites from this study.

**CcGOrAtuTe** ***Corymbia candida* low open woodland over *Gossypium robinsonii*, *Acacia tumida* tall open scrub over *Triodia epactia* scattered hummock grasses**

This vegetation was recorded from two very good condition creeklines in the northern haul road option, east of the Deepdale Road, on the Urandy Land System. Other associated species: *Acacia ancistrocarpa*, *A. colei*, *A. pyrifolia*, *Gossypium australe* (Burrup form). No sites from this study.

**CcSsAbGOrTe** ***Corymbia candida* low open woodland over *Stylobasium spathulatum*, *Acacia bivenosa*, *Gossypium robinsonii* tall shrubland over *Triodia epactia* open hummock grassland**

This vegetation was recorded from two flowlines at the eastern end of the northern haul road option, on the Robe Land System. Other associated species: *Alternanthera nana*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia boophthona* (large seed form), *Ptilotus astrolasius* var. *astrolasius*, *Sida echinocarpa*, *Tephrosia rosea* var. *glabrior*, *Themeda triandra*. No sites from this study; site MJ01 from the Mesa J Extension study area (Biota 2003).

**CcTw** ***Corymbia candida* low woodland over *Triodia wiseana* hummock grassland**

This vegetation type was recorded from a single creekline in the eastern section of the southern transport corridor option, on the Robe Land System. Other associated species: *Acacia ancistrocarpa*,

*Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Eremophila forrestii* subsp. *forrestii*, *Leptopus decaisnei* var. *decaisnei*, *Mukia maderaspatana*, *Rhynchosia minima* var. *australis*, *Solanum diversiflorum*. No sites from this study.

**CcChAatAaTe** *Corymbia hamersleyana*, *C. candida* scattered low trees to low open woodland over *Acacia atkinsiana*, *A. ancistrocarpa* scattered tall shrubs to tall open shrubland over *Triodia epactia* open hummock grassland

This vegetation type occurred only in a broad shallow flow area / broad loamy plain in the south-western section of Mesa A, mainly on the Robe Land System. Other associated species: *Acacia trachycarpa*, *Chrysopogon fallax*, *Grevillea wickhamii*, *Mollugo molluginis*. No sites from this study; relevés MEA-MF, MEA-MY of the Mesa A study area (Biota 2005a).

**CcChAtrAbPITwTe** *Corymbia candida*, *C. hamersleyana* low open forest over *Acacia trachycarpa* tall open shrubland over *Acacia bivenosa*, *Petalostylis labicheoides* open shrubland over *Triodia wiseana*, *T. epactia* very open hummock grassland

This vegetation was recorded from creeklines through the northern transport corridor, mainly in the haul road option. The main associated Land Systems are Sherlock and Urandy LS. *Acacia ancistrocarpa* was sometimes quite abundant in the shrub stratum. Other associated species: *Abutilon trudgenii*, *A. synchronica*, *Alternanthera nana*, *Amaranthus pallidiflorus*, *Boerhavia coccinea*, *Cassia* aff. *oligophylla* (thinly sericeous), *Cassia notabilis*, *Cleome viscosa*, *Corchorus sidoides* subsp. *sidoides*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Gossypium australe* (Burrup form), *G. robinsonii*, *Hibiscus panduriformis*, *Ipomoea muelleri*, *Ptilotus appendiculatus*, *P. axillaris*, *Sida rohlenae* subsp. *rohlenae*, *S. sp.* Wittenoom (W.R. Barker 1962), *Solanum diversiflorum*, *Tephrosia rosea* var. *glabrior*, *Trianthema triquetra*, *Waltheria indica*. Site 2MATC01 from this study (PATN group 1/1).

**ChAsppGORgspPISsTeTw** *Corymbia hamersleyana* scattered low trees to low open woodland over *Acacia* spp., *Gossypium robinsonii*, *Grevillea* spp., *Petalostylis labicheoides*, *Stylobasium spathulatum* tall shrubland over *Triodia epactia*, *T. wiseana* hummock grassland

This vegetation occurred on floodplains in both the northern and southern transport corridors, from the Deepdale Road to the east. It was associated mainly with the Urandy Land System, and to a lesser extent the Robe Land System. *Acacia* species such as *A. trachycarpa*, *A. tumida* and *A. pyrifolia* were frequently abundant, and some areas had a relatively dense cover of *Acacia bivenosa*. *Grevillea* species such as *G. pyramidalis* and *G. wickhamii* were also relatively common. The hummock grassland layer was dominated by *Triodia epactia*, *T. wiseana* or a combination of both. Tussock grasses were also sometimes present. Other associated species: *Acacia coleii*, *Alternanthera nana*, *Amaranthus pallidiflorus*, *Bonamia media* var. *villosa*, *Bulbostylis barbata*, *Cassia notabilis*, *Cleome viscosa*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia tannensis* subsp. *eremophila* (Hamersley form), *Gossypium australe* (Burrup form), *Mollugo molluginis*, *Portulaca oleracea*, *Ptilotus appendiculatus*, *P. astrolasius* var. *astrolasius*, *P. incanus*, *Sida* sp. Wittenoom (W.R. Barker 1962), *Solanum diversiflorum*, *Tephrosia rosea* var. *glabrior*, *Waltheria indica*. Sites 2MATC09, MATH23 of this study (PATN group 1/1).

**ChCzAtuAtrTe** *Corymbia hamersleyana*, *C. zygomphylla* low open woodland over *Acacia tumida* (*A. trachycarpa*) tall open scrub over *Triodia epactia* open hummock grassland

This vegetation was recorded from creeklines south of Mesa A on the Stuart Land System. The creekline through the sandplain had some *Triodia schinzii* intruding from the surrounds, while the creekline to the south had an open tussock grassland of *Chrysopogon fallax*. Other associated species: *Acacia ancistrocarpa*, *Indigofera brevifolius*, *Trichodesma zeylanicum* var. *zeylanicum*. No sites from this study.

**ChCzAtuAtrCE** *Corymbia hamersleyana*, *C. zygomphylla* low open woodland over *Acacia tumida* (*A. trachycarpa*) tall open scrub over \**Cenchrus* spp. closed tussock grassland

This vegetation occurred in a creekline near a stock watering point south of Mesa A, again on the Stuart Land System. This vegetation was essentially a degraded version of ChCzAtuAtrTe, which had been subject to heavy grazing and weed infestation, mainly by \**Cenchrus ciliaris* and \**C. setigerus*. Other associated species: *Acacia ancistrocarpa*, *Grevillea wickhamii*. No sites from this study.

**ChAacTw** *Corymbia hamersleyana* low open woodland over *Acacia acradenia* open heath over *Triodia wiseana* open hummock grassland

This vegetation was recorded from gullies in the Mesa G area, occurring in the Newman Land System. Other associated species: *Acacia inaequilatera*, *Cassytha capillaris*, *Grevillea wickhamii*, *Hybanthus aurantiacus*, *Jasminum didymum* subsp. *lineare*, *Petalostylis labicheoides*. No sites from this study.

**ChAtuTwTe** *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis* tall open scrub over *Triodia wiseana*, *T. epactia* open hummock grassland

This vegetation type occurred in numerous flowlines, throughout both the northern and southern transport corridors, and at Warramboos. Boolgeeda and Newman LS would appear to be the most strongly associated Land Systems. The spinifex ground cover was usually dominated by *Triodia wiseana*;

less commonly by *T. epactia*, or a combination of the two species. Various flowlines had substantial amounts of other tall shrub species such as *Gossypium robinsonii*, *Grevillea wickhamii* and/or *Stylobasium spathulatum*. Other associated species: *Acacia ancistrocarpa*, *A. inaequilatera*, *Bonamia media* var. *villosa*, *B. rosea*, *Cassia notabilis*, *Dysphania rhadinostachya* subsp. *rhadinostachya*, *Euphorbia* spp., *Gossypium australe* (Burrup form), *Hybanthus aurantiacus*, *Isotropis atropurpurea*, *Jasminum didymum* subsp. *lineare*, *Keraudrenia nephrosperma*, *Paraneurachne muelleri*, *Ptilotus astrolasius* var. *astrolasius*, *Rhynchosia minima* var. *australis*, *Solanum diversiflorum*, *Triumfetta clementii*. Sites 2MATC02, WAR02 of this study (PATN groups 1/3, 18/73); site BUN14 at Bungaroo (Biota 2005c).

**ChGORPITw**      ***Corymbia hamersleyana* low open woodland over *Gossypium robinsonii*, *Petalostylis labicheoides* tall open scrub over *Tridodia wiseana* very open hummock grassland**

This vegetation type occurred in two flowlines in the northern rail option, east of the Mesa G Road and east of the Deepdale Road, on the Boolgeeda and McKay Land Systems respectively. Other associated species: *Acacia coleii* var. *ileocarpa*. No sites from this study.

**EICcAtuAarTw**      ***Eucalyptus leucophloia*, *Corymbia candida* scattered low trees over *Acacia tumida* scattered tall shrubs to tall open shrubland over *A. arida* scattered shrubs over *Tridodia wiseana* scattered hummock grasses**

This vegetation occurred only in some rocky creeks on the crest of Warramboos and south of Mesa A, associated with the Peedamulla and Nanutarra Land Systems respectively. Other associated species: *Eriachne mucronata*, *E. pulchella*, *Grevillea wickhamii*, *Oldenlandia crouchiana*, *Trachymene oleracea* subsp. *oleracea*, *Triumfetta clementii*. Site WAR06 of this study (PATN group 23/90).

**EICHPIGWaAcTw**      ***Eucalyptus leucophloia*, *Corymbia hamersleyana* scattered low trees to low open woodland over *Petalostylis labicheoides*, *Grevillea wickhamii* tall open shrubland over *Acacia acradenia* open heath over *Tridodia wiseana* hummock grassland**

This vegetation occurred in gullies in the Mesa G area, associated with the Newman Land System. Small amounts of the undescribed spinifex species *Tridodia* sp. nov. were often present. Other associated species: *Acacia ancistrocarpa*, *A. bivenosa*, *A. tumida* var. *pilbarensis*, *Cassia glutinosa*, *Dodonaea coriacea*, *Eriachne mucronata*. No sites from this study; sites MESG02, MESG23 at Mesa G (Biota 2005a) (PATN groups 22/84, 22/86).

**AatPITw**      ***Acacia atkinsiana*, *Petalostylis labicheoides* (*A. ancistrocarpa*, *A. tumida*) tall shrubland over *Tridodia wiseana* open hummock grassland**

This vegetation occurred in minor flowlines west of the Deepdale Road, mainly in the northern haul road option. The associated Land System was the Boolgeeda LS. Other associated species: *Corchorus sidoides* subsp. *sidoides*, *Sida* sp. Wittenoom (W.R. Barker 1962). No sites from this study.

**AbTw**      ***Acacia bivenosa* open heath over *Tridodia wiseana* very open hummock grassland**

Some minor flowlines were dominated by a relatively dense cover of *Acacia bivenosa* over an open cover of the spinifex *Tridodia wiseana*. Only larger occurrences have been mapped; these occurred in the northern haul road option, approximately mid-way between the Gas Pipeline Road and the Mesa G Road. The mapped areas occurred on two Land Systems, Capricorn and Boolgeeda LS. Other associated species: *Corchorus sidoides* subsp. *sidoides*, *Sida* sp. Wittenoom (W.R. Barker 1962). No sites from this study.

**AbApyGORPITwCE**      ***Acacia bivenosa*, *A. pyrifolia*, *Gossypium robinsonii*, *Petalostylis labicheoides* open shrubland over *Tridodia wiseana* scattered hummock grasses and \**Cenchrus* spp. tussock grassland**

This vegetation occurred in the northern transport corridor north of the Deepdale Homestead, on degraded floodplains which had been subject to heavy grazing and dense infestation of weeds, particularly \**Cenchrus ciliaris* and \**C. setigerus*. The associated Land System was the Urandy LS. Other associated species: *Acacia tumida* var. *pilbarensis*, *Corymbia hamersleyana*, *Tephrosia rosea* var. *glabrior*. No sites from this study.

**AciAtuTw**      ***Acacia citrinoviridis* (*A. tumida*) tall shrubland to tall open scrub over *Tridodia wiseana* open hummock grassland**

This vegetation occurred in two flowlines east of the Gas Pipeline Road. The main associated Land System would appear to be the Boolgeeda LS. The larger of the two flowlines, located in the northern haul road option, had been burnt in the last 1-2 years. Given the early seral stage of the vegetation, it was not possible to determine other associated species. No sites from this study.

## 4.2.7 Vegetation of Sand Sheets

**CzAtGeTs** *Corymbia zygophylla* scattered low trees over *Acacia tumida* var. *pilbarensis*, *Grevillea eriostachya* tall shrubland over *Triodia schinzii* hummock grassland

This vegetation occurred broadly over the extensive sand sheet adjacent to the eastern edge of Mesa A, in the area of the proposed rail loop (it also occurs on a small red sand dune on top of this mesa; Biota 2005a). The main Land Systems in the area were Nanutarra and Stuart LS, however the descriptions for these units do not correspond well with this vegetation type. It is possible that this area represents an outlier of the Uaroo Land System, which comprises broad sandy plains supporting shrubby hard and soft spinifex grasslands (see Section 4.3.2). Other associated species: *Cleome uncifera*, *Heliotropium transforme*, *Indigofera boviparda* subsp. *boviparda*, *Philotus arthrolasius*. Although this sandy habitat had been burnt in the last few years, and some of the sand dune has been removed for fill, most of this vegetation was in excellent condition with no weeds evident and no other disturbance noted. This vegetation is different to that sampled on dunes in both the eastern Hamersley Range (see Biota and Trudgen 2002) and closer to the coast near the Exmouth Gulf (Biota, unpublished data). The conservation significance of the sand sheet vegetation is high, particularly given the small size and fragile nature of the habitat. No sites from this study; site MEA14 and relevé MEA-ME of the Mesa A study (Biota 2005a).

## 4.3 Conservation Significance of Vegetation Types

The following discussion has been prepared using Land Systems mapping for the Pilbara bioregion (Payne et al. 1988, Department of Agriculture 2002), a floristic analysis of site data using PATN, and review of vegetation types defined for other areas at Pannawonica to assist in the identification of uncommon vegetation types.

### 4.3.1 Vegetation Condition

The vegetation types of the study area were generally in very good condition (see Appendix 2).

Although weeds (particularly Buffel Grass *\*Cenchrus ciliaris*) were widespread through the loamy soils of the plains within the study area, they usually occurred as only scattered individuals. The exceptions to this were areas around Yarraloola Homestead and in the vicinity of the abandoned Deepdale Homestead, where dense infestations of Buffel Grass were noted (see Section 5.3). Weeds such as Spiked Malvastrum *\*Malvastrum americanum* were also sometimes abundant on areas of clayey substrates in the central section of the Mesa A transport corridor.

Cattle were also widespread through the area; grazing and trampling was pronounced in the vicinity of the Deepdale and Yarraloola homesteads, and was also evident through some areas of clayey habitat in the central section of the Mesa A transport corridor.

The other main disturbance comprised vehicle tracks (of varying ages) through the area.

### 4.3.2 Probable Distribution of the Vegetation Types based on their Correspondence with Land Systems

The main vegetation types identified by this study as occurring within each Land System are indicated in Table 4.1.

Given the different scales of the two mapping exercises, an element of discretion has been used to generate the association between vegetation type and Land System to avoid spurious associations. Without some interpretation of the two mapping schemes, vegetation types could be wrongly associated with other Land Systems. For example, some areas of clay vegetation defined by this study fell within the McKay Land System (predominantly hills, ridges, plateaux remnants and breakaways) however they should clearly have been associated with the stony alluvial plains of the Sherlock Land System.

On the whole, the vegetation types identified within the study areas are compatible with the broad descriptions of their associated Land System/s. The main exception is the sand sheet vegetation (CzAtGeTs), which does not appear to correspond with the descriptions of either the Nanutarra or Stuart Land Systems (see Section 2.4.3). It is possible that this sandplain is an outlier of the Uaroo Land System (broad sandy plains supporting shrubby hard and soft spinifex grasslands), which is broadly distributed along the westernmost edge of the Pilbara bioregion, however without some comparable data it is difficult to be sure. In any case, it appears to be an unusual land unit within the local area.

**Table 4.1: Association between vegetation types identified in the current study area with the Land Systems mapped for the area.**

| Land System | Vegetation Types                                                                                                                                                                                                 |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Boolgeeda   | AxTw, AatAbTw, AiAaAbTw, ChAbTwTe; ElAiApITw, ElAiAbTw, AiAbTw; ChAtuTwTe, ChGOrPITw, AatPITw, AbTw, AciAtuTw                                                                                                    |
| Cane        | AxCaOTwTe/h; AsyAbAaTw, AsyAbAaTe, CcAaAbAsyTeTw, AiAaAbTe, CcAsyCAOTla; CcAfAxTwTeERlb                                                                                                                          |
| Capricorn   | ERITw; AbTw                                                                                                                                                                                                      |
| Mallina     | CcAaAbAsyTeTw, ChAiAsyHcTe, ChAiAsyHcTeCE                                                                                                                                                                        |
| McKay       | ElAiAbTw, AiAbTw; ChGOrPITw                                                                                                                                                                                      |
| Nanutarra   | AsyAbTlo, ChCzAtrAaTla; ElCcAtuAarTw; CzAtGeTs                                                                                                                                                                   |
| Newman      | AatAbTw, ChAbTw, AsclAbTeTw; ElAiApITw, ElAiAbTw, ElAtuAbTwERlm, AiAbTw, AacTw; EvAtrGOrPITw; ChAacTw, ChAtuTwTe, ElChPIGWaAcTw                                                                                  |
| Peedamulla  | ElAatAarTw, ElAatAtuGwTw, AatAiAarAbTw, AiAarTw; ElCcAtuAarTw                                                                                                                                                    |
| River       | EcMaAtrPISg, Ec/h, EcEvAtrApyPITw, AtrTe, CcTe, ChAiApyTw                                                                                                                                                        |
| Robe        | CcAaAbAsyTeTw, ChAbTw, ChAbTe, ChAbTwTe; ElAiApITw, ElAiAbTw, ElAatAarTw, ElAarTw, ElGwaAcTw, ElAtuAbTwERlm, AiAbTw, AiAarTw; EvAtrApyAbGOrTeCE, EvApyTEr; CcSsAbGOrTe, CcTw, CcChAatAaTe, ChAsppGOrGsppPISsTeTw |
| Sherlock    | CcCAOTwTe/h, AxCaOTwTe/h, AfAbPICaO/h, AbCAOTw/h, AsyCAOTw/h, AsyCAOTe/h; AxTw, AxTe, scald, AsyAbAaTw, CcAaAbAsyTeTw, CcAanTw; EvCcAcITwTe; CcAcIAaAbTwTe, CcAcoTw, CcChAtrAbPITwTe                             |
| Stuart      | ChCzAtrAaTla, CzAatTla; ChCzAtuAtrTe, ChCzAtuAtrCE; CzAtGeTs                                                                                                                                                     |
| Urandy      | CcCAOTwTe/h, AatAbAaCAOTe/h, AbCAOTw/h, AsyCAOTe/h, CAOTe/h; scald, AatAbTe, AiAaAbTe, AsclAbTeTw; EvAtrApyAbGOrTeCE; CcAfAxTwTeERlb, CcGOrAtuTe, CcChAtrAbPITwTe, ChAsppGOrGsppPISsTeTw, AbApyGOrPITwCE         |

**NB.** Vegetation types colour-coded as follows based on habitat: **stony plains**; **stony hills**; **clays**; **major creeklines**; **minor creeklines and flowlines**; **sandsheet**.

### 4.3.3 Probable Distribution of the Vegetation Types based on the Apparent Distribution of Floristic Community Types

The primary output of the PATN analysis was a dendrogram indicating relationships between sites on the basis of floristic composition, with sites with similar species clustering out together. Given the size of the dataset analysed, the entire dendrogram has not been reproduced here, however it is available for inspection if required.

Following generation of the dendrogram by PATN, arbitrary cut-off points were selected to generate two levels of grouping within the resultant site clusters; a 25-group level (ie. the level dividing the 846 sites into 25 groups, based on floristic composition), and a 100-group level (the level dividing the 846 sites into 100 groups). These groups, and the vegetation types and sites from current study area within each group, are indicated in the table in Appendix 3.

A summary of the groups at the 25-group level that contained sites from the current study area is presented in Table 4.2. None of these groups was restricted to the study area.

**Table 4.2: Summary of vegetation\* and broad habitat types for the floristic groups defined at the 25-group level of the PATN analysis that contained sites within the current study areas (\*based on vegetation descriptions for the component sites).**

| 25-group | Description of dominant vegetation types and habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Group 1  | Riverine vegetation (Silver Cadjeput <i>Melaleuca argentea</i> , River Red Gum <i>Eucalyptus camaldulensis</i> and Coolibah <i>Eucalyptus victrix</i> woodlands) and vegetation of smaller creeks and floodplains (particularly including <i>Eucalyptus xerothermica</i> , <i>Acacia pyrifolia</i> , <i>Triodia epactia</i> and perennial tussock grasses); together with <i>Acacia</i> shrublands over <i>Triodia wiseana</i> and/or <i>T. epactia</i> hummock grasslands on stony and clayey plains; groups 1-5 at the 100-group level |
| Group 3  | Breakaway vegetation; groups 12-16 at the 100-group level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Group 6  | <i>Eremophila fraseri</i> shrublands over <i>Triodia wiseana</i> hummock grasslands on stony hills; groups 22-25 at the 100-group level                                                                                                                                                                                                                                                                                                                                                                                                  |
| Group 18 | Shrublands including <i>Acacia trachycarpa</i> over mixed hummock grasslands including <i>Triodia wiseana</i> on stony plains; groups 70-74 at the 100-group level                                                                                                                                                                                                                                                                                                                                                                       |
| Group 22 | Mainly shrublands of <i>Acacia acradenia</i> (often with <i>A. tumida</i> and <i>Grevillea wickhamii</i> ) over <i>Triodia wiseana</i> hummock grasslands on stony hills; groups 84-88 at the 100-group level                                                                                                                                                                                                                                                                                                                            |
| Group 23 | Mainly <i>Acacia atkinsiana</i> , <i>A. arida</i> and/or <i>A. inaequilatera</i> open shrublands over <i>Triodia wiseana</i> hummock grasslands on stony plains and hills; groups 89-90 at the 100-group level                                                                                                                                                                                                                                                                                                                           |

At the 100-group level, most of the floristic groups containing sites from the current study also contained sites from other study areas in the vicinity (see Appendix 3). Two groups contained only sites from the current study area:

- group 2 comprised 2 relevés assessed within the Robe River at the Bungaroo Road crossing. These sites were located within 100 m of each other, and appear to have grouped out based on the suite of shared species that includes *Acacia trachycarpa*, *Eucalyptus camaldulensis*, *Gossypium robinsonii*, *Melaleuca argentea*, *Rhynchosia bungarensis*, *Sesbania cannabina*, *Stemodia grossa* and *Typha domingensis*. It is unlikely that this vegetation type would be restricted to this section of the Robe River; rather it would be expected to occur in pockets throughout this drainage system, at least in the Pannawonica locality.
- group 3 comprised 9 sites, mainly *Acacia ancistrocarpa* and *A. bivenosa* shrublands over *Triodia wiseana* hummock grasslands on stony plains, together with flowlines through these areas. The sites in this floristic group were widespread within the study area.

Of the 19 floristic groups at the 100-group level which contained sites from the Pannawonica area, only 8 groups contained sites from further afield in the Pilbara (see Appendix 3). It is probable that additional sampling in intervening areas would identify comparable floristic communities in other parts of the region, although these would be unlikely to extend beyond the western Pilbara. It would be worthwhile establishing additional quadrats in the vegetation types not sampled during the current study and conducting an additional floristic analysis once extra data becomes available for the Pannawonica area (ie. from future proposed surveys of the Bungaroo Valley, and including sites from the CALM Pilbara Biological Survey).

#### 4.3.4 Assessment of Vegetation Conservation Significance

##### Assessment Methodology<sup>1</sup>

The assessment of vegetation conservation significance, which is summarised in Table 4.4, considered three types of information:

1. aspects of the vegetation types defined for this study (see Section 4.2), including their area and frequency of occurrence within the study area, capacity to support rare or restricted flora, and condition (health; see Section 4.3.1);
2. the Land Systems present within the study area (see Section 2.4.3), including their distribution through the Pilbara and area of extent. The location of occurrences of a

<sup>1</sup> This methodology is presented here, rather than in Section 3.0, to allow easier interpretation of Table 4.4.

Land System within the study area in relation to the distribution of that Land System as a whole was also taken into account, as the strong regionalisation in floristic composition shown by the PATN analyses carried out for previous studies suggests that outlying occurrences of a Land System can be expected to support floristic types that are not typical of the overall unit. This information was used to establish the likely representation in the region of vegetation types linked strongly to particular Land Systems (see Section 4.3.2); and

- the floristic groups identified by the PATN analysis within each vegetation type (see Section 4.3.3), to indicate the probable distribution of the vegetation units outside the study area. The broad nature of the groups identified even at the 100-group level was taken into account when using the floristic analysis to assess conservation value.

This assessment integrated the three types of information noted above through the use of a quantitative system. Each feature was assigned a particular score, and the sum of these scores was then compared to indicate the likely conservation significance of each vegetation type. The features considered most likely to influence whether the vegetation types were of restricted distribution (regional representation of the associated Land System/s and floristic groups) were assigned more weight than other attributes that were considered to impart additional value in a more general sense.

The features, and the scores ascribed to each, are described in Table 4.3.

**Table 4.3: Explanation of features and codes used in the conservation assessment matrix.**

| <b>Ω Regional Representation of Land System/s</b> |                                                                                                                                                                                                                                                                                                  | <b>Score</b> |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| R,O                                               | Restricted, and outlier - Land System is restricted to a particular section of the Pilbara or comprises a relatively small proportion of the region, and the study area occurs within an outlying occurrence of the Land System or towards one end of the mapped distribution of the Land System | 8            |
| R                                                 | Restricted - Land System is restricted to a particular section of the Pilbara or comprises a relatively small proportion of the region                                                                                                                                                           | 6            |
| W,O                                               | Widespread, but outlier - Land System is widespread in the Pilbara, but the study area occurs within an outlying occurrence of the Land System or towards one end of the mapped distribution of the Land System                                                                                  | 4            |
| W                                                 | Widespread - Land System occurs broadly across the Pilbara                                                                                                                                                                                                                                       | 2            |

| <b>β Regional Representation of 100-group/s of the PATN Floristic Analysis</b> |                                                                                                  | <b>Score</b> |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------|
| R                                                                              | Restricted - group contains sites only from studies in the Pannawonica area                      | 6            |
| W                                                                              | Widespread - group contains sites from a range of the projects sampled by the floristic analysis | 2            |

| <b>f Vegetation Supports Unusual Flora</b> |                                                                                                                                                                                                                                                                                                                                                    | <b>Score</b> |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| P                                          | Known to contain Priority flora (note that for the purposes of this assessment, the Priority 3 flora <i>Abutilon trudgenii</i> and <i>Sida</i> sp. Wittenoom - both of which are widespread and frequently recorded in the Pilbara, and are considered to warrant removal from the Priority flora list - have not been included as "rare" species) | 4            |
| R                                          | Vegetation supports species restricted to the habitat                                                                                                                                                                                                                                                                                              | 2            |
| U                                          | Vegetation dominated by species uncommon in the locality                                                                                                                                                                                                                                                                                           | 2            |

| <b>†1 Other Key Attributes Increasing Conservation Value</b> |                                                                                                                                             | <b>Score</b> |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| A                                                            | Small areal extent in the locality, for example due to occurrence on a minor habitat (eg. breakaways) or on an unusual soil or geology type | 1            |
| C                                                            | Condition excellent or very good - no or only very scattered weeds, no obvious evidence of grazing or trampling by introduced herbivores    | 1            |
| D                                                            | Significant surface drainage feature (rivers, moderate-sized creeklines or other drainage features, and gorges)                             | 1            |
| E                                                            | Habitat particularly susceptible to erosion following disturbance of substrate                                                              | 1            |

| <b>†2 Other Key Attributes Decreasing Conservation Value</b> |                                                                                                                                 | <b>Score</b> |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------|
| W                                                            | Substantially degraded (eg. by perennial weed invasion (>10% cover) and/or heavy grazing or trampling by introduced herbivores) | -3           |

It was possible for an individual vegetation type to have more than one score for the Land System and floristic group features. Where this occurred, and where the scores were different, the following rules were applied:

- If there was a greater number of one particular score, then the mode was used. For example, vegetation type CzAtGeTs of sand sheets was mapped as Nanutarra (Restricted distribution – R) and Stuart (Restricted distribution and an outlier – R,O) Land Systems, however it is considered that this vegetation type may be more closely linked with the Uaroo LS (R,O). The score for “R,O” was therefore used for this feature for CzAtGeTs.
- If there were equal numbers of different scores, then the scores were averaged. For example, sites in vegetation type ChAtuTwTe occurred in PATN groups 1/3 (which contained only sites from the Pannawonica area, and was therefore scored as Restricted) and 18/73 (which contained sites from a wider area and was therefore scored as Widespread); the scores for Restricted (6) and Widespread (2) were therefore averaged to give a score of 4 for this feature for ChAtuTwTe.

Numerous vegetation types had no sites in the floristic analysis. These were allocated a score for the floristic group to which they were considered most likely to belong.

The lowest possible overall score under the above rating system would be 1, which would apply to a vegetation type with the following characters:

- occurs on a widespread Land System;
- belongs to a widespread floristic group;
- has no additional attributes increasing conservation value; and
- is substantially degraded by weeds (scores of +2, +2, +0 and –3 respectively).

The highest possible score would be 26, which would apply to a vegetation type with the following characters:

- occurs at the edge of the range of distribution or on an outlier of a Land System which is already restricted in the region;
- belongs to a floristic group which is restricted in distribution in the region;
- supports Priority flora, other flora restricted to the habitat, and has unusual dominant species for the locality;
- has all four of the additional attributes increasing conservation value; and
- is not degraded by weeds (scores of +8, +6, +8, +4 and +0 respectively).

The scores for the various features were subsequently summed for each vegetation type, and the perceived significance of the individual vegetation types was subsequently ranked according to the following classes:

- |              |                      |
|--------------|----------------------|
| 1. Very High | Overall score 21-26; |
| 2. High      | Overall score 15-20; |
| 3. Moderate  | Overall score 8-14;  |
| 4. Low       | Overall score 1-7.   |

### **Conservation Significance of the Vegetation Types**

Table 4.4 contains a summary of the various features considered to contribute to or detract from the conservation value of the individual vegetation types defined for the current study area.

The overall scores for conservation significance of the individual vegetation types identified for the study area ranged from 7 (Low) to 21 (Very High).

One vegetation type is considered to be of Very High conservation significance:

- CzAtGeTs (vegetation of the sand dune and sand sheet adjacent to Mesa A) is considered likely to be restricted in distribution in both the local area and region, and supports species restricted to the deep sands of this particular habitat.

Twenty-four vegetation types are considered to be of High conservation significance;

- Most of the vegetation types occurring on heavy clay soils (CcCAoTwTe/h, AxCAoTwTe/h, AfAbPICAo/h, AbCAoTw/h, AsyCAoTw/h, AsyCAoTe/h and CAoTe/h), and the flowlines CcAcoTw and CcAfAxTwTeERlb, as these support habitat-restricted flora and are susceptible to erosion following physical disturbance;
- Snakewood shrublands (AxTw and AxTe), which support Priority flora and other restricted flora species;
- *Acacia synchronicia* shrublands on stony plains (AsyAbAaTw), which support Priority flora;
- *Acacia* shrublands over hummock grasslands dominated by *Triodia lanigera* (ChCzAtrAaTla, CcAsyCAoTla and CzAaTla), an uncommon species in the area;
- the small stand of Mulga (CcAanTw), which is an unusual dominant species in the area;
- vegetation types associated with the Robe River (particularly EcMaAtrPISg and EcEvAtrApyPITw), which support Priority flora and occur on the major local drainage feature;
- vegetation types of creeklines through stony plains (EvAtrGOrPITw, EvCcAciTwTe, EvApyTEr, CcAciAaAbTwTe and CcChAtrAbPITwTe), which support Priority flora and/or occur on significant local drainage features; and
- vegetation of flowlines through the sand sheet south of Mesa A (ChCzAtuAtrTe), which supports species restricted to this habitat.

One vegetation type is considered to be of Low conservation significance:

- vegetation type ChAiAsyHcTeCE in the vicinity of Yarraloola Homestead was extensively degraded by weeds (mainly *\*Cenchrus* spp.).

The remainder of the vegetation types are considered to be of Moderate conservation significance.

Table 4.4: Summary matrix of conservation values of the individual vegetation types defined for the Mesa A transport corridor, Warramboos deposit and Yarraloola borefield study area.

| Vegetation Type                          | Area Mapped within Study Area (ha) | Associated Land System/s (regional representation Ω)                                                | 25/100-group/s of the floristic analysis (regional representation β) | Vegetation Supports Unusual Flora f                        | Other Key Attributes Increasing Conservation Value †1      | Other Key Attributes Decreasing Conservation Value †2 | Score based on distribution of Land System/s | Score based on distribution of floristic 100-group/s | Score from other attributes that increase conservation value | Score from other attributes that decrease conservation value | Overall Score | Perceived Relative Significance β |
|------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|---------------|-----------------------------------|
| Vegetation of Clayey Plains              |                                    |                                                                                                     |                                                                      |                                                            |                                                            |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| CcCAoTwTe/h                              | 12.6                               | Sherlock (R,O), Urandy (W,O)                                                                        | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 6                                            | 6                                                    | 4                                                            |                                                              | 16            | High                              |
| AxCaTwTe/h                               | 79.5                               | Cane (R,O), Sherlock (R,O)                                                                          | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| AfAbPICAo/h                              | 3.6                                | Sherlock (R,O)                                                                                      | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| AatAbAaCAoTe/h                           | 48.8                               | Urandy (W,O)                                                                                        | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 4                                            | 6                                                    | 4                                                            |                                                              | 14            | Moderate                          |
| AbCAoTw/h                                | 55.8                               | Sherlock (R,O), Urandy (W,O)                                                                        | 1/1 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 6                                            | 6                                                    | 4                                                            |                                                              | 16            | High                              |
| AsyCAoTw/h                               | 16                                 | Sherlock (R,O)                                                                                      | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| AsyCAoTe/h                               | 3.9                                | Sherlock (R,O), Urandy (W,O)                                                                        | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), E (clay soils)                             |                                                       | 6                                            | 6                                                    | 4                                                            |                                                              | 16            | High                              |
| CAoTe/h                                  | 5.5                                | Urandy (W,O)                                                                                        | 1/5 (R)                                                              | R (clay species)                                           | A (heavy clay), C, E (clay soils)                          |                                                       | 4                                            | 6                                                    | 5                                                            |                                                              | 15            | High                              |
| Vegetation of Stony Plains               |                                    |                                                                                                     |                                                                      |                                                            |                                                            |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| AxTw                                     | 182.5                              | Boolgeeda (W,O), Sherlock (R,O)                                                                     | 1/5 (R)                                                              | P ( <i>Hibiscus brachysiphonius</i> )                      | C                                                          |                                                       | 6                                            | 6                                                    | 5                                                            |                                                              | 17            | High                              |
| AxTe                                     | 11.8                               | Sherlock (R,O)                                                                                      | 1/5 (R)                                                              | P ( <i>Hibiscus brachysiphonius</i> )                      | C                                                          |                                                       | 8                                            | 6                                                    | 5                                                            |                                                              | 19            | High                              |
| scald                                    | 4.4                                | Sherlock (R,O), Urandy (W,O)                                                                        | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 6                                            | 6                                                    |                                                              |                                                              | 12            | Moderate                          |
| AsyAbAaTw                                | 258.5                              | Several - probably Cane (R,O) and Sherlock (R,O)                                                    | 1/5 (R), 23/89 (R)                                                   | P ( <i>Rhynchosia bungarensis</i> ; mainly near creeks)    | -                                                          |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| AsyAbAaTe                                | 276.5                              | Cane (RO) (also Mallina (W,O), Sherlock (R,O), Urandy (W,O))                                        | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 6                                            | 6                                                    |                                                              |                                                              | 12            | Moderate                          |
| AsyAbTlo                                 | 7.8                                | Nanutarra (R) (also Boolgeeda (W,O), River (W))                                                     | 7/27? (W)                                                            | U ( <i>Triodia longiceps</i> )                             | A (calcareous soils uncommon in the area), E (light soils) |                                                       | 4                                            | 2                                                    | 4                                                            |                                                              | 10            | Moderate                          |
| AatAbTw                                  | 319.4                              | Boolgeeda (W,O) (also Newman (W,O))                                                                 | 1/5 (R)                                                              | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| AatAbTe                                  | 127.5                              | Urandy (W,O) (also Boolgeeda (W,O), Newman (W,O))                                                   | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 4                                            | 6                                                    |                                                              |                                                              | 10            | Moderate                          |
| CcAaAbAsyTeTw                            | 234.7                              | Cane (R,O), Mallina (W,O), Robe (W,O), Sherlock (R,O)                                               | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 6                                            | 6                                                    |                                                              |                                                              | 12            | Moderate                          |
| AiAaAbTw                                 | 395                                | Various, but Boolgeeda (W,O) probably most closely linked                                           | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 4                                            | 6                                                    |                                                              |                                                              | 10            | Moderate                          |
| AiAaAbTe                                 | 13.7                               | Various, but Cane (R,O) and Urandy (W,O) probably most closely linked                               | 1/5 (R)                                                              | -                                                          | C                                                          |                                                       | 6                                            | 6                                                    | 1                                                            |                                                              | 13            | Moderate                          |
| ChAbTw                                   | 1020.8                             | Newman (W,O), Robe (W,O)                                                                            | 1/3 (R), 1/5 (R)                                                     | P ( <i>Rhynchosia bungarensis</i> ; mainly near creeks)    | -                                                          |                                                       | 4                                            | 6                                                    | 4                                                            |                                                              | 14            | Moderate                          |
| ChAbTe                                   | 7.3                                | Sherlock (R,O)                                                                                      | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 8                                            | 6                                                    |                                                              |                                                              | 14            | Moderate                          |
| ChAbTwTe                                 | 62                                 | Boolgeeda (W,O), Robe (W,O)                                                                         | 1/1 (R)                                                              | -                                                          | -                                                          |                                                       | 4                                            | 6                                                    |                                                              |                                                              | 10            | Moderate                          |
| ChCzAtrAaTla                             | 349.5                              | Stuart (R,O) (also Nanutarra (R))                                                                   | 1/3 (R), 18/73 (W), 23/89 (R)                                        | U ( <i>Triodia lanigera</i> )                              | -                                                          |                                                       | 7                                            | 6                                                    | 2                                                            |                                                              | 15            | High                              |
| CcAsyCAoTla                              | 36.4                               | Cane (R,O)                                                                                          | 23/89? (R)                                                           | U ( <i>Triodia lanigera</i> )                              | C                                                          |                                                       | 8                                            | 6                                                    | 3                                                            |                                                              | 17            | High                              |
| CzAaTla                                  | 24.2                               | Stuart (R,O)                                                                                        | 23/89? (R)                                                           | U ( <i>Triodia lanigera</i> )                              | -                                                          |                                                       | 8                                            | 6                                                    | 2                                                            |                                                              | 16            | High                              |
| ChAiAsyHcTe                              | 151.4                              | Mallina (W,O)                                                                                       | 1/5 (R)                                                              | -                                                          | -                                                          |                                                       | 4                                            | 6                                                    |                                                              |                                                              | 10            | Moderate                          |
| ChAiAsyHcTeCE                            | 232.5                              | Mallina (W,O)                                                                                       | 1/5 (R)                                                              | -                                                          | -                                                          | W                                                     | 4                                            | 6                                                    |                                                              | -3                                                           | 7             | Low                               |
| CcAanTw                                  | 0.53                               | Sherlock (R,O)                                                                                      | 1/5 (R)                                                              | U ( <i>Acacia aneura</i> )                                 | C                                                          |                                                       | 8                                            | 6                                                    | 3                                                            |                                                              | 17            | High                              |
| AsciAbTeTw                               | 8.8                                | Newman (W,O), Urandy (W,O)                                                                          | 1/5 (R)                                                              | U ( <i>Acacia sclerosperma</i> )                           | -                                                          |                                                       | 4                                            | 6                                                    | 2                                                            |                                                              | 12            | Moderate                          |
| Vegetation of Stony Hills and Breakaways |                                    |                                                                                                     |                                                                      |                                                            |                                                            |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| EIAiAptTw                                | 13.2                               | Robe (W,O), Newman (W,O), Boolgeeda (W,O)                                                           | 1/3 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> ; mainly in rocky areas) | C                                                          |                                                       | 4                                            | 6                                                    | 4                                                            |                                                              | 14            | Moderate                          |
| EIAiAbTw                                 | 218.7                              | Robe (W,O), Newman (W,O), Boolgeeda (W,O), McKay (W,O)                                              | 1/3 (R)                                                              | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| EIAatAarTw                               | 1169.6                             | Peedamulla (R), Robe (W,O)                                                                          | 23/89 (R)                                                            | -                                                          | C                                                          |                                                       | 5                                            | 6                                                    | 1                                                            |                                                              | 12            | Moderate                          |
| EIAarTw                                  | 323                                | Robe (W,O)                                                                                          | 23/89 (R)                                                            | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| ElGwAacTw                                | 11.1                               | Robe (W,O)                                                                                          | 22/84 (R)                                                            | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| EIAtuAbTwERlm                            | 58                                 | Newman (W,O), Robe (W,O)                                                                            | 3/12 (W), 22/86 (R)                                                  | R (breakaway species)                                      | A (breakaway), C                                           |                                                       | 4                                            | 4                                                    | 4                                                            |                                                              | 12            | Moderate                          |
| EIAatAtuGwTw                             | 22.7                               | Peedamulla (R)                                                                                      | 23/90 (R)                                                            | -                                                          | C                                                          |                                                       | 6                                            | 6                                                    | 1                                                            |                                                              | 13            | Moderate                          |
| AiAbTw                                   | 308.3                              | Various, but Boolgeeda (W,O), Newman (W,O), Robe (W,O) and McKay (W,O) probably most closely linked | 1/3 (R), 1/4 (W), 22/84 (R)                                          | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| AatAiAarAbTw                             | 187.4                              | Peedamulla (R)                                                                                      | 23/89 (R)                                                            | -                                                          | C                                                          |                                                       | 6                                            | 6                                                    | 1                                                            |                                                              | 13            | Moderate                          |
| AiAarTw                                  | 83.9                               | Peedamulla (R), Robe (W,O)                                                                          | 1/5 (R)                                                              | -                                                          | C                                                          |                                                       | 5                                            | 6                                                    | 1                                                            |                                                              | 12            | Moderate                          |
| AacTw                                    | 61.6                               | Newman (W,O)                                                                                        | 22/84 (R)                                                            | -                                                          | C                                                          |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| ERfTw                                    | 20.9                               | Capricorn (W)                                                                                       | 6/25 (W)                                                             | U ( <i>Eremophila fraseri</i> )                            | A (underlying geology uncommon in the area), C             |                                                       | 2                                            | 2                                                    | 4                                                            |                                                              | 8             | Moderate                          |

Table 4.4: continued.

| Vegetation Type                                | Area Mapped within Study Area (ha) | Associated Land System/s (regional representation Ω)         | 25/100-group/s of the floristic analysis (regional representation β) | Vegetation Supports Unusual Flora f                                                   | Other Key Attributes Increasing Conservation Value †1 | Other Key Attributes Decreasing Conservation Value †2 | Score based on distribution of Land System/s | Score based on distribution of floristic 100-group/s | Score from other attributes that increase conservation value | Score from other attributes that decrease conservation value | Overall Score | Perceived Relative Significance β |
|------------------------------------------------|------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|---------------|-----------------------------------|
| Vegetation of Major Creeklines and Floodplains |                                    |                                                              |                                                                      |                                                                                       |                                                       |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| EcMaAtrPIsG                                    | 139.1                              | River (W)                                                    | 1/1 (R), 1/2 (R)                                                     | P ( <i>Rhynchosia bungarensis</i> ), R (riverine species)                             | A (river), D (river)                                  |                                                       | 2                                            | 6                                                    | 8                                                            |                                                              | 16            | High                              |
| Ec/h                                           | 17.8                               | River (W)                                                    | 1/1 (R)                                                              | R (riverine species)                                                                  | A (river), D (river)                                  |                                                       | 2                                            | 6                                                    | 4                                                            |                                                              | 12            | Moderate                          |
| EcEvAtrApyPItw                                 | 198.1                              | River (W)                                                    | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> ), R (riverine species)                             | A (river), D (river)                                  |                                                       | 2                                            | 6                                                    | 8                                                            |                                                              | 16            | High                              |
| AtrTe                                          | 76.7                               | River (W)                                                    | 1/3 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | D (floodplain of river)                               |                                                       | 2                                            | 6                                                    | 5                                                            |                                                              | 13            | Moderate                          |
| EvAtrApyAbGOtrTeCE                             | 15                                 | Urandy (W,O), Robe (W,O)                                     | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | A (creekline), D (creekline)                          | W                                                     | 4                                            | 6                                                    | 6                                                            | -3                                                           | 13            | Moderate                          |
| EvAtrGOtrPItw                                  | 4.4                                | Newman (W,O)                                                 | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | A (creekline), D (creekline)                          |                                                       | 4                                            | 6                                                    | 6                                                            |                                                              | 16            | High                              |
| EvCcAciTwTe                                    | 6.2                                | Sherlock (R,O)                                               | 1/1 (R)                                                              | -                                                                                     | A (creekline), D (creekline)                          |                                                       | 8                                            | 6                                                    | 2                                                            |                                                              | 16            | High                              |
| EvApyTEr                                       | 3.3                                | Robe (W,O)                                                   | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | A (creekline), D (creekline)                          |                                                       | 4                                            | 6                                                    | 6                                                            |                                                              | 16            | High                              |
| CcTe                                           | 108.9                              | River (W)                                                    | 1/5 (R)                                                              | -                                                                                     | D (floodplain of river)                               |                                                       | 2                                            | 6                                                    | 1                                                            |                                                              | 9             | Moderate                          |
| ChAiApyTw                                      | 21.1                               | River (W)                                                    | 1/5 (R)                                                              | R (riverine species)                                                                  | A (floodplain of river), D (floodplain of river)      |                                                       | 2                                            | 6                                                    | 4                                                            |                                                              | 12            | Moderate                          |
| Vegetation of Minor Creeklines and Flowlines   |                                    |                                                              |                                                                      |                                                                                       |                                                       |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| CcAciAaAbTwTe                                  | 107                                | Sherlock (R,O)                                               | 1/5 (R)                                                              | P ( <i>Phyllanthus aridus</i> )                                                       | -                                                     |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| CcAcoTw                                        | 0.94                               | Sherlock (R,O)                                               | 1/1 (R)                                                              | R (clay species)                                                                      | A (single soak), E (clay soils)                       |                                                       | 8                                            | 6                                                    | 4                                                            |                                                              | 18            | High                              |
| CcAfAxTwTeERlb                                 | 8.8                                | Cane (R,O) (also Urandy (W,O))                               | 1/5 (R)                                                              | R (clay species), U ( <i>Eriachne benthamii</i> )                                     | A (minor creekline through clay), E (clay soils)      |                                                       | 6                                            | 6                                                    | 6                                                            |                                                              | 18            | High                              |
| CcGOtrAtuTe                                    | 2                                  | Urandy (W,O)                                                 | 1/1 (R)                                                              | -                                                                                     | A (two minor creeklines)                              |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| CcSsAbGOtrTe                                   | 3.8                                | Robe (W,O)                                                   | 1/1 (R)                                                              | -                                                                                     | A (two minor flowlines)                               |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| CcTw                                           | 0.84                               | Robe (W,O)                                                   | 1/5 (R)                                                              | -                                                                                     | A (creekline)                                         |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| CcChAatAaTe                                    | 34.2                               | Robe (W,O)                                                   | 18/73 (W), 23/89 (R)                                                 | -                                                                                     | C                                                     |                                                       | 4                                            | 4                                                    | 1                                                            |                                                              | 9             | Moderate                          |
| CcChAtrAbPItwTe                                | 33.8                               | Sherlock (R,O), Urandy (W,O)                                 | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | -                                                     |                                                       | 6                                            | 6                                                    | 4                                                            |                                                              | 16            | High                              |
| ChAsppGOtrGsppPIsTeTw                          | 299.2                              | Urandy (W,O), Robe (W,O)                                     | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | -                                                     |                                                       | 4                                            | 6                                                    | 4                                                            |                                                              | 14            | Moderate                          |
| ChCzAtuAtrTe                                   | 25.7                               | Stuart (R,O)                                                 | 1/1 (R)                                                              | -                                                                                     | A (creeklines)                                        |                                                       | 8                                            | 6                                                    | 1                                                            |                                                              | 15            | High                              |
| ChCzAtuAtrCE                                   | 8                                  | Stuart (R,O)                                                 | 1/1 (R)                                                              | -                                                                                     | A (creekline)                                         | W                                                     | 8                                            | 6                                                    | 1                                                            | -3                                                           | 12            | Moderate                          |
| ChAacTw                                        | 4.2                                | Newman (W,O)                                                 | 22/84 (R)                                                            | -                                                                                     | C, D (gullies)                                        |                                                       | 4                                            | 6                                                    | 2                                                            |                                                              | 12            | Moderate                          |
| ChAtuTwTe                                      | 48.3                               | Boolgeeda (W,O), Newman (W,O)                                | 1/3 (R), 18/73 (W)                                                   | -                                                                                     | -                                                     |                                                       | 4                                            | 4                                                    |                                                              |                                                              | 8             | Moderate                          |
| ChGOtrPItw                                     | 1.3                                | Boolgeeda (W,O), McKay (W,O)                                 | 1/1 (R)                                                              | -                                                                                     | A (two flowlines), C                                  |                                                       | 4                                            | 6                                                    | 2                                                            |                                                              | 12            | Moderate                          |
| ElCcAtuAarTw                                   | 33.1                               | Peedamulla (R), Nanutarra (R)                                | 23/90 (R)                                                            | -                                                                                     | A (flowlines), C                                      |                                                       | 6                                            | 6                                                    | 2                                                            |                                                              | 14            | Moderate                          |
| ElChPIGwAacTw                                  | 2.4                                | Newman (W,O)                                                 | 22/84 (R), 22/86 (R)                                                 | -                                                                                     | C, D (gullies)                                        |                                                       | 4                                            | 6                                                    | 2                                                            |                                                              | 12            | Moderate                          |
| AatPItw                                        | 23.4                               | Boolgeeda (W,O)                                              | 23/90 (R)                                                            | -                                                                                     | C                                                     |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| AbTw                                           | 10.2                               | Capricorn (W), Boolgeeda (W,O)                               | 1/3 (R)                                                              | -                                                                                     | C                                                     |                                                       | 3                                            | 6                                                    | 1                                                            |                                                              | 10            | Moderate                          |
| AbApyGOtrPItwCE                                | 10.3                               | Urandy (W,O)                                                 | 1/1 (R)                                                              | P ( <i>Rhynchosia bungarensis</i> )                                                   | -                                                     | W                                                     | 4                                            | 6                                                    | 4                                                            | -3                                                           | 11            | Moderate                          |
| AciAtuTw                                       | 23.8                               | Boolgeeda (W,O)                                              | 1/1 (R)                                                              | -                                                                                     | A (two flowlines)                                     |                                                       | 4                                            | 6                                                    | 1                                                            |                                                              | 11            | Moderate                          |
| Vegetation of Sand Sheets                      |                                    |                                                              |                                                                      |                                                                                       |                                                       |                                                       |                                              |                                                      |                                                              |                                                              |               |                                   |
| CzAtGeTs                                       | 146.3                              | Mapped as Nanutarra (R), Stuart (R,O) - could be Uaroo (R,O) | 2/10 (R), 2/11 (R)                                                   | R (sandplain species), U ( <i>Grevillea eriostachya</i> and <i>Triodia schinzii</i> ) | A (sand sheet), C, E (sand)                           |                                                       | 8                                            | 6                                                    | 7                                                            |                                                              | 21            | Very High                         |

## 5.0 Flora

### 5.1 Overview of Flora

#### 5.1.1 Species Richness

A total of 437 taxa of native vascular flora from 160 genera belonging to 57 families was recorded from the study area (see Appendix 4). In addition, 20 species of introduced flora were recorded (see Section 5.3).

Nonvascular flora were not specifically sampled, however numerous fungi were noted in the area, including Bracket Fungi and Stalked Puffballs (probably Black Powderpuff *Podaxis pistillaris*; Family Podaxaceae). Liverworts (Bryophytes) were also observed.

Species richness per quadrat (detailed flora recording site) ranged from 5 to 80 native taxa, with an average of 37 taxa. Sites with the highest native species richness were on loamy plains (MATR24: 80 taxa), in alluvial floodplains (2MATC01: 75 taxa) or other drainage lines (2MATC06: 74 taxa). Sites with the lowest native species richness were typically on stony plains (WAR01: 5 taxa), crests of stony hills (MAT04: 6 taxa) or in rocky creeks (WAR06: 10 taxa). The main factor driving differences in the number of species recorded in different quadrats thus seems to be habitat type. Habitats with generally good conditions (deep, well-drained soils, and more readily available water) typically had more species than habitats with shallow, less favourable soils.

Similar to other study areas in the Pannawonica locality (see for example Biota 2003, 2005a, 2005c), the current study area is relatively species poor in comparison to areas further east in the Hamersley Range, reflecting two main factors:

- the relatively low and inconsistent rainfall typically received by the area; and
- the low relief of the hills in comparison to areas further east (altitude has been shown to be a significant contributor to species diversity; see van Leeuwen and Bromilow 2002).

The current study area is relatively more species rich than other areas surveyed previously in the locality (see Biota 2003, 2005a, 2005c), reflecting:

- the relatively greater size of the current study area, and larger number of habitats present (including extensive areas of clayey plains); and
- the excellent collecting conditions during the current study, resulting from the sizeable and sustained rainfall events experienced at Pannawonica in 2005.

As a comparison, 257 taxa of native vascular flora from 111 genera belonging to 48 families were recorded from the Mesa A and Mesa G survey areas combined (Biota 2005a), while 235 native taxa from 108 genera and 48 families were recorded at Bungaroo (Biota 2005c).

Table 5.1 contains the total number of native species, genera and families recorded from the various components of the study area. It must be noted that only the easternmost and westernmost sections of the southern transport corridor were surveyed during the current study, hence the area assessed was considerably smaller than the northern transport corridor. A similar number of species would be expected to be recorded from the southern transport corridor with equivalent survey effort. The Warramboos deposit is clearly species depauperate compared to the other components of the study area, particularly when compared to the similarly-sized Yarraloola borefield and pipeline corridor. This is a function of the relatively uniform landforms of the Warramboos area, which are dominated by species-poor stony plain and mesa top habitats (see above).

**Table 5.1: Number of native flora species, genera and families for each component of the study area.**

| Component of Study Area           | No. native species | No. genera | No. families |
|-----------------------------------|--------------------|------------|--------------|
| Northern transport corridor       | 417                | 155        | 55           |
| Southern transport corridor       | 155                | 73         | 37           |
| Warramboos deposit and haul roads | 72                 | 45         | 30           |
| Yarraloola borefield and pipeline | 200                | 98         | 37           |

### 5.1.2 Dominant Species

The families and genera with the greatest number of native taxa within the study area are shown in Table 5.2 and Table 5.3, together with values from the Mesa A / Mesa G study (Biota 2005a) and Bungaroo study (Biota 2005c) for comparison. These families and genera are those that are predominant in the vegetation of the Pilbara, and that usually have most representatives on flora lists from this region, due to their prominence in the Eremaean flora. Some of the families (eg. the *Amaranthaceae*, *Malvaceae* and *Poaceae*) are more species rich in the Northern flora and poorer in the Southern flora, while others (such as the *Mimosaceae*) are abundant in all three provinces. In contrast to these native families and genera that have many representatives, 19 families and 82 genera recorded during the survey were represented by only one taxon.

Apart from the flora of conservation significance (for which a particular effort was made to record all sightings), the most frequently recorded species included *Triodia wiseana*, *T. epactia*, *Acacia ancistrocarpa*, *A. bivenosa*, *A. inaequilatera*, *Corchorus sidoides* subsp. *sidoides*, *Corymbia hamersleyana*, *Ptilotus appendiculatus* and *Streptoglossa bubakii*. Some of these species are commonly dominant in the vegetation of the area (eg. *Triodia epactia*, *T. wiseana*, *Acacia ancistrocarpa* and *A. bivenosa*), or at least frequently contribute to its structure (eg. *Acacia inaequilatera* and *Corchorus sidoides* subsp. *sidoides*). Others are species with wide environmental tolerance, but usually with low abundance (eg. *Ptilotus appendiculatus* and *Streptoglossa bubakii*).

Families under-represented in the flora compared to areas further east include the *Goodeniaceae* (fan-flowers).

**Table 5.2: Most species rich families within the current study area\*, and the Mesa A / Mesa G (Biota 2005a) and Bungaroo (Biota 2005c) study areas.**

| Family                                     | No. of Native Taxa (No. of Introduced Taxa) |                 |          |
|--------------------------------------------|---------------------------------------------|-----------------|----------|
|                                            | Current study area*                         | Mesa A / Mesa G | Bungaroo |
| Poaceae (grass family)                     | 50 (5)                                      | 23 (2)          | 21 (2)   |
| Malvaceae (hibiscus family)                | 46 (1)                                      | 25 (1)          | 23 (1)   |
| Papilionaceae (pea family)                 | 44 (1)                                      | 20 (0)          | 27 (0)   |
| Mimosaceae (wattle family)                 | 31 (0)                                      | 18 (0)          | 19 (0)   |
| Amaranthaceae (mulla-mulla family)         | 26 (1)                                      | 15 (0)          | 11 (0)   |
| Asteraceae (daisy family)                  | 25 (2)                                      | 10 (1)          | 9 (1)    |
| Euphorbiaceae (spurge family)              | 20 (1)                                      | 13 (1)          | 11 (0)   |
| Caesalpiniaceae (cassia family)            | 14 (1)                                      | 13 (0)          | 11 (0)   |
| Chenopodiaceae (saltbush, bluebush family) | 14 (0)                                      | 5 (0)           | 3 (0)    |

\* Combined area of the Mesa A transport corridors, Warramboos deposit, and Yarraloola borefield and pipeline corridor.

**Table 5.3: Most species rich genera within the current study area\*, and the Mesa A / Mesa G (Biota 2005a) and Bungaroo (Biota 2005c) study areas.**

| Genus                                 | No. of Native Taxa  |                 |          |
|---------------------------------------|---------------------|-----------------|----------|
|                                       | Current study area* | Mesa A / Mesa G | Bungaroo |
| <i>Acacia</i> (wattle family)         | 29                  | 18              | 19       |
| <i>Sida</i> (hibiscus family)         | 18                  | 6               | 8        |
| <i>Ptilotus</i> (mulla-mulla family)  | 17                  | 9               | 8        |
| <i>Euphorbia</i> (spurge family)      | 14                  | 9               | 5        |
| <i>Abutilon</i> (hibiscus family)     | 13                  | 6               | 5        |
| <i>Cassia</i> (cassia family)         | 12                  | 12              | 10       |
| <i>Hibiscus</i> (hibiscus family)     | 12                  | 11              | 7        |
| <i>Tephrosia</i> (pea family)         | 12                  | 7               | 11       |
| <i>Indigofera</i> (pea family)        | 8                   | 6               | 6        |
| <i>Solanum</i> (native tomato family) | 8                   | 6               | 5        |

\* Combined area of the Mesa A transport corridors, Warramboos deposit, and Yarraloola borefield and pipeline corridor.

Table 5.4 and Table 5.5 contain the families and genera with the greatest number of species recorded from the various components of the study area. Again, it must be noted that only the easternmost and westernmost sections of the southern transport corridor were surveyed.

The northern and southern transport corridors had very similar dominant families; only a small number of Asteraceae were recorded in the southern transport corridor as the areas of cracking clays that intersect this corridor (which support large numbers of daisies) were not sampled during the current study. The Yarraloola borefield and pipeline corridor had an identical suite of dominant families to the northern transport corridor, although there were only approximately half as many species within each family. Given the lower number of total species at Warramboos, a number of less typical families were included in the dominant list; families containing mainly annual species (such as the Amaranthaceae and Asteraceae) were conspicuously absent (Table 5.4).

With respect to the genera containing the greatest number of species within each component of the study area (Table 5.5), the northern and southern transport corridors and the Yarraloola borefield and pipeline again shared a similar suite of dominant genera, while predominantly annual genera such as *Euphorbia* and *Ptilotus* were conspicuously absent at Warramboos.

**Table 5.4: Most species rich families within each component of the current study area.**

| Northern transport corridor                                                                                                                                        | Southern transport corridor                                                                                                                                            | Warramboos deposit and haul roads                                                                                                                                              | Yarraloola borefield and pipeline                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Poaceae (46 spp)<br>Malvaceae (44 spp)<br>Papilionaceae (42 spp)<br>Mimosaceae (28 spp)<br>Amaranthaceae (25 spp)<br>Asteraceae (24 spp)<br>Euphorbiaceae (20 spp) | Malvaceae (18 spp)<br>Poaceae (17 spp)<br>Amaranthaceae (13 spp)<br>Papilionaceae (13 spp)<br>Euphorbiaceae (11 spp)<br>Mimosaceae (10 spp)<br>Caesalpiniaceae (8 spp) | Poaceae (8 spp)<br>Mimosaceae (7 spp)<br>Caesalpiniaceae (5 spp)<br>Malvaceae (5 spp)<br>Papilionaceae (5 spp)<br>Myrtaceae (4 spp)<br>Solanaceae (4 spp)<br>Tiliaceae (4 spp) | Poaceae (24 spp)<br>Papilionaceae (23 spp)<br>Malvaceae (19 spp)<br>Amaranthaceae (17 spp)<br>Mimosaceae (15 spp)<br>Euphorbiaceae (11 spp)<br>Asteraceae (11 spp) |

**Table 5.5: Most species rich genera within each component of the current study area.**

| Northern transport corridor                                                                                                                                   | Southern transport corridor                                                                                                                               | Warramboos deposit and haul roads                                        | Yarraloola borefield and pipeline                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <i>Acacia</i> (27 spp)<br><i>Sida</i> (18 spp)<br><i>Ptilotus</i> (16 spp)<br><i>Euphorbia</i> (14 spp)<br><i>Abutilon</i> (12 spp)<br><i>Cassia</i> (12 spp) | <i>Acacia</i> (10 spp)<br><i>Ptilotus</i> (10 spp)<br><i>Euphorbia</i> (8 spp)<br><i>Cassia</i> (7 spp)<br><i>Hibiscus</i> (6 spp)<br><i>Sida</i> (6 spp) | <i>Acacia</i> (7 spp)<br><i>Cassia</i> (4 spp)<br><i>Solanum</i> (4 spp) | <i>Acacia</i> (13 spp)<br><i>Ptilotus</i> (10 spp)<br><i>Euphorbia</i> (8 spp)<br><i>Abutilon</i> (7 spp)<br><i>Sida</i> (7 spp) |

## 5.2 Flora of Conservation Significance

### 5.2.1 Legislative and Administrative Levels of Flora Protection

While all native flora are protected under the Western Australian *Wildlife Conservation Act 1950-1979*, a number of plant species are assigned an additional level of conservation significance based on the limited number of known populations and the perceived threats to these populations (Table 5.6). Species of the highest conservation significance are designated Declared Rare Flora (DRF), either extant or presumed extinct. Species that appear to be rare or threatened, but for which there is insufficient information to properly evaluate their conservation significance, are assigned to one of four Priority flora categories by CALM. This is an administrative (rather than legislated) level of protection.

In addition, the presence of some flora species means that it may be necessary to refer proposals to the Federal Minister for the Environment under the *Federal Environment Protection and Biodiversity Conservation Act 1999*. In the Pilbara, only the two Declared Rare Flora species (*Lepidium catapycnon* and *Thryptomene wittweri*) are currently listed under the EPBC Act 1999.

**Table 5.6: Categories of conservation significance for flora species (Atkins 2005).**

|                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Declared Rare Flora - Extant Taxa.</b> Taxa that 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.                                |
| <b>Declared Rare Flora - Presumed Extinct.</b> Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently. |
| <b>Priority 1 - Poorly Known Taxa.</b> Taxa which are known from one or a few (generally <5) populations which are under threat.                                                                                                       |
| <b>Priority 2 - Poorly Known Taxa.</b> Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under threat.                                                                  |
| <b>Priority 3 - Poorly Known Taxa.</b> Taxa which are known from several populations, at least some of which are not believed to be under threat.                                                                                      |
| <b>Priority 4 - Rare Taxa.</b> Taxa which are considered to have been adequately surveyed and which whilst being rare, are not currently threatened by any identifiable factors.                                                       |

### 5.2.2 Flora of Conservation Significance Previously Recorded in the Vicinity of the Study Area

Neither of the two DRF species in the Pilbara (*Lepidium catapycnon* nor *Thryptomene wittweri*) have been recorded from the Pannawonica area.

Priority flora that have been previously within 10 km of the current study area include:

- *Abutilon trudgenii* (Priority 3): Recorded from Mesa A and Mesa G (Biota 2005a), the Mesa J Extension (Biota 2005b), Bungaroo (Biota 2005c) and Mesa L Minor (Biota 2005d);
- *Rhynchosia bungarensis* (Priority 3): Recorded from Bungaroo by Trudgen (2003c); also one WA Herbarium record from a minor drainage in the Mesa J Extension, <4 km northwest of the western end of the transport corridor (see Biota 2003); two WA Herbarium records from the Robe River, ~6 km northwest of the western end of the transport corridor; and one WA Herbarium record from <6 km southwest of the test pit area;
- *Sida* sp. Wittenoom (W.R. Barker 1962) (Priority 3): Recorded from Mesa A (Biota 2005a), Bungaroo (Biota 2005c) and the Mesa J Extension (Biota 2005b).

### 5.2.3 Probability of Declared Rare Flora Occurring in the Study Area

No Declared Rare Flora were recorded from the study area during the recent surveys, despite systematic targeted searches for rare species through the entire study area.

Mountain Thryptomene *Thryptomene wittweri* is only known from high-altitude mountain tops further east in the Pilbara, its distribution extending south into the Gascoyne and Great Victoria Desert bioregions. Given the absence of suitable habitat within the study area, this species would not be expected to occur.

Hamersley Lepidium *Lepidium catapycnon* is now known from a number of locations further east in the Hamersley Range. Although suitable habitat (low stony hills and plains) occurs around Pannawonica, this species has not been recorded from the area to date. The closest known population is near Tom Price, some 150 km southeast.

There are thus no listed Threatened Flora Species under the *EPBC Act 1999* within the study area.

## 5.2.4 Priority Flora Occurring in the Study Area

Five Priority 3 flora were recorded during the current survey (Table 5.7, Appendix 5), all of which have been recorded previously in the locality.

**Table 5.7: Priority 3 flora recorded within the study area.**

| Family                                       | Number of Records                                                         | Distribution Within the Study Area |                   |           |            |                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------|---------------------------------------------------------------------------|------------------------------------|-------------------|-----------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Species                                      |                                                                           | Northern Corridor                  | Southern Corridor | Warramboo | Yarraloola | Broad Description of Distribution                                                                                                                                                                                                                                                                                                     |
| Malvaceae                                    |                                                                           |                                    |                   |           |            |                                                                                                                                                                                                                                                                                                                                       |
| <i>Abutilon trudgenii</i> ms.                | 1,777 records (representing ~11,000 individuals)                          | √                                  | √                 | √         | √          | Stony and clayey plains; throughout all sections of the study area                                                                                                                                                                                                                                                                    |
| <i>Hibiscus brachysiphonius</i>              | 3 records from 2 general locations (~20 individuals in total)             | √                                  | √                 | -         | -          | Clayey plains; east of the Deepdale Road in the northern rail corridor, and at the eastern end of the southern transport corridor                                                                                                                                                                                                     |
| <i>Sida</i> sp. Wittenoom (W.R. Barker 1962) | 2,471 records (representing ~62,000 individuals)                          | √                                  | √                 | √         | √          | Stony plains; throughout all sections of the study area                                                                                                                                                                                                                                                                               |
| Euphorbiaceae                                |                                                                           |                                    |                   |           |            |                                                                                                                                                                                                                                                                                                                                       |
| <i>Phyllanthus aridus</i>                    | 19 records from 1 location (population estimated at over 585 individuals) | √                                  | -                 | -         | -          | Single section of creekline within the northern rail corridor, ~2 km west of the Mesa G access road                                                                                                                                                                                                                                   |
| Papilionaceae                                |                                                                           |                                    |                   |           |            |                                                                                                                                                                                                                                                                                                                                       |
| <i>Rhynchosia bungarensis</i>                | 70 records (representing ~400 individuals)                                | √                                  | √                 | -         | -          | Creeklines or floodplains, either of the Robe River itself or major tributaries; broad locations in the northern transport corridor included between Mesas B and C, south of Mesa G, near Deepdale Homestead, at the Bungaroo Road crossing and west of Mesa J; also recorded from the eastern end of the southern transport corridor |
| Number of Species                            |                                                                           | 5                                  | 4                 | 2         | 2          |                                                                                                                                                                                                                                                                                                                                       |

Each species is discussed individually below.

### • *Abutilon trudgenii* ms.

### Priority 3

This low shrub species has a relatively straggly habit (see Plate 5.1) and tends to occur in recently burnt areas. Both factors probably contribute to the fact that it was poorly collected in the past, however it is now recorded routinely on surveys in the Hamersley Range.

Specimens of *A. trudgenii* are lodged at the WA Herbarium from Cane River, Hillside Station, Goldsworthy and Tom Price. However, according to the Priority Species List this species is known from other locations including Warralong, Woodstock, Point Sampson, Karratha and Pannawonica (Atkins 2005). It has also been recorded from Yanrey Station on the eastern side of the Exmouth Gulf (M. Maier, pers. obs.), west of Dampier (Biota and Trudgen 2001), and south-southeast of Port Hedland (Trudgen et al. 2002). Further inland in the vicinity of Newman, *A. trudgenii* was recorded 23 times by Trudgen and Casson (1998) during the West Angelas surveys, seven times during the initial survey of the Hope Downs rail corridor (Biota and Trudgen 2002), once during the Hamersley Range Extension to the Hope Downs rail corridor (Biota 2004c), three times during the survey of the FMG Stage A rail corridor between Port Hedland and Mindy Mindy (Biota 2004d), and four times from the FMG Stage B rail corridor and tenements (Biota 2004b). This species has been recorded recently from other areas around Pannawonica, including from Mesa A and Mesa G (46 records; see Biota 2005a), the Mesa J Extension (1 record; Biota 2005b), Bungaroo (109 records; Biota 2005c) and Mesa L Minor (7 records; Biota 2005d).

*Abutilon trudgenii* ms. was recorded 1,777 times from the current study area, occurring through all sections of the Mesa A transport corridor (both the northern haul road and rail options, and the southern option), the Yarraloola borefield and pipeline, and at Warrambo (Appendix 5). Over 1,300 of the records were of five or fewer individuals, however there were occasional large stands of up to 100-200 individuals (Appendix 5). The population in the area is estimated at ~11,000 individuals. This species is likely to be widespread on stony plains in the Pannawonica area, given the frequency with which it has been recorded on this and other surveys in the area. Given that *Abutilon trudgenii* ms. is apparently widespread and not uncommon, it should be removed from the Priority flora listing.



Plate 5.1: *Abutilon trudgenii* ms.: young plant, leaf, and fruit (note pendant pedicels).

### • *Hibiscus brachysiphonius*

### Priority 3

This low spreading herb appears to be restricted to cracking clays. There are specimens of *H. brachysiphonius* lodged with the WA Herbarium from several Pilbara locations including Minilya River, Tom Price, Karratha and Millstream, and this species was also recorded from five sites at Cape Preston, west of Dampier (Biota and Trudgen 2001). *H. brachysiphonius* is also known from the Kimberley and Midwest (Atkins 2005). This species was recorded six times within the FMG Stage A rail corridor between Port Hedland and Mindy Mindy (Biota 2004d), once from the FMG Stage B rail corridor (Biota 2004b), and at nine locations within the Hope Downs rail corridor, extending through the Chichester Range and Fortescue Valley (Biota and Trudgen 2002).

Although there appeared to be an abundance of suitable habitat (clayey substrates) within the Mesa A transport corridor, there were only three records of this species during the current survey. Two of these records were of single individuals within 50 m of each other within the northern rail corridor option, approximately 1 km east of the Deepdale Road (Appendix 5). Scattered individuals were also noted at the easternmost end of the southern transport corridor option, near the existing Mesa J rail line (Appendix 5).

*H. brachysiphonius* dies back seasonally to a perennial rootstock, and the individuals recorded were relatively inconspicuous at the time of survey. However, it is considered that this species would have been recorded more frequently if it was genuinely common in the area. While it is possible that this species occurs more widely through the clayey plains habitats of the Mesa A transport corridor, it is therefore considered unlikely to be abundant in the area.

• ***Phyllanthus aridus***

**Priority 3**

This small herb is collected occasionally on surveys in the Pilbara, but is likely to be overlooked except in very good seasons due to its inconspicuous habit. Atkins (2005) lists this species as occurring in the West Kimberley, Chichester Range, West Angelas, Pardoo, Shay Gap, Doongan Homestead and the Durack River. According to Florabase, there are 20 populations of this species, predominantly in the Kimberley.

This species was first recorded in the Pilbara during the West Angelas rail corridor survey (Trudgen and Casson 1998), where it occurred not uncommonly in creeks of the southern slopes of the Chichester Range (12 populations were recorded). During the initial Hope Downs Rail Corridor survey (Biota and Trudgen 2002), this species occurred as scattered individuals at three locations in creek and plain habitat north of the East Turner River. This species is best considered as uncommon, but not rare, in the Fortescue Botanical District.

*P. aridus* was recorded 19 times during the current survey. All records were from a single section of creekline within the northern rail corridor option, approximately 2 km west of the Mesa G access road (Appendix 5). The population in this area is estimated at over 585 individuals.

• ***Rhynchosia bungalowensis***

**Priority 3**

This pea is a perennial creeper, sometimes forming a dense shrub, with sticky trifoliate leaves and yellow flowers (see Plate 5.2). Bungaroo is the type locality for *R. bungalowensis*; this species was recorded 18 times from the Bungaroo study area (all from a gully system) and has been recorded from a number of additional locations in the locality (mainly along the Robe River) (see Biota 2005c). It would appear to be common in the Pannawonica area, but not abundant. *R. bungalowensis* has also been recorded from Koodaideri in the eastern Pilbara, ~120 km northwest of Newman (Biota unpublished data).

*R. bungalowensis* was recorded 70 times from the current study area, with 50 of these records representing 5 or fewer individuals (Appendix 5). The population in the study area is estimated at approximately 400 individuals.

Virtually all records of *R. bungalowensis* were from creeklines or floodplains, either of the Robe River itself or major tributaries. Broad locations within the northern transport corridor included between Mesas B and C, south of Mesa G, near Deepdale Homestead, at the Bungaroo Road crossing and west of Mesa J (Appendix 5). *R. bungalowensis* was also recorded from the western end of the area surveyed for the southern transport corridor (Appendix 5).



**Plate 5.2:** *Rhynchosia bungalowensis*: an individual with the dense shrub-form habitat, and a close-up of a flowering stem.

• ***Sida* sp. Wittenoom (W.R. Barker 1962)** **Priority 3**

This low to medium-height shrub is similar in appearance to the more common *Sida echinocarpa*, but differs in some key features, including having fewer carpels to its spiny fruit, and calyx lobes that are depressed or concave in the centres (Plate 5.3). Similar to *Abutilon trudgenii*, *Sida* sp. Wittenoom has been poorly collected in the past but is now recorded frequently during surveys in the Hamersley Range. This species is widespread through the Pilbara bioregion, occurring in both the Hamersley and Chichester subregions. Specific records include two locations in the Hope Downs rail corridor (Biota 2004c), nine locations in the FMG Stage A rail corridor (Biota 2004d), two locations in the FMG Stage B rail corridor (Biota 2004b), 24 locations at Mesa A and Mesa G (Biota 2005a), 5 locations in the Mesa J Extension (Biota 2005b), 95 locations at Bungaroo (Biota 2005c) and 1 location at Mesa L Minor (Biota 2005d).

There were close to 2,500 records of *Sida* sp. Wittenoom (W.R. Barker 1962) from the current study area, from all sections of the northern rail and haul road options, the southern transport corridor option, the Yarraloola borefield and pipeline corridor, and at Warrambo. While over 1,500 of these records were of 10 or fewer individuals, there were some dense stands of this species (with 191 records of 100 or more individuals), particularly through relatively recently burnt loamy plains immediately south of Mesa A, south of Mesa B, east of Mesa C, between the Mesa G Road and the Deepdale Road, and between Deepdale Homestead and the Bungaroo Road (see Plate 5.4 and Plate 5.5). Given that *Sida* sp. Wittenoom (W.R. Barker 1962) is apparently widespread and abundant, this species should be removed from the Priority flora listing.



**Plate 5.3:** *Sida* sp. Wittenoom (W.R. Barker 1962): habit and fruit (note spiny carpels and concave calyx lobes).



**Plate 5.4:** Patch of seedlings of *Sida* sp. Wittenoom (W.R. Barker 1962); >30 individuals visible from vantage point.



**Plate 5.5:** Low open shrubland of *Sida* sp. Wittenoom (W.R. Barker 1962); >100 individuals visible from vantage point.

### 5.2.5 Other Flora of Conservation Significance

- ***Triodia* sp. nov.**

Trudgen (2002) recorded an undescribed spinifex (*Triodia*) species from mesas in the Robe Valley, mainly along the rocky upper edges of the mesas but also occasionally on the rocky crests. This taxon has subsequently been recorded in the Mesa J Extension study area (Biota 2003), on Mesa L Minor (Biota 2005d) and on hills near Bungaroo Creek (Biota 2005c).

Specimens could not be matched with any of the species currently distinguished by the WA Herbarium, hence this taxon appears to be a new entity. Trudgen (2002) describes this *Triodia* as quite common on mesas in the Robe Valley, but moderately geographically restricted and also habitat restricted.

There were 65 records of *Triodia* sp. nov. (see Plate 5.6 and Plate 5.7) from the current study area, occurring east of Mesa G in both the northern rail and haul road options, and in the southern transport corridor. The population in the study area is estimated at approximately 750 individuals.



Plate 5.6: Growth form of *Triodia* sp. nov.



Plate 5.7: Florets of *Triodia* sp. nov.

- **Malvaceae family**

The Malvaceae family contains a large number of taxa in the Pilbara, many of which are poorly collected. A number of Hibiscus specimens were collected during the current survey which could not be matched with collections held at the WA Herbarium. At least one (*Hibiscus sturtii* var. aff. *grandiflorus* (MATB-57); collection location 394437 mE, 7602949 mN)) appears to be a new entity that has not been seen previously by the author or by Mr. Malcolm Trudgen of ME Trudgen & Associates. Representative samples of these undetermined taxa will be sent to Mr Lyn Craven (Australian National Herbarium) for further consideration.

While the genera *Sida* and *Abutilon* are similarly in urgent need of additional collecting and revision, the specimens collected from the study area appear to represent taxa collected previously from other locations in the Pilbara.

- ***Amaranthus* spp.**

The genus *Amaranthus* includes a large number of taxa from the Pilbara, many of which are poorly collected. One taxon, designated *Amaranthus* aff. *interruptus* (MATHB-117) for this study, appears not to have been collected previously (collection location 404770 mE, 7599995 mN). Representative specimens of the *Amaranthus* collected during the current survey have been submitted to Ms Jo Palmer of the Australian National Herbarium for further consideration.

- ***Euphorbia* spp.**

The genus *Euphorbia* similarly includes a very large number of taxa in the Pilbara, many of which are poorly collected. Numerous apparently distinct taxa were collected from the study area, and identification of these was not possible below a broad level as much of the material at the WA Herbarium is currently on loan. It is possible that some of these taxa have a localised distribution in the western Pilbara, although this could not be determined without substantial additional collections. At this stage, none appear restricted to the study area. Representative samples will be sent to Mr David Halford of the Queensland Herbarium for further consideration.

- ***Tephrosia* spp.**

The genus *Tephrosia* also contains numerous undescribed taxa, particularly within *T. "clementii"*, *T. "densa"* and *T. "supina"*. The undescribed *Tephrosia* collected from the study area appeared to match previously distinguished entities within the reference set of ME Trudgen and Associates, with the exception of *Tephrosia* ?aff. *clelandii* (MATRM-45), which is possibly new (collection locations: 406475 mE, 7598089 mN; 407959 mE, 7600834 mN; 415235 mE, 7599690 mN).

- ***Corchorus sidoides* subsp. aff. *vermicularis* (MATH15-02)**

A taxon recorded from floodplains (collection locations including 384534 mE, 7613655 mN; 387721 mE, 7607426 mN; 389466 mE, 7603386 mN; 393978 mE, 7603400 mN; 397676 mE, 7597968 mN) appeared similar to *Corchorus sidoides* subsp. *vermicularis* but differed in a considerably more open indumentum. This may represent a new entity. A specimen has been sent to Mr David Halford of the Queensland Herbarium for further consideration.

- ***Indigofera monophylla***

The taxon *Indigofera monophylla* contains numerous distinct entities in the Pilbara. The specimens from the current study area have not been identified fully at the current time. It is possible that they may include taxa with restricted distributions, however further collections and consideration would be required to determine this.

- ***Portulaca* sp.**

A prostrate *Portulaca* which was collected from two locations in the study area (387448 mE, 7603092 mN; 423406 mE, 7591587 mN) could not be matched with any currently described species at the WA Herbarium. This may represent a new taxon. A specimen has been sent to Ms Judy West at the Australian National Herbarium for further consideration.

## 5.2.6 Range Extensions

The records from the current study include a number of apparent range extensions (based on existing vouchered specimens with the WA Herbarium, as indicated by species distributions on FloraBase).

These include:

- apparently new records for the Pilbara – *\*Ocimum basilicum*, *Sida kingii*, *\*Vinca major* (collected outside the study area; see Section 5.3); and
- range extensions from the eastern Pilbara – *Haloragis maierae*.

## 5.3 Introduced Flora (Weeds)

Twenty (20) introduced flora species were recorded from the current study area (Table 5.8). (Note that although Couch *Cynodon dactylon* is considered to be a weed in the southern temperate regions of Australia, it is considered endemic to the north; Sharp and Simon (2002)).

**Table 5.8: Number of records and distribution of each weed species within the study area.**

| Family                                                                | Total Number of Records                              | Distribution within the Study Area |                   |          |            |                                                                                                                                                                                                               |
|-----------------------------------------------------------------------|------------------------------------------------------|------------------------------------|-------------------|----------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Species                                                               |                                                      | Northern Corridor                  | Southern Corridor | Warrambo | Yarraloola | Broad description of distribution                                                                                                                                                                             |
| Caesalpiniaceae                                                       |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Parkinsonia aculeata</i> (Parkinsonia)                           | 2 records (12 individuals in total)                  | -                                  | -                 | -        | √          | Records in close proximity in Robe River, near Yarraloola Homestead                                                                                                                                           |
| Areaceae                                                              |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Phoenix dactylifera</i> (Date Palm)                              | 1 record (1 individual)                              | -                                  | -                 | -        | √          | Robe River, near Yarraloola Homestead; also noted in Robe River outside of study area (adjacent to Mesa F and south of Mesa K)                                                                                |
| Poaceae                                                               |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Cenchrus ciliaris</i> (Buffel Grass)                             | 299 records                                          | √                                  | √                 | -        | √          | Widespread through the northern and southern transport corridors, and in the Yarraloola borefield and pipeline corridor; particularly common on loamy plains near Yarraloola Homestead and Deepdale Homestead |
| * <i>Cenchrus setigerus</i> (Birdwood Grass)                          | 121 records                                          | √                                  | √                 | -        | √          | Relatively common through the same areas as * <i>C. ciliaris</i>                                                                                                                                              |
| * <i>Chloris barbata</i> (Purpletop Chloris)                          | 2 records                                            | √                                  | -                 | -        | -          | Recorded from the northern rail corridor; 2 locations east of the Bungaroo Road                                                                                                                               |
| * <i>Echinochloa colona</i> (Awnless Barnyard Grass)                  | 3 records                                            | √                                  | -                 | -        | -          | Recorded from the northern transport corridor; 2 locations north of Mesa G, 1 location east of the Bungaroo Road                                                                                              |
| * <i>Setaria verticillata</i> (Whorled Pigeon Grass)                  | 49 records                                           | √                                  | -                 | -        | √          | Widespread through the northern transport corridor and Yarraloola pipeline corridor, with most records from the northern haul road corridor                                                                   |
| Papaveraceae                                                          |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i> (Mexican Poppy) | 116 records                                          | √                                  | -                 | -        | -          | Throughout the northern transport corridor, associated with the Robe River drainage system                                                                                                                    |
| Malvaceae                                                             |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Malvastrum americanum</i> (Spiked Malvastrum)                    | 616 records                                          | √                                  | √                 | -        | √          | Widespread through the northern transport corridor; also present in the southern transport corridor and Yarraloola pipeline corridor                                                                          |
| Polygonaceae                                                          |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Acetosa vesicaria</i> (Ruby Dock)                                | 1 record of 2 individuals (both immediately removed) | √                                  | -                 | -        | -          | 1 location on the Robe River floodplain, east of Mesa B                                                                                                                                                       |
| Amaranthaceae                                                         |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Aerva javanica</i> (Kapok)                                       | 32 records                                           | √                                  | -                 | -        | √          | Throughout northern transport corridor, in Yarraloola borefield and pipeline corridor                                                                                                                         |
| Asteraceae                                                            |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Bidens bipinnata</i> (Beggars Ticks)                             | 19 records                                           | √                                  | -                 | -        | -          | Widespread through the northern transport corridor                                                                                                                                                            |
| * <i>Sonchus oleraceus</i> (Common Sowthistle)                        | 3 records                                            | √                                  | -                 | -        | -          | Three locations in the eastern section of the northern haul road corridor                                                                                                                                     |
| Cucurbitaceae                                                         |                                                      |                                    |                   |          |            |                                                                                                                                                                                                               |
| * <i>Citrullus colocynthis</i> (Colocynth)                            | 65 records                                           | √                                  | √                 | -        | √          | Widespread through the northern and southern transport corridors, and the Yarraloola borefield                                                                                                                |

Table 5.8: continued.

| Family                                                       | Total                             | Distribution within the Study Area |                   |          |            |                                                                                                                   |
|--------------------------------------------------------------|-----------------------------------|------------------------------------|-------------------|----------|------------|-------------------------------------------------------------------------------------------------------------------|
| Species                                                      | Number of Records                 | Northern Corridor                  | Southern Corridor | Warrambo | Yarraloola | General description of distribution                                                                               |
| <b>Euphorbiaceae</b>                                         |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Euphorbia hirta</i><br>(Asthma Plant)                   | 5 records                         | √                                  | -                 | -        | -          | 4 locations in the northern transport corridor, 1 location south of Mesa G                                        |
| <b>Lamiaceae</b>                                             |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Ocimum basilicum</i><br>(Basil)                         | 1 record                          | √                                  | -                 | -        | -          | Single creekline in the northern rail corridor, east of the Bungaroo Road                                         |
| <b>Papilionaceae</b>                                         |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Indigofera oblongifolia</i> (a pea)                     | 1 record                          | -                                  | -                 | -        | √          | Yarraloola pipeline corridor                                                                                      |
| <b>Passifloraceae</b>                                        |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Passiflora foetida</i><br>(Stinking Passion Flower)     | 5 records                         | √                                  | -                 | -        | -          | Northern transport corridor, between Mesa G and the Bungaroo Road                                                 |
| <b>Solanaceae</b>                                            |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Datura leichhardtii</i><br>(Native Thornapple)          | 4 records                         | √                                  | -                 | -        | √          | 3 locations in the northern transport corridor, east of the Deepdale Road; 1 location in the Yarraloola borefield |
| <b>Sterculiaceae</b>                                         |                                   |                                    |                   |          |            |                                                                                                                   |
| * <i>Melochia pyramidata</i><br>(Broom-wood, Pyramid Flower) | 3 records<br>(1 with no location) | √                                  | -                 | -        | -          | 2 known locations are in the northern transport corridor, east of the Deepdale Road                               |
| <b>No. of Species</b>                                        |                                   | <b>17</b>                          | <b>4</b>          | <b>0</b> | <b>10</b>  |                                                                                                                   |

With the exception of Asthma Plant \**Euphorbia hirta*, Purpletop Chloris \**Chloris barbata* and Basil \**Ocimum basilicum*, which are only infrequently recorded in the Pilbara, all of the species are common and widespread weeds of the region. Several of the species have also been recorded from either the Mesa A, Mesa G, Mesa J Extension and/or Bungaroo study areas in the locality (see Biota 2005a, 2005b, 2005c).

One species (Parkinsonia; see below) is listed as a Declared Plant for the East Pilbara under the *Agriculture and Related Resources Protection Act 1976*. Date Palms, Buffel Grass, Birdwood Grass, Ruby Dock and Kapok are all considered to be serious environmental weeds by CALM.

A brief discussion of each species follows:

- Parkinsonia \**Parkinsonia aculeata* is listed under the *Agriculture and Related Resources Protection Act 1976* as P1 (movement of plants or their seeds is prohibited within the State) and P2 (requiring eradication). Two small stands approximately 300 m apart comprising four and eight shrubs of this species respectively were recorded from the bed of the Robe River in the area of the prospective Yarraloola borefield. These individuals should be eradicated.
- A single Date Palm \**Phoenix dactylifera* was noted in the Robe River near the Yarraloola Homestead; unfortunately the exact location was not recorded, hence the location shown on the mapping in Appendix 5 is approximate only. Additional Date Palms were noted outside the study area at two locations, again in the Robe River; adjacent to Mesa F (~400765 mE, 7594510 mN) and south of Mesa K (424064 mE, 7596969 mN). Female (fruiting) trees of this species should be eradicated.
- Buffel Grass \**Cenchrus ciliaris* and the less common Birdwood Grass \**C. setigerus* were introduced by pastoralists as fodder species. Buffel Grass has demonstrated allelopathic capacities, whereby it releases chemicals that inhibit the growth of other plants, and both species are aggressive and effective competitors with native flora. These perennial grasses form dense tussock grasslands, particularly along creeklines, floodplains and in sandy coastal areas. Infestations of these species are common throughout the Hamersley Range, particularly in major creeklines. Buffel Grass was recorded from 299 locations

spread through the study area, occurring within both the northern and southern transport corridors, and in the Yarraloola borefield and pipeline corridor. Birdwood Grass was less common (recorded from 121 locations) but occurred through the same areas.

- Purpletop Chloris \**Chloris barbata* is an infrequent weed of the Pilbara region. Scattered individuals of this species were recorded at two locations within the northern rail corridor, east of the Bungaroo Road.
- Awnless Barnyard Grass \**Echinochloa colona* is a relatively common weed of the northern Pilbara region, but is rarely abundant. Scattered individuals of this species were recorded at three locations within the northern transport corridor, two north of Mesa G and one east of the Bungaroo Road.
- Whorled Pigeon Grass \**Setaria verticillata* is a common weed of creeklines and Mulga vegetation in the Pilbara, but rarely occurs in large numbers. There were 49 records of this species from the northern transport corridor and Yarraloola pipeline corridor, with most records from the northern haul road corridor.
- Mexican Poppy \**Argemone ochroleuca* subsp. *ochroleuca* is a relatively common weed of major creeks in the Hamersley Range, where it typically occurs in the open, gravelly creekbeds. This annual herb is difficult to control as it produces very large quantities of seed, and flooding of its preferred habitat can spread this seed for large distances. This species was recorded throughout the northern transport corridor from the channels and floodplains associated with the Robe River and its tributaries.
- Spiked Malvastrum \**Malvastrum americanum* is a common weed of Mulga vegetation, clayey substrates and creeklines. There were over 600 records of this low shrub species within the study area, mainly from the clayey plain habitats in the northern transport corridor, although there were also records from the southern transport corridor and Yarraloola pipeline corridor.
- Ruby Dock \**Acetosa vesicaria* was initially introduced to the Pilbara for minesite rehabilitation, and has since spread to surrounding areas. It is an aggressive weed that spreads by vegetative material as well as seed. Two seedlings of Ruby Dock were recorded from a single location along the Robe River floodplain, east of Mesa B; both individuals were immediately removed.
- Kapok \**Aerva javanica* is a perennial shrub which can be quite invasive in disturbed sandy substrates in the Pilbara. Kapok was recorded from 32 locations in the study area, throughout the northern transport corridor, and in the Yarraloola borefield and pipeline corridor. Most records were from floodplains.
- Beggars Ticks \**Bidens bipinnata* is a common weed of Mulga vegetation and creeklines of the Pilbara. This annual daisy may occur in very high densities within suitable habitat and given appropriate conditions, but on its own does not appear to cause exclusion of native flora species. Beggars Ticks was recorded from 19 locations throughout the northern transport corridor, most of which were associated with clayey plains or drainage areas.
- Common Sowthistle \**Sonchus oleraceus* was recorded from three locations in the eastern section of the northern haul road corridor; two locations at the Robe River crossing of the Bungaroo Road, and one location in a creekline west of Mesa J.
- The cucurbit creeper Colocynth \**Citrullus colocynthis* is a not infrequent weed of creeklines in the Pilbara, but is rarely abundant. There were 65 records of this species from the study area, from all sections except the Yarraloola pipeline corridor and Warramboos. The majority of records were of only 1 or 2 individuals.
- Asthma Plant \**Euphorbia hirta* was recorded from 4 locations spread through the northern transport corridor, and from 1 location south of Mesa G. Although no specimens from the Pilbara have been lodged with the WA Herbarium to date, this species was recorded from the Robe River adjacent to Mesa G (Biota 2005a), from the Hope Downs rail alignment between Port Hedland and Newman (Biota and Trudgen 2002), and has also been seen at Karratha townsite (Michi Maier, Biota, pers. obs.).

- Basil *\*Ocimum basilicum* does not appear to have been recorded previously in the Pilbara. There was a single record of this species from the northern rail corridor, which was collected from a creekline east of the Bungaroo Road.
- The pea *\*Indigofera oblongifolia* has only been recorded occasionally in the Pilbara, mainly from the Port Hedland area. There was a single collection of this species within the Yarraloola pipeline corridor.
- Stinking Passion Flower *\*Passiflora foetida* is widespread in the Kimberley bioregion, and has been recorded from a number of major creeklines in the Pilbara. There were five records of this species (two of which were in very close proximity) within the northern transport corridor, from north of Mesa G to the Bungaroo Road.
- Despite its common name, Native Thornapple *\*Datura leichhardtii* is believed to have originated in South America. This species is a common weed of creeklines in the Pilbara but is rarely abundant. Scattered individuals of this species were recorded from 3 locations in the northern transport corridor, east of the Deepdale Road, and from 1 location in the Yarraloola borefield.
- Broom-wood or Pyramid Flower *\*Melochia pyramidata* is a native of tropical America, and occurs in the Pilbara and Kimberley in creeklines and other damp areas (Hussey et al. 1997). It was recorded from two locations in the northern transport corridor, east of the Deepdale Road. There was a third record, however this location was not recorded.

Another weed, Blue Periwinkle *\*Vinca major*, was noted outside the study area in the Robe River, west of Deepdale Homestead (~414330 mE, 7597340 mN). This species does not appear to have been recorded previously from the Pilbara.

## 5.4 Flora Conservation Significance Assessment

The number of flora recorded from the study area is relatively high compared to other areas in the vicinity. This is a reflection mainly of the variety of habitats (ranging from major creeklines through cracking clays to sandplain and stony plains and hills) encompassed by the study area.

No Declared Rare Flora have been recorded from the study area, hence there are no flora listed under the EPBC Act 1999 within the area. Five Priority 3 flora (*Abutilon trudgenii*, *Hibiscus brachysiphonius*, *Phyllanthus aridus*, *Rhynchosia bungarensis* and *Sida* sp. Wittenoom) have been recorded from the study area. *Abutilon trudgenii* and *Sida* sp. Wittenoom are poorly collected rather than rare, and are considered to warrant removal from the Priority listing. *Rhynchosia bungarensis* is quite common in the Pannawonica area, which is the type locality for this species, and appears relatively widespread through the Pilbara. *Hibiscus brachysiphonius* and *Phyllanthus aridus* are less frequently recorded than the three previous species, although both have relatively broad distributions through the northern part of WA.

A number of apparently new species have also been recorded from the study area, however further work is required to determine both their taxonomic affinities and their distribution in the region. The undescribed species of spinifex, *Triodia* sp. nov., is apparently restricted to the Robe Valley.

Given that the study area supports a relatively high number of species (for the locality), a number of which are either listed flora of conservation significance, uncommon, poorly known and/or apparently undescribed, the area is considered to have a moderate conservation value for overall flora. Specific areas, such as the sand sheet at Mesa A, the Robe River, and the areas of cracking clays, have higher conservation value as they support flora restricted to these habitats.

## 6.0 Discussion and Recommendations

### 6.1 Features of Particular Conservation Significance

#### 6.1.1 Vegetation

One vegetation type within the study area is considered to be of Very High conservation significance: the small sand dune on top of Mesa A represents an extension of a large sand sheet lower in the valley on the southern side of the mesa (both of which are mapped as vegetation type CzAtGeTs). These sandy habitats support a different suite of flora (and consequently different vegetation) to the remainder of the habitats present in the area, and would not be widespread in the region. These sandy habitats would also be particularly susceptible to erosion and weed invasion following physical disturbance. Part of the sand dune has already been removed, apparently to use as fill for disused winzes.

Twenty-four other vegetation types are considered to be of High conservation significance, either because they occur on apparently restricted Land Systems or habitats, support Priority flora populations or other species restricted to the specific habitats, are particularly susceptible to erosion and/or occur in significant drainage features.

Some sections of the study area (such as the sand sheet habitat adjacent to Mesa A and taller hills) are in excellent condition, showing no particular signs of disturbance. Most of the vegetation within the remainder of the study area is in very good condition; weed species are relatively widespread, but are typically at low densities. Major infestations of Buffel Grass *\*Cenchrus ciliaris* are currently localised in the general vicinity of historic and present stock watering points, and these vegetation types with an understorey dominated by weeds are the only types in poor condition. Importantly, there are no significant stands of Buffel Grass along the Robe River or on the sand sheet habitat adjacent to Mesa A, both of which would represent ideal habitat.

#### 6.1.2 Flora

Five Priority 3 flora species were recorded from the study area. Of these, two species (*Abutilon trudgenii* and *Sida* sp. Wittenoom) are poorly collected rather than rare, and should be removed from the Priority listing. The remaining species (*Hibiscus brachysiphonius*, *Phyllanthus aridus* and *Rhynchosia bungalowensis*) are much less frequently recorded, and specific management to minimise disturbance to these populations is warranted.

Additional species of interest known from the study area include the undescribed spinifex *Triodia* sp. nov., at least one new species of *Hibiscus* (*H. sturtii* var. aff. *grandiflorus* (MATB-57)), and several poorly known taxa.

## 6.2 Probable Impacts of the Project

#### Clearing of Vegetation

Indicative areas of each vegetation type to be cleared for each component of the project area (based on the most current plans of mine and infrastructure layout) are contained in Appendix 6. Where the vegetation types to be cleared were mapped as mosaics (eg. ChAbTw/AsyAbAaTw), the area to be cleared was divided evenly between the various vegetation types. Approximately 120 ha of the project layout, mainly adjacent to the Warramboos deposit, falls outside the existing vegetation mapping. This area is unlikely to contain any vegetation types or flora not present in the remainder of the study area, however this cannot be confirmed without a survey prior to the project commencement.

It should be noted that the "hectares to be cleared for borrow pit development" for both the haul road and rail option are overestimates, comprising the entire areas of mapped vegetation in these areas. Only a proportion of each prospective borrow pit area will be

utilised for sourcing of fill, however as current planning cannot indicate which sections of each pit will be utilised, this conservative estimate has been provided.

It must also be remembered that the vegetation mapping extends only as far as the survey area boundaries, and most of the vegetation types would be expected to occur more broadly in the Pannawonica area. The exception to this is the sand sheet vegetation type (CzAtGeTs), which is thought to be restricted to the area identified south of Mesa A. The proportions of each vegetation type to be cleared would thus be expected to represent overestimates for all but vegetation type CzAtGeTs.

Based on the most current mine plan, and taking into consideration the points above, the development including the northern rail option requires an additional ~290 ha of vegetation to be cleared compared to the northern haul road option (Table 6.1). Both development options impact upon a similar number of vegetation types in total (Table 6.1, Appendix 6). However, the proposed development including the northern rail option would clear a greater number of vegetation types by more than 30% than the development including the northern haul road option (Table 6.1, Appendix 6). The northern rail option would also clear >30% of a larger number of vegetation types of high conservation significance (Table 6.1, Appendix 6).

Importantly, Robe has modified the project layout to minimise impact to the sand sheet vegetation type (CzAtGeTs), which is considered to be of very high conservation significance: both of the development options would clear 3.1 ha (2.1%) of this vegetation type (Appendix 6). In addition, both the rail and haul road options would clear less than 25% of each of the vegetation types associated with major creeklines and floodplains (Appendix 6); the northern haul road option would again appear to have less impact on these vegetation types than the northern rail option.

**Table 6.1: Summary of vegetation clearing required for each development option.**

|                                                                                                                      | <b>Proposed Mesa A /<br/>Warramboos development<br/>including<br/>northern rail option</b>                                        | <b>Proposed Mesa A /<br/>Warramboos development<br/>including<br/>northern haul road option</b> |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Total area required to be cleared (ha)</b>                                                                        | 3,041                                                                                                                             | 2,750                                                                                           |
| <b>Number of vegetation types that would<br/>be cleared to some extent</b>                                           | 57                                                                                                                                | 59                                                                                              |
| <b>Number of vegetation types that would<br/>be cleared by &gt;30% (based on the<br/>extent of existing mapping)</b> | 29                                                                                                                                | 18                                                                                              |
| <b>Number of vegetation types of high<br/>conservation significance that would<br/>be cleared by &gt;30%</b>         | 9<br>(AxCaOTwTe/h<br>AsyCaOTw/h<br>AxTw<br>AxTe<br>AsyAbAaTw<br>ChCzAtrAaTla<br>CcAsyCaOTla<br>CcAfAxTwTeERib<br>CcChAtrAbPITwTe) | 5<br>(AsyCaOTw/h<br>AsyAbAaTw<br><br>ChCzAtrAaTla<br>CcAsyCaOTla<br><br>CcChAtrAbPITwTe)        |

### Weeds

Some weed species (particularly *\*Malvastrum americanum*, *\*Cenchrus ciliaris* and *\*C. setigerus*) are widespread through the study area, although they typically occur as scattered individuals. Major weed infestations are currently localised in the vicinity of historic and present stock watering points, particularly near the Yarraloola and Deepdale Homesteads. Further earthworks in the area, particularly establishment of tracks and infrastructure, have the potential to introduce additional weed species and/or spread existing populations within the study area, particularly where works occur in areas with dense weed infestations.

### Groundwater Drawdown

Vegetation of the Robe River (particularly vegetation types EcMaAtrPISg, Ec/h and EcEvAtrApyPITw, which are dominated by Cadjeputs *Melaleuca argentea* and River Red Gums *Eucalyptus camaldulensis*) would be susceptible to a reduction in the groundwater level, which could arise in the vicinity of the proposed borefields. Hydrological studies indicate that drawdown under the Yarraloola borefield is likely to be in the order of 1.5 m at 100 m radius from the wellhead, which would be expected to be within the natural level of fluctuation experienced on a seasonal basis. This level of groundwater drawdown would not be expected to have a negative effect on vegetation health in the Robe River in this area.

### Alteration of Surface Drainage Flows

There are no vegetation types within the study area that would be expected to be sustained by sheet flow *per se*. However, there are large areas of country with very subdued topography, and construction of the proposed rail line could lead to ponding (and subsequently vegetation death) adjacent to the embankment. In addition, numerous creeklines and minor flowlines occur throughout the study area. Engineering design will therefore need to take into account maintenance of existing surface water flows.

A levee bank is proposed to be constructed across the gap between Mesas B and C (see Plate 6.1) to prevent floodwaters from the Robe River overflowing into the area between Mesa A and Mesa C (Ms Fiona Bell, Pilbara Iron, pers. comm.). The levee would comprise an earthen bund (top width approximately 3 m, bottom width between 10 m and 15 m), with rock armour on the upstream side, and would be constructed at approximately the 1:50 year flood level (ie. approximately 2 m above the ground level of the existing river bank; Ms Fiona Bell, pers. comm.).

The local catchment in the area west of the proposed levee bank drains north between Mesa A and B (Plate 6.2), and has driven the erosion processes resulting in separation of the two mesas (Biota 2005f). In contrast, the lesser degree of separation between Mesa B and C is not associated with a major drainage system, with the only erosion due to localised run-off from the mesas (Biota 2005f). Given that drainage in the catchment west of the proposed levee bank is largely independent of the main Robe River, the proposed levee bank would be expected to neither isolate vegetation in the area from a sustaining water source, nor impede flow from the catchment into the Robe.



**Plate 6.1:** View from Mesa B south across small valley to Mesa C (main channel of the Robe River visible at left).

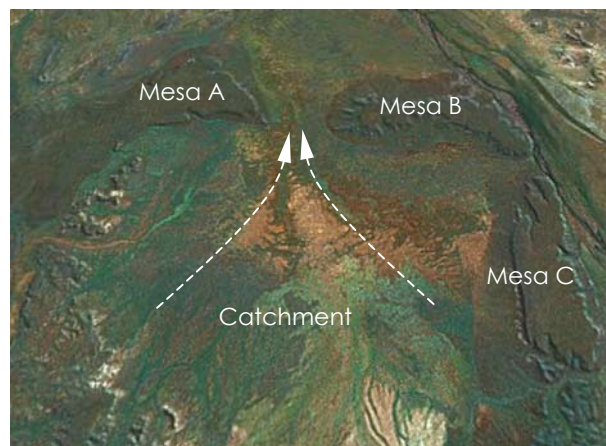


**Plate 6.2:** Oblique aerial view of drainage catchment separating Mesa A from B (source: Google Earth 2005).

### Dust and Erosion

Dust will be generated during construction of either the rail or haul road transport option, and during operation of unsealed haul roads. The areas of clay substrate within the western and central sections of the transport corridor generate large amounts of dust from even light vehicle movements (Plate 6.3). If hauling is selected as the preferred transport option rather than rail, the haul road between Mesa A and Mesa J will be sealed to minimise dust

generation during operation. The haul road between Warramboos and Mesa A does not intersect similarly clayey substrates and will remain unsealed.

Erosion could likewise arise following disturbance of the soil profile and/or alteration of surface drainage patterns. Again, the clay substrates would be particularly susceptible; signs of erosion are already visible in some areas that have been subject to water flow coupled with trampling by cattle (Plate 6.4).



**Plate 6.3:** Dust generated on the existing track between Mesa A and Mesa C.



**Plate 6.4:** Eroding clayey substrate.

## 6.3 Management Recommendations

As the project layout has not yet been finalised (the preferred transport option has not been chosen, and the final alignment has not been selected), the following recommendations are necessarily largely generic strategies that are typical for projects of similar scale in the Pilbara.

The following management measures are recommended to minimise disturbance to the vegetation and flora of the current study area:

- Development areas outside the current study area should be subject to a vegetation and flora survey prior to commencement of the project.
- Consideration should be given to the following vegetation types during the project planning stage:
  - Disturbance to CzAtGeTs, which occurs on the extensive sand sheet on the southern side of Mesa A and is of Very High conservation significance, should be avoided.
  - Disturbance to vegetation types of High Conservation significance in the Robe River (particularly EcMaAtrPISg and EcEvAtrApyPITw) should be avoided where possible and otherwise minimised.
  - Disturbance to vegetation types of High Conservation significance on the clayey plains (particularly CcCAoTwTe/h, AxCAoTwTe/h, AfAbPICAo/h, AbCAoTw/h, AsyCAoTw/h, AsyCAoTe/h and CAoTe/h, and the flowlines CcAcoTw and CcAfAxTwTeERlb) should be avoided where possible and otherwise minimised.
  - Disturbance to the other vegetation types identified as being of High conservation significance (ie. AxTw, AxTe, AsyAbAaTw, ChCzAtrAaTla, CcAsyCAoTla, CzAatTla, CcAanTw, EvAtrGORPITw, EvCcAciTwTe, EvApyTER, CcAciAaAbTwTe, CcChAtrAbPITwTe and ChCzAtuAtrTe) should likewise be minimised wherever possible.

- Vegetation clearing should be kept to the minimum necessary for safe construction and operation of the project, particularly in areas adjacent to vegetation of higher conservation significance.
- Strict hygiene measures must be maintained to avoid the introduction and/or spread of weeds within the study area. A Weed Hygiene and Management Plan should be prepared in consultation with CALM prior to construction commencing.
- The stands of *Parkinsonia* in the Robe River in the Yarraloola borefield area should be eradicated.
- A Topsoil Management and Rehabilitation Plan should be prepared for all non-permanent cleared areas, in liaison with CALM, the Department of Environment and Department of Industry and Resources prior to the commencement of construction activities. This plan should include use of provenance collected native seed, characterisation and management of topsoil, and the respreading of cleared vegetative material. Recovery monitoring should also be carried out, with any rehabilitation failure subject to additional treatment to a suitable standard.
- As part of the environmental offsets package to be developed for the proposed projects, Robe River Iron Associates should consider contributing funding towards taxonomic research. Appropriate research topics could include:
  - a taxonomic revision of *Triodia* and development of an electronic key for identification of the species;
  - a revision of the Malvaceae family (particularly *Hibiscus*);
  - a revision of the Goodeniaceae family (particularly *Goodenia* and *Scaevola*).

## 7.0 Acknowledgements

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- Mr. Paul Wilson of the Western Australian Herbarium determined some *Calocephalus* specimens.
- Ms. Judy West of the Australian National Herbarium has accepted the *Portulaca* sp. specimen for further determination.
- Mr. Ted Griffin (private consultant) ran the PATN floristic analysis.

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## Appendix 1

### Vegetation Types of the Study Area

**Clayey Plains**

|                                                                                     |                       |                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>CcCAoTwTe/h</b>    | <i>Corymbia candida</i> low woodland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> open hummock grassland with patches of herbland                                             |
|    | <b>AxCAoTwTe/h</b>    | <i>Acacia xiphophylla</i> low woodland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> open hummock grassland with patches of herbland                                           |
|    | <b>AfAbPICAo/h</b>    | <i>Acacia farnesiana</i> tall open shrubland over <i>A. bivenosa</i> , <i>Petalostylis labicheoides</i> open shrubland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over mixed herbland                                       |
|    | <b>AatAbAaCAoTe/h</b> | <i>Acacia atkinsiana</i> , <i>A. bivenosa</i> , <i>A. ancistrocarpa</i> open shrubland to open heath over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia epactia</i> open hummock grassland with patches of herbland |
|    | <b>AbCAoTw/h</b>      | <i>Acacia bivenosa</i> open shrubland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia wiseana</i> open hummock grassland with patches of herbland                                                                |
|    | <b>AsyCAoTw/h</b>     | <i>Acacia synchronicia</i> open shrubland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia wiseana</i> open hummock grassland with patches of herbland                                                            |
|    | <b>AsyCAoTe/h</b>     | <i>Acacia synchronicia</i> open shrubland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia epactia</i> open hummock grassland with patches of herbland                                                            |
|  | <b>CAoTe/h</b>        | <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) low shrubland over <i>Triodia epactia</i> hummock grassland with patches of herbland                                                                                                                |

**Sand Sheets**

|                                                                                     |                 |                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>CzAtGeTs</b> | <i>Corymbia zygophylla</i> scattered low trees over <i>Acacia tumida</i> var. <i>pilbarensis</i> , <i>Grevillea eriostachya</i> tall shrubland over <i>Triodia schinzii</i> hummock grassland |
|-------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Other**

|                                                                                     |                  |
|-------------------------------------------------------------------------------------|------------------|
|  | <b>Disturbed</b> |
|-------------------------------------------------------------------------------------|------------------|

**Stony Plains****Snakewood shrublands**

|                                                                                   |              |                                                                                                             |
|-----------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------|
|  | <b>AxTw</b>  | <i>Acacia xiphophylla</i> low woodland to tall shrubland over <i>Triodia wiseana</i> open hummock grassland |
|  | <b>AxTe</b>  | <i>Acacia xiphophylla</i> low woodland to tall shrubland over <i>Triodia epactia</i> open hummock grassland |
|  | <b>scald</b> | <i>Triodia wiseana</i> , <i>T. epactia</i> scattered hummock grasses with scattered herbs                   |

**Acacia synchronicia, A. bivenosa shrublands**

|                                                                                   |                  |                                                                                                                                                          |
|-----------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>AsyAbAaTw</b> | <i>Acacia synchronicia</i> , <i>A. bivenosa</i> , <i>A. ancistrocarpa</i> open shrubland over <i>Triodia wiseana</i> open hummock grassland              |
|  | <b>AsyAbAaTe</b> | <i>Acacia synchronicia</i> , <i>A. bivenosa</i> , <i>A. ancistrocarpa</i> open shrubland to shrubland over <i>Triodia epactia</i> open hummock grassland |
|  | <b>AsyAbTlo</b>  | <i>Acacia synchronicia</i> , <i>A. bivenosa</i> open shrubland over <i>Triodia longiceps</i> hummock grassland                                           |

**Acacia atkinsiana, A. bivenosa shrublands**

|                                                                                   |                |                                                                                                                                                |
|-----------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>AatAbTw</b> | <i>Acacia atkinsiana</i> open tall shrubland over <i>Acacia bivenosa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland          |
|  | <b>AatAbTe</b> | <i>Acacia atkinsiana</i> open heath to tall shrubland over <i>Acacia bivenosa</i> open shrubland over <i>Triodia epactia</i> hummock grassland |

**Acacia bivenosa, A ancistrocarpa shrublands**

|                                                                                     |                      |                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>CcAaAbAsyTeTw</b> | <i>Corymbia candida</i> scattered low trees over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> , <i>A. synchronicia</i> open shrubland over <i>Triodia epactia</i> , <i>T. wiseana</i> hummock grassland |
|   | <b>AiAaAbTw</b>      | <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> open shrubland to shrubland over <i>Triodia wiseana</i> hummock grassland                           |
|  | <b>AiAaAbTe</b>      | <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> open shrubland to shrubland over <i>Triodia epactia</i> hummock grassland                           |
|  | <b>ChAbTw</b>        | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> open shrubland to open heath over <i>Triodia wiseana</i> hummock grassland                                                     |
|  | <b>ChAbTe</b>        | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> open shrubland over <i>Triodia epactia</i> hummock grassland                                                                   |
|  | <b>ChAbTwTe</b>      | <i>Corymbia hamersleyana</i> scattered low trees to low woodland over <i>Acacia bivenosa</i> open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> hummock grassland                               |

**Acacia shrublands over Triodia lanigera**

|                                                                                     |                     |                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>ChCzAtrAaTla</b> | <i>Corymbia hamersleyana</i> , <i>C. zygophylla</i> scattered low trees over <i>Acacia trachycarpa</i> , <i>A. ancistrocarpa</i> shrubland to open heath over <i>Triodia lanigera</i> hummock grassland                |
|  | <b>CcAsyCAoTla</b>  | <i>Corymbia candida</i> scattered low trees over <i>Acacia synchronicia</i> tall open shrubland over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) shrubland over <i>Triodia lanigera</i> hummock grassland |
|  | <b>CzAatTla</b>     | <i>Corymbia zygophylla</i> scattered low trees over <i>Acacia atkinsiana</i> shrubland to open heath over <i>Triodia lanigera</i> hummock grassland                                                                    |

**Miscellaneous**

|                                                                                     |                      |                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>ChAiAsyHcTe</b>   | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia inaequilatera</i> , <i>A. synchronicia</i> , <i>Hakea chordophylla</i> scattered tall shrubs over <i>Triodia epactia</i> hummock grassland                                             |
|  | <b>ChAiAsyHcTeCE</b> | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia inaequilatera</i> , <i>A. synchronicia</i> , <i>Hakea chordophylla</i> scattered tall shrubs over <i>Triodia epactia</i> hummock grassland and <i>*Cenchrus</i> spp. tussock grassland |
|  | <b>CcAanTw</b>       | <i>Corymbia candida</i> low open woodland over <i>Acacia aneura</i> tall shrubland over <i>Triodia wiseana</i> open hummock grassland                                                                                                                  |
|  | <b>AsclAbTeTw</b>    | <i>Acacia sclerosperma</i> tall open scrub over <i>A. bivenosa</i> open shrubland over <i>Triodia epactia</i> , <i>T. wiseana</i> open hummock grassland                                                                                               |

**Stony Plains & Breakaways****Snappy Gum over scattered shrubs on large hills**

|                                                                                   |                      |                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>EIAiAptTw</b>     | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia ptychophylla</i> low open shrubland over <i>Triodia wiseana</i> hummock grassland                          |
|  | <b>EIAiAbTw</b>      | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia bivenosa</i> scattered shrubs to open shrubland over <i>Triodia wiseana</i> hummock grassland              |
|  | <b>EIAatAarTw</b>    | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia atkinsiana</i> ( <i>A. arida</i> ) open shrubland to tall shrubland over <i>Triodia wiseana</i> hummock grassland                                                 |
|  | <b>EIAarTw</b>       | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia arida</i> shrubland to tall shrubland over <i>Triodia wiseana</i> hummock grassland                                                                               |
|  | <b>ElGwAacTw</b>     | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Grevillea wickhamii</i> scattered tall shrubs to tall shrubland over <i>Acacia acradenia</i> scattered shrubs to shrubland over <i>Triodia wiseana</i> hummock grassland |
|  | <b>EIAtuAbTwERlm</b> | <i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia tumida</i> and/or <i>A. bivenosa</i> open shrubland over <i>Triodia wiseana</i> open hummock grassland and <i>Eriachne mucronata</i> open tussock grassland       |
|  | <b>EIAatAtuGwTw</b>  | <i>Eucalyptus leucophloia</i> low open woodland over <i>Acacia atkinsiana</i> , <i>A. tumida</i> , <i>Grevillea wickhamii</i> tall shrubland over <i>Triodia wiseana</i> hummock grassland                                         |

**Shrublands on low hills and slopes of taller hills**

|                                                                                     |                     |                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>AiAbTw</b>       | <i>Acacia inaequilatera</i> scattered tall shrubs over <i>A. bivenosa</i> scattered shrubs over <i>Triodia wiseana</i> hummock grassland                                            |
|    | <b>AatAiAarAbTw</b> | <i>Acacia atkinsiana</i> , <i>A. inaequilatera</i> ( <i>A. arida</i> ) tall open shrubland over <i>Acacia bivenosa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland |
|    | <b>AiAarTw</b>      | <i>Acacia inaequilatera</i> scattered tall shrubs over <i>A. arida</i> open shrubland to open heath over <i>Triodia wiseana</i> hummock grassland                                   |
|   | <b>AacTw</b>        | <i>Acacia acradenia</i> open shrubland to open heath over <i>Triodia wiseana</i> hummock grassland                                                                                  |
|  | <b>ERfTw</b>        | <i>Eremophila fraseri</i> open shrubland over <i>Triodia wiseana</i> hummock grassland                                                                                              |

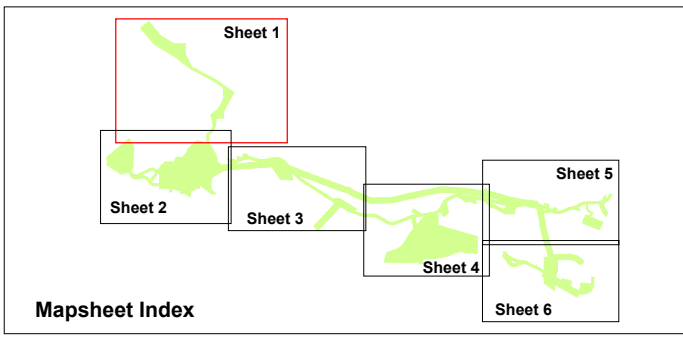
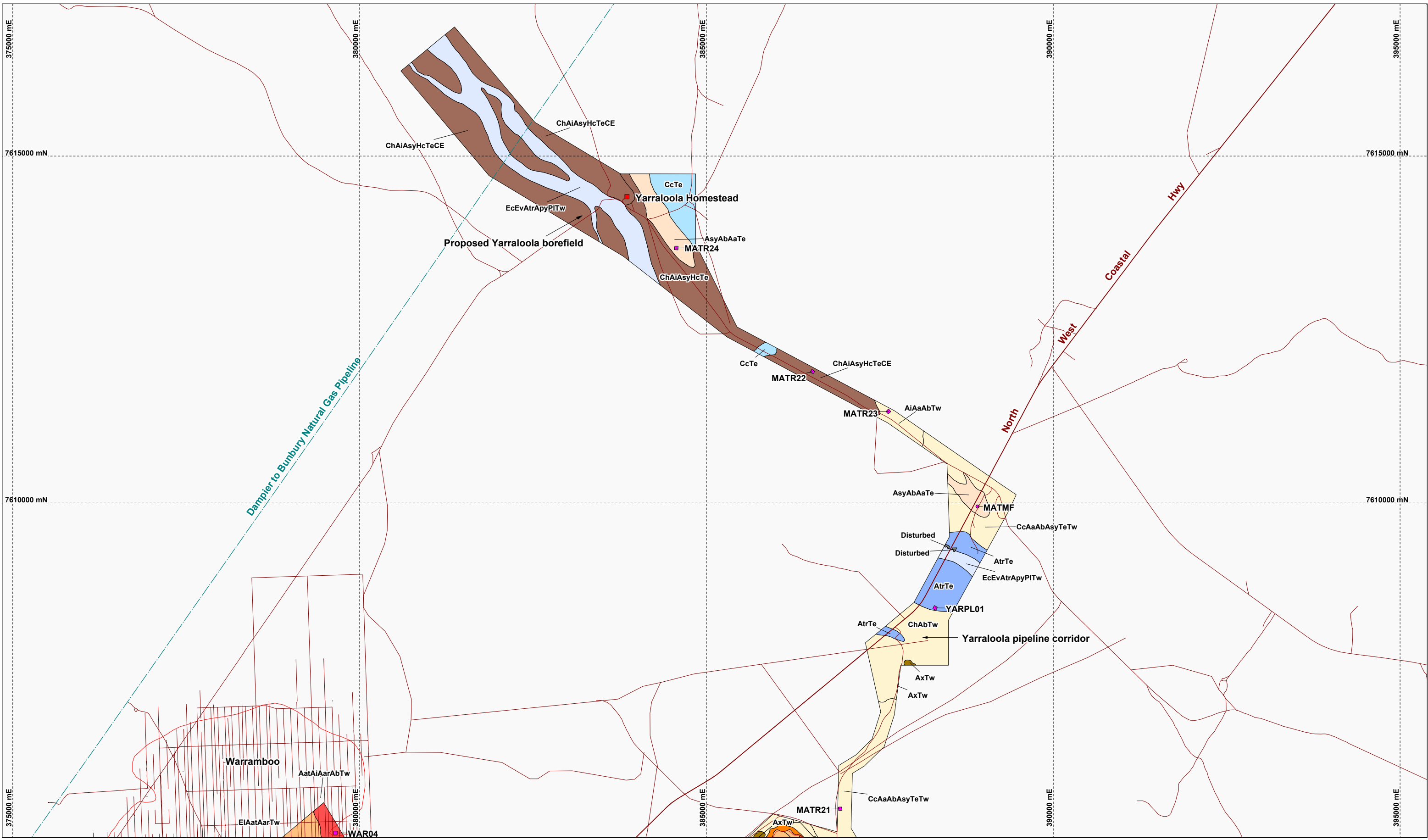
**Major Creeklines & Floodplains**

|                                                                                     |                          |                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>EcMaAtrPISg</b>       | <i>Eucalyptus camaldulensis</i> , <i>Melaleuca argentea</i> open forest over <i>Acacia trachycarpa</i> , <i>Petalostylis labicheoides</i> tall open scrub over <i>Stemodia grossa</i> low shrubland                                                                                                                                    |
|  | <b>Ec/h</b>              | <i>Eucalyptus camaldulensis</i> scattered trees over open herbland                                                                                                                                                                                                                                                                     |
|  | <b>EcEvAtrApyPITw</b>    | <i>Eucalyptus camaldulensis</i> woodland over <i>Eucalyptus victrix</i> low woodland over <i>Acacia trachycarpa</i> , <i>A. pyrifolia</i> , <i>Petalostylis labicheoides</i> tall open shrubland over mixed open herbland and <i>Triodia wiseana</i> very open hummock grassland                                                       |
|  | <b>AtrTe</b>             | <i>Acacia trachycarpa</i> tall shrubland over <i>Triodia epactia</i> open hummock grassland                                                                                                                                                                                                                                            |
|  | <b>EvAtrApyAbGORTeCE</b> | <i>Eucalyptus victrix</i> woodland over <i>Acacia trachycarpa</i> , <i>A. pyrifolia</i> , <i>A. bivenosa</i> , <i>Gossypium robinsonii</i> tall open scrub over <i>Tephrosia rosea</i> var. <i>glabrior</i> low open shrubland over <i>Triodia epactia</i> very open hummock grassland and <i>Cenchrus</i> spp. open tussock grassland |
|  | <b>EvAtrGORPITw</b>      | <i>Eucalyptus victrix</i> scattered trees to low woodland over <i>Acacia trachycarpa</i> , <i>Gossypium robinsonii</i> , <i>Petalostylis labicheoides</i> tall open shrubland over <i>Triodia wiseana</i> very open hummock grassland                                                                                                  |
|  | <b>EvCcAciTwTe</b>       | <i>Eucalyptus victrix</i> , <i>Corymbia candida</i> woodland over <i>Acacia citrinoviridis</i> tall open scrub over <i>Triodia wiseana</i> , <i>T. epactia</i> open hummock grassland                                                                                                                                                  |
|  | <b>EvApyTEr</b>          | <i>Eucalyptus victrix</i> low woodland over <i>Acacia pyrifolia</i> open shrubland over <i>Tephrosia rosea</i> var. <i>glabrior</i> low open shrubland                                                                                                                                                                                 |
|  | <b>CcTe</b>              | <i>Corymbia candida</i> scattered low trees to low woodland over <i>Triodia epactia</i> hummock grassland                                                                                                                                                                                                                              |
|  | <b>ChAiApyTw</b>         | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Acacia pyrifolia</i> open shrubland over <i>Triodia wiseana</i> open hummock grassland                                                                                                                                 |

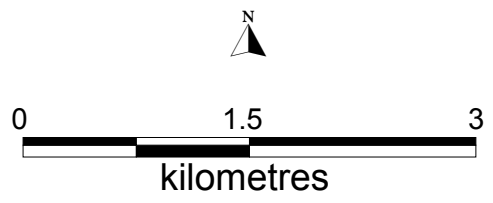
**Vegetation Mapping for Mesa A Transport Corridor****Legend Sheet 3 of 4**

**Minor Creek Lines & Flow Lines**

|                                                                                     |                             |                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>CcAciAaAbTwTe</b>        | <i>Corymbia candida</i> low open woodland over <i>Acacia citrinoviridis</i> tall open shrubland over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> hummock grassland                                                                 |
|    | <b>CcAcoTw</b>              | <i>Corymbia candida</i> low open forest over <i>Acacia coleii</i> tall open shrubland over <i>Triodia wiseana</i> very open hummock grassland                                                                                                                                                          |
|    | <b>CcAIAxTwTeERib</b>       | <i>Corymbia candida</i> scattered low trees to low open woodland over <i>Acacia farnesiana</i> , <i>A. xiphophylla</i> scattered tall shrubs to tall open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> very open hummock grassland and <i>Eriachne benthamii</i> tussock grassland        |
|    | <b>CcGOrAtuTe</b>           | <i>Corymbia candida</i> low open woodland over <i>Gossypium robinsonii</i> , <i>Acacia tumida</i> tall open scrub over <i>Triodia epactia</i> scattered hummock grasses                                                                                                                                |
|    | <b>CcSsAbGOrTe</b>          | <i>Corymbia candida</i> low open woodland over <i>Stylobasium spathulatum</i> , <i>Acacia bivenosa</i> , <i>Gossypium robinsonii</i> tall shrubland over <i>Triodia epactia</i> open hummock grassland                                                                                                 |
|    | <b>CcTw</b>                 | <i>Corymbia candida</i> low woodland over <i>Triodia wiseana</i> hummock grassland                                                                                                                                                                                                                     |
|    | <b>CcChAatAaTe</b>          | <i>Corymbia hamersleyana</i> , <i>C. candida</i> scattered low trees to low open woodland over <i>Acacia atkinsiana</i> , <i>A. ancistrocarpa</i> scattered tall shrubs to tall open shrubland over <i>Triodia epactia</i> open hummock grassland                                                      |
|    | <b>CcChAtrAbPITwTe</b>      | <i>Corymbia candida</i> , <i>C. hamersleyana</i> low open forest over <i>Acacia trachycarpa</i> tall open shrubland over <i>Acacia bivenosa</i> , <i>Petalostylis labicheoides</i> open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> very open hummock grassland                          |
|    | <b>ChAsppGOrGspPISsTeTw</b> | <i>Corymbia hamersleyana</i> scattered low trees to low open woodland over <i>Acacia</i> spp., <i>Gossypium robinsonii</i> , <i>Grevillea</i> spp., <i>Petalostylis labicheoides</i> , <i>Stylobasium spathulatum</i> tall shrubland over <i>Triodia epactia</i> , <i>T. wiseana</i> hummock grassland |
|   | <b>ChCzAtuAtrTe</b>         | <i>Corymbia hamersleyana</i> , <i>C. zygophylla</i> low open woodland over <i>Acacia tumida</i> ( <i>A. trachycarpa</i> ) tall open scrub over <i>Triodia epactia</i> open hummock grassland                                                                                                           |
|  | <b>ChCzAtuAtrCE</b>         | <i>Corymbia hamersleyana</i> , <i>C. zygophylla</i> low open woodland over <i>Acacia tumida</i> ( <i>A. trachycarpa</i> ) tall open scrub over <i>Cenchrus</i> spp. closed tussock grassland                                                                                                           |
|  | <b>ChAacTw</b>              | <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia acradenia</i> open heath over <i>Triodia wiseana</i> open hummock grassland                                                                                                                                                              |
|  | <b>ChAtuTwTe</b>            | <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia tumida</i> var. <i>pilbarensis</i> tall open scrub over <i>Triodia wiseana</i> , <i>T. epactia</i> open hummock grassland                                                                                                                |
|  | <b>ChGOrPITw</b>            | <i>Corymbia hamersleyana</i> low open woodland over <i>Gossypium robinsonii</i> , <i>Petalostylis labicheoides</i> tall open scrub over <i>Triodia wiseana</i> very open hummock grassland                                                                                                             |
|  | <b>EICcAtuAarTw</b>         | <i>Eucalyptus leucophloia</i> , <i>Corymbia candida</i> scattered low trees over <i>Acacia tumida</i> scattered tall shrubs to tall open shrubland over <i>A. arida</i> scattered shrubs over <i>Triodia wiseana</i> scattered hummock grasses                                                         |
|  | <b>EICHPIGWaAcTw</b>        | <i>Eucalyptus leucophloia</i> , <i>Corymbia hamersleyana</i> scattered low trees to low open woodland over <i>Petalostylis labicheoides</i> , <i>Grevillea wickhamii</i> tall open shrubland over <i>Acacia acradenia</i> open heath over <i>Triodia wiseana</i> hummock grassland                     |
|  | <b>AatPITw</b>              | <i>Acacia atkinsiana</i> , <i>Petalostylis labicheoides</i> ( <i>A. ancistrocarpa</i> , <i>A. tumida</i> ) tall shrubland over <i>Triodia wiseana</i> open hummock grassland                                                                                                                           |
|  | <b>AbTw</b>                 | <i>Acacia bivenosa</i> open heath over <i>Triodia wiseana</i> very open hummock grassland                                                                                                                                                                                                              |
|  | <b>AbApyGOrPITwCE</b>       | <i>Acacia bivenosa</i> , <i>A. pyrifolia</i> , <i>Gossypium robinsonii</i> , <i>Petalostylis labicheoides</i> open shrubland over <i>Triodia wiseana</i> scattered hummock grasses and <i>Cenchrus</i> spp. tussock grassland                                                                          |
|  | <b>AciAtuTw</b>             | <i>Acacia citrinoviridis</i> ( <i>A. tumida</i> ) tall shrubland to tall open scrub over <i>Triodia wiseana</i> open hummock grassland                                                                                                                                                                 |



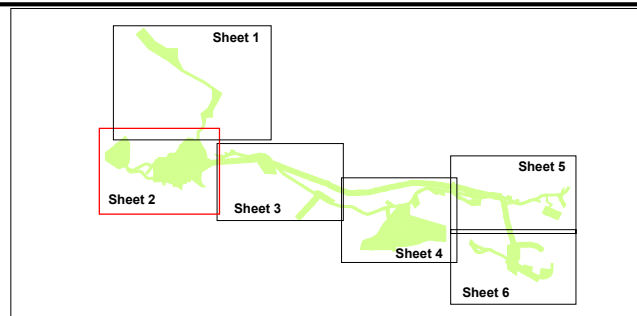
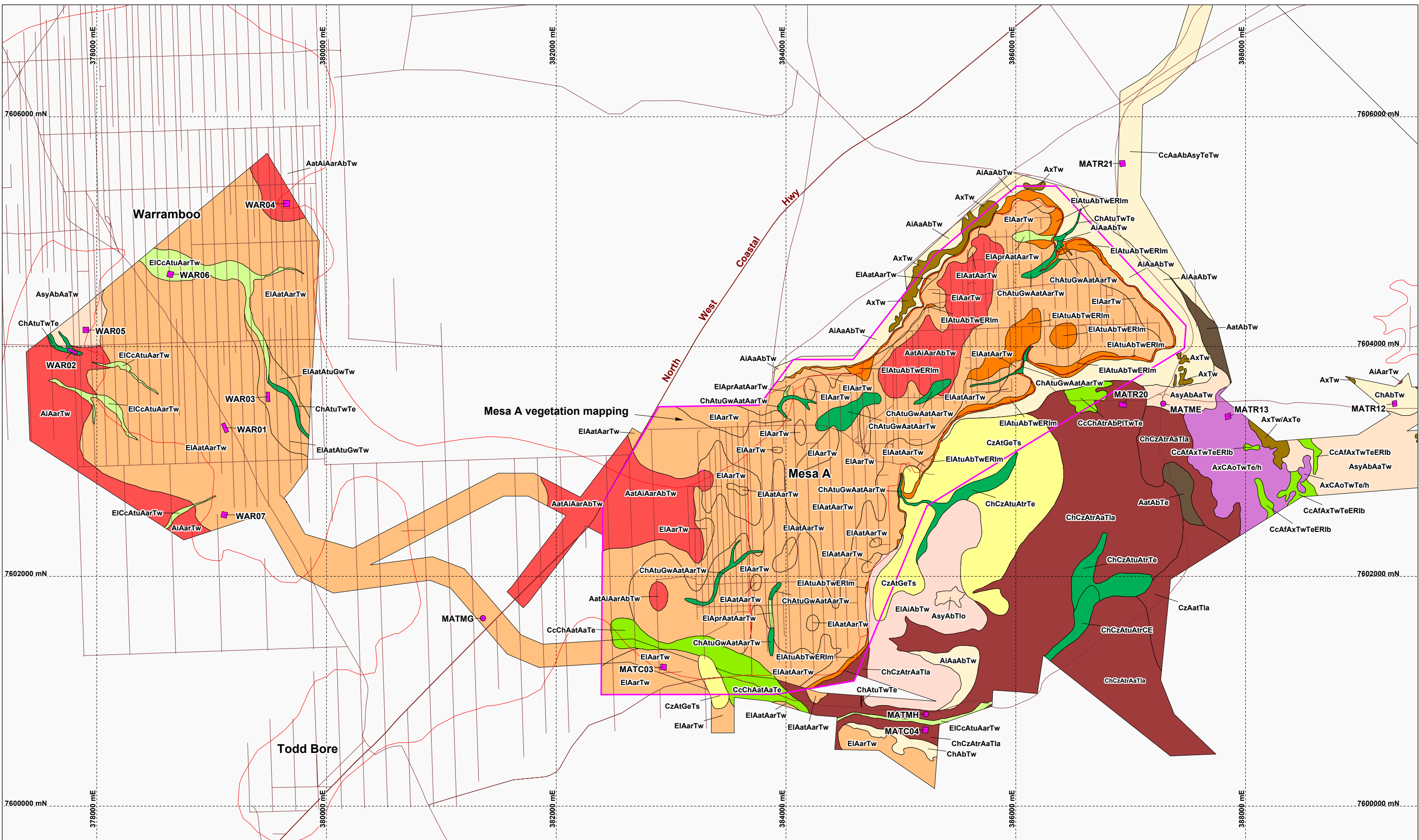
- Flora quadrats & relevés
- Mesa deposit outline



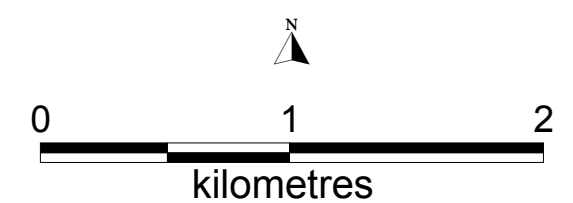
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**Mesa A Transport Corridor  
Vegetation Mapping**  
Sheet 1 of 6

|                         |                     |
|-------------------------|---------------------|
| Author: M Maier         | Date: 29/11/2005    |
| Drawn: P Sawers         | Revised: 30/01/2006 |
| Job No.: 308            | WS No.: WS 09905    |
| Projection: MGA Zone 50 | Scale: 1:50,000     |



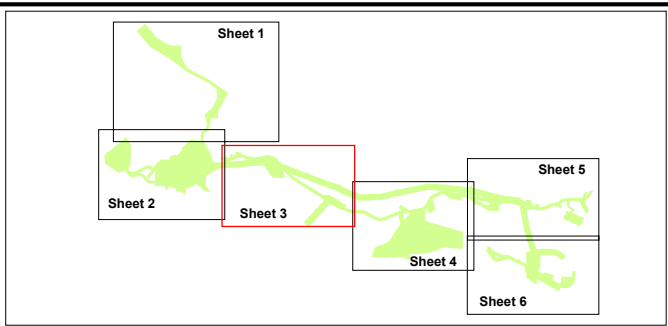
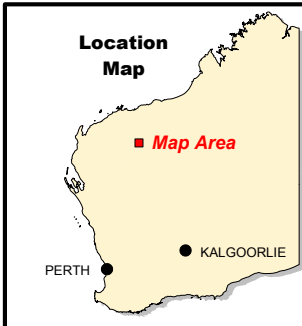
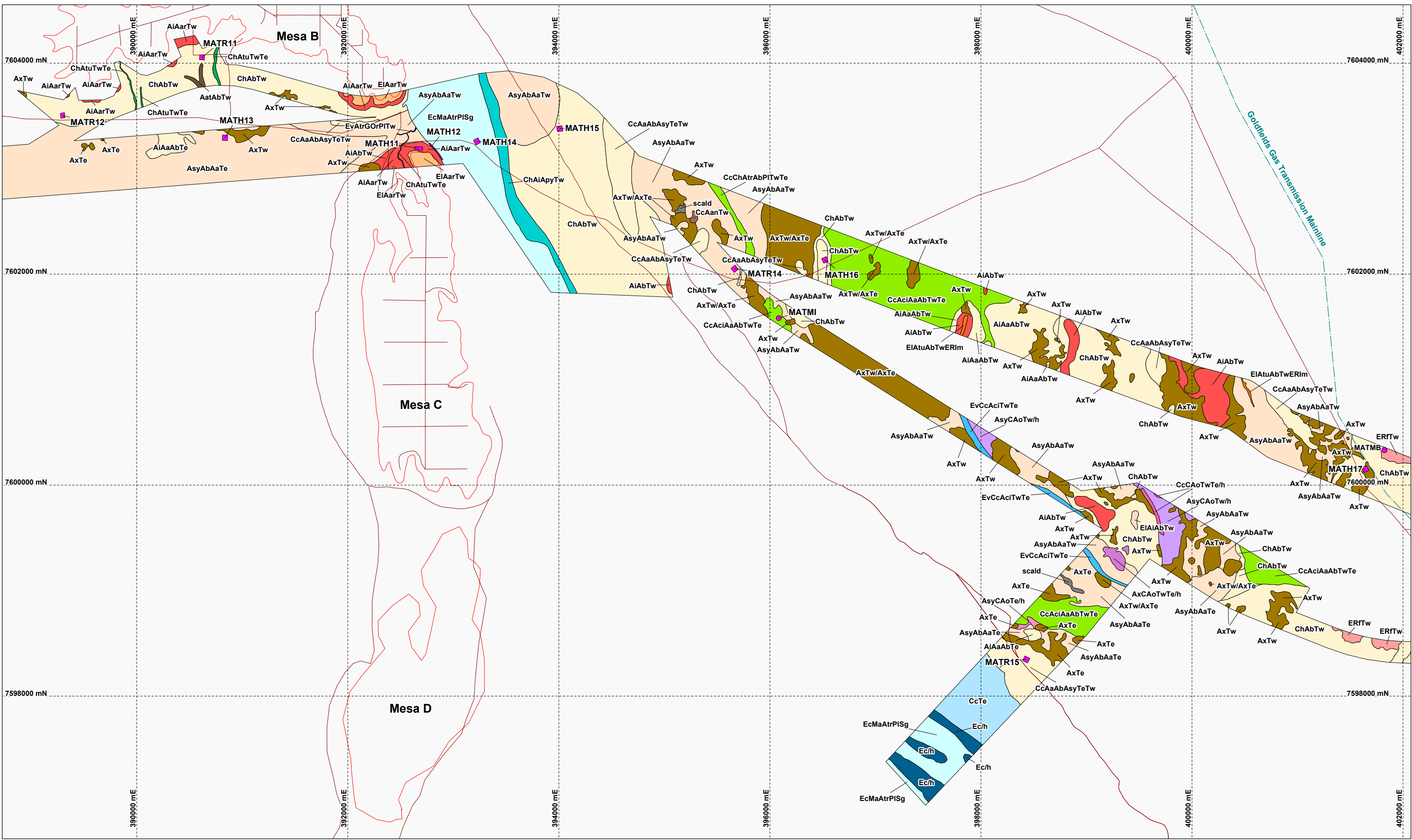
- Flora quadrats & releves
- Mesa A vegetation mapping (Biota 2005a)
- Mesa deposit outlines



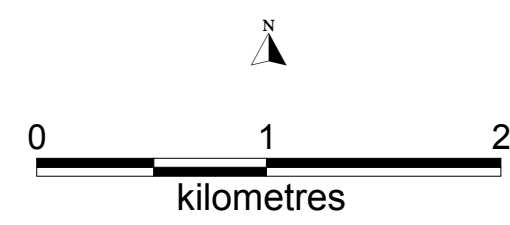
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**Mesa A Transport Corridor  
Vegetation Mapping**  
Sheet 2 of 6

|                         |                     |
|-------------------------|---------------------|
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| Drawn: 29/11/2005       | Revised: 30/01/2006 |
| Job No.: 308            | WS No.: WS 09905    |
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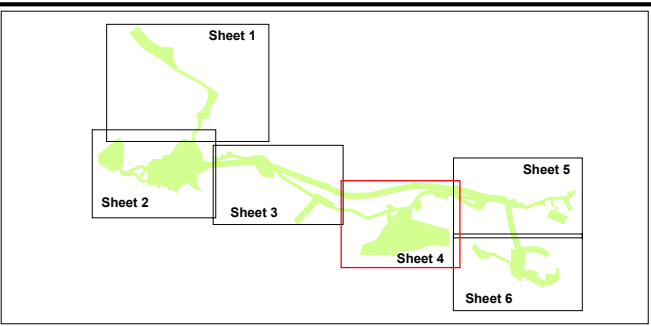
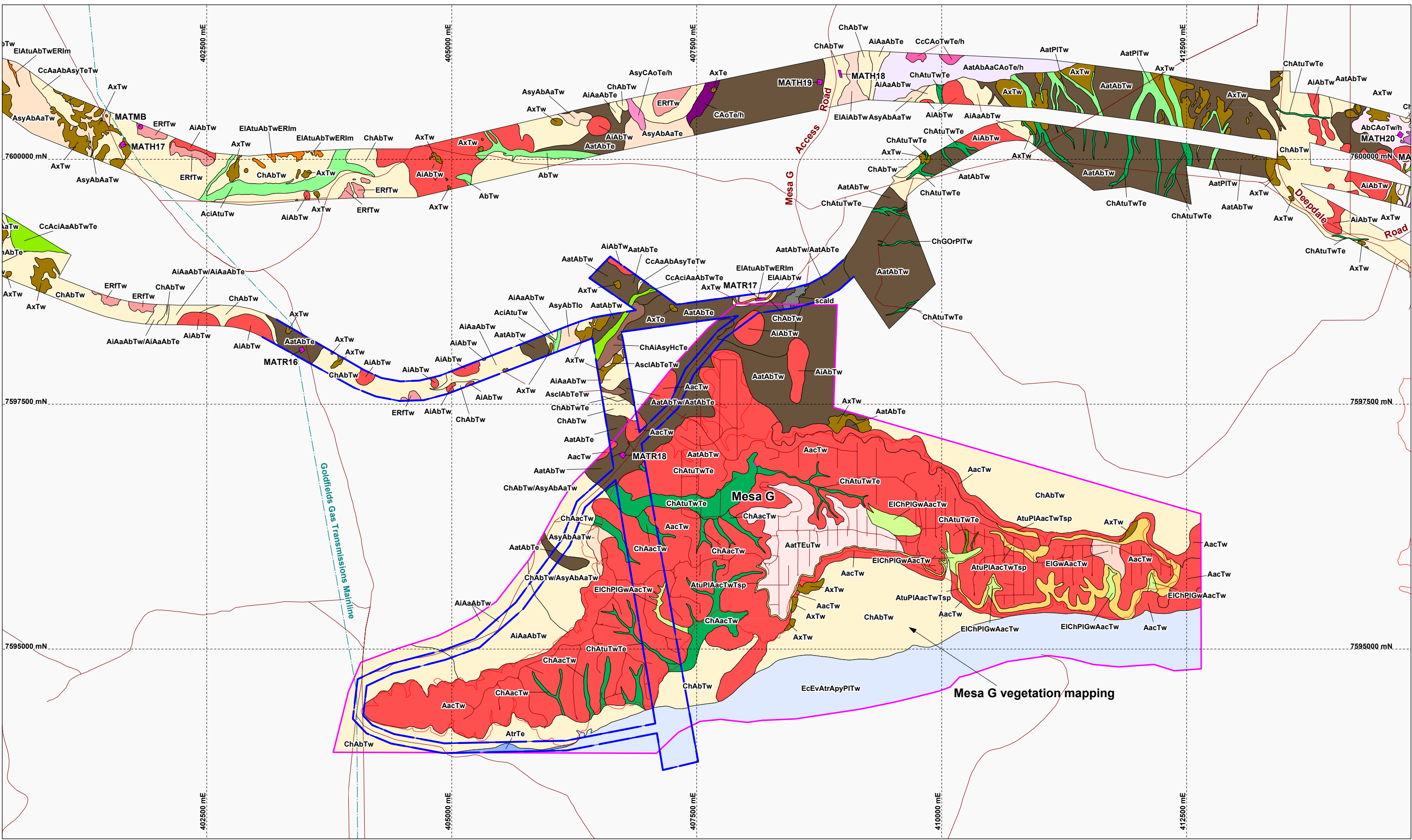
- Flora quadrats & releves
- Mesa deposit outline



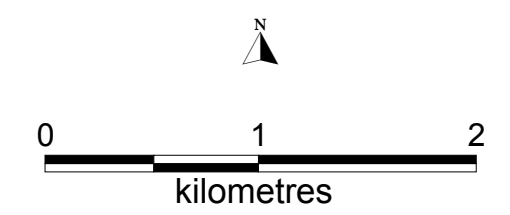
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**Mesa A Transport Corridor  
Vegetation Mapping**  
Sheet 3 of 6

|                         |                     |
|-------------------------|---------------------|
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| Job No.: 308            | WS No.: WS 09905    |
| Projection: MGA Zone 50 | Scale: 1:32,500     |



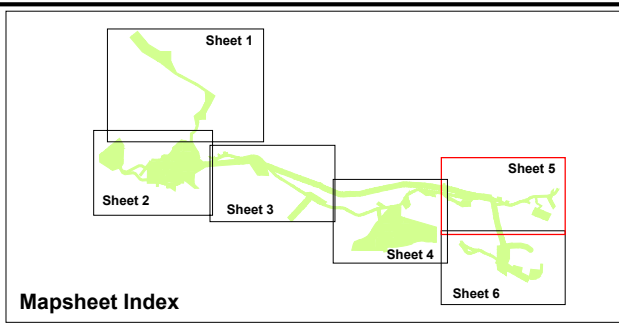
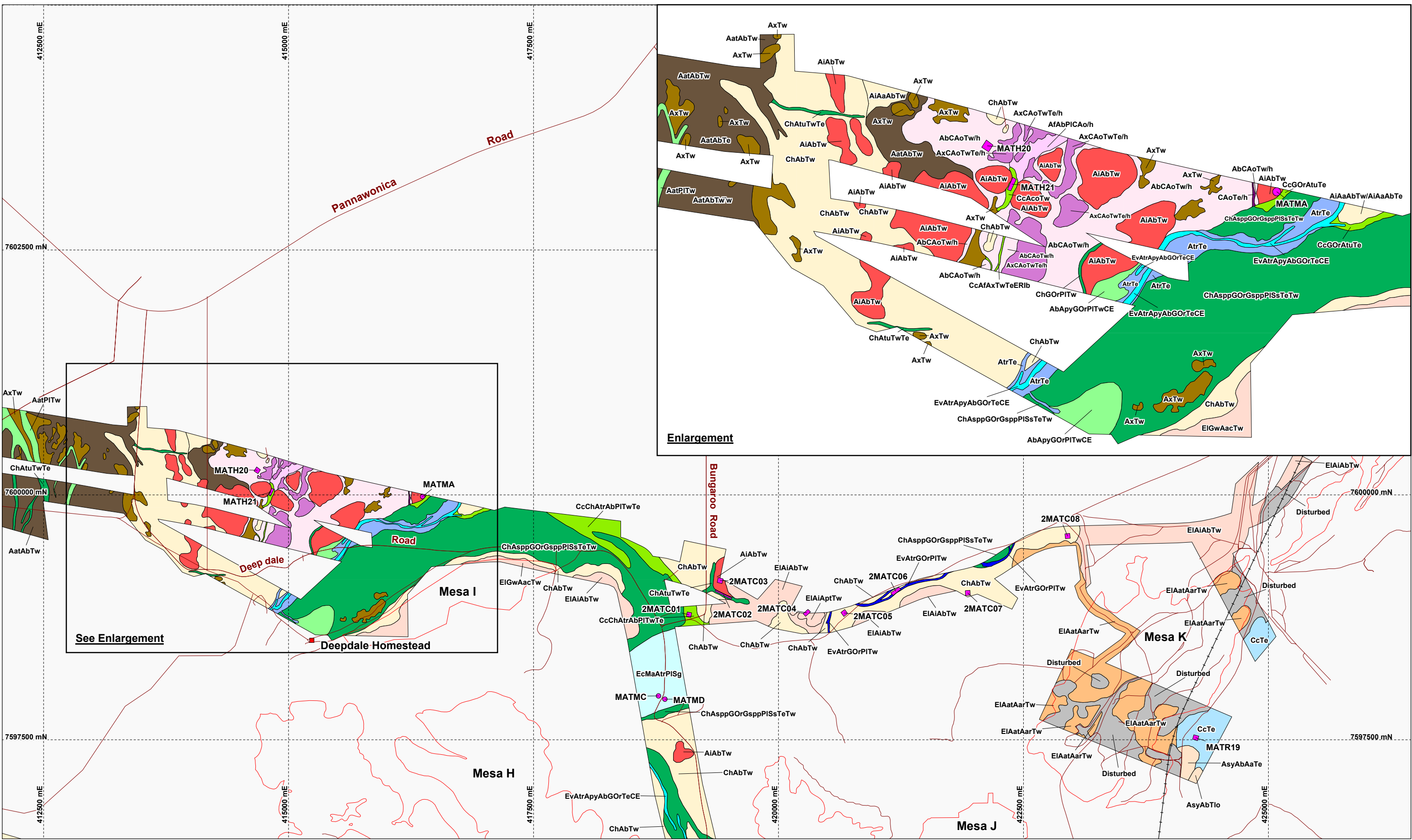
- Flora quadrats & releves
- Mesa G vegetation mapping (Biota 2005a)
- Mesa A Transport Corridor survey area
- Mesa deposit outline



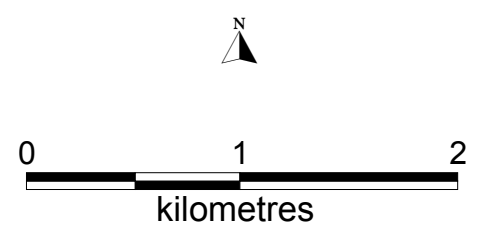
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Vegetation Mapping**  
Sheet 4 of 6

|                         |                     |
|-------------------------|---------------------|
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| Drawn: P Sawers         | Revised: 30/01/2006 |
| Job No.: 308            | WS No.: WS 09905    |
| Projection: MGA Zone 50 | Scale: 1:35,000     |



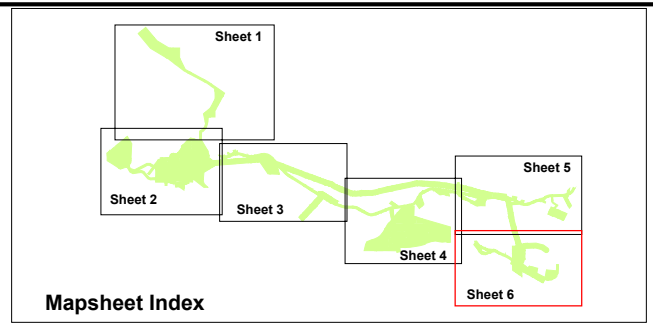
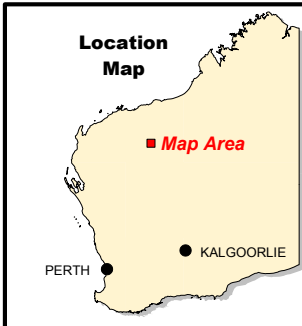
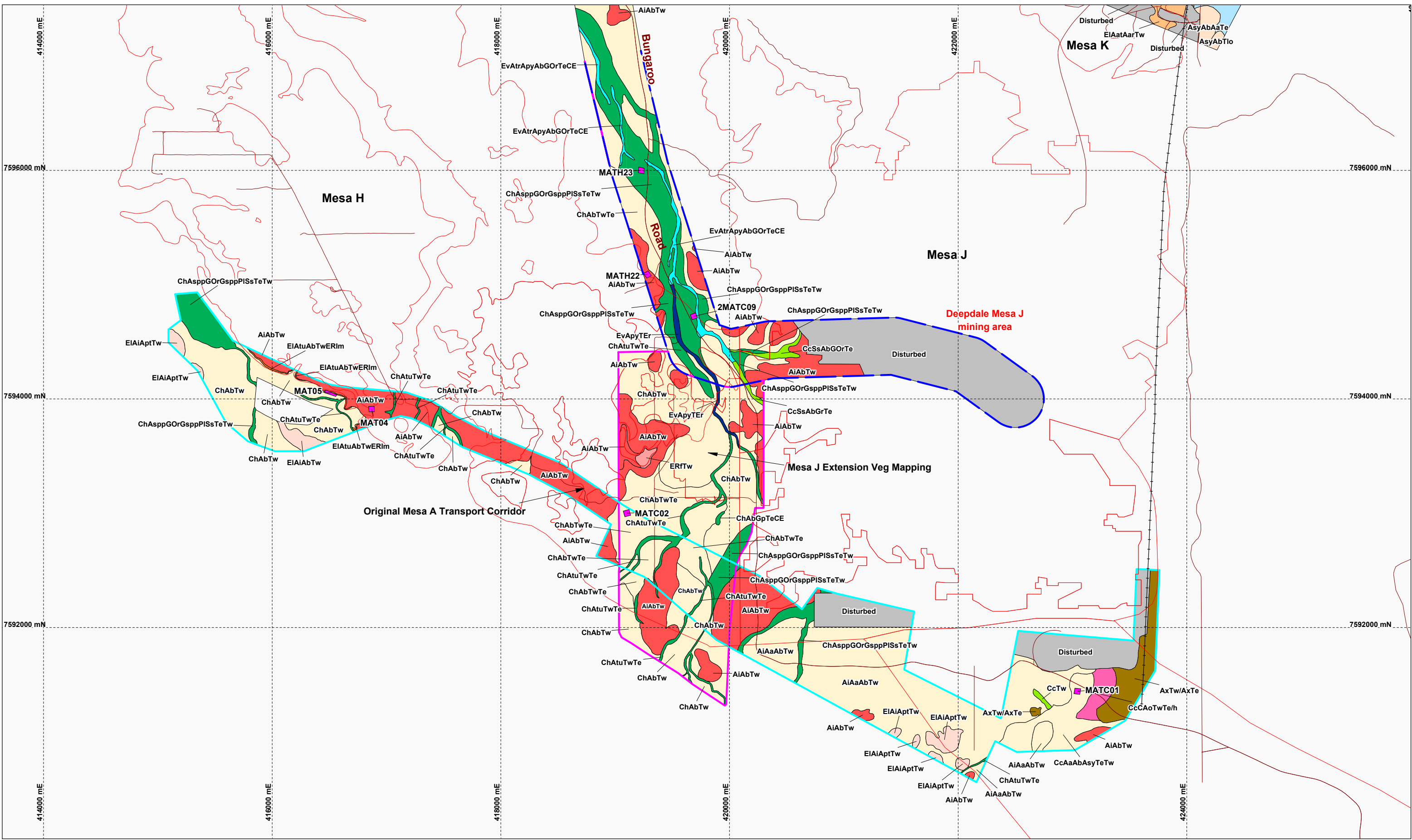
- Flora quadrats & releves
- Mesa deposit outlines
- Cape Lambert - Pannawonica Railway



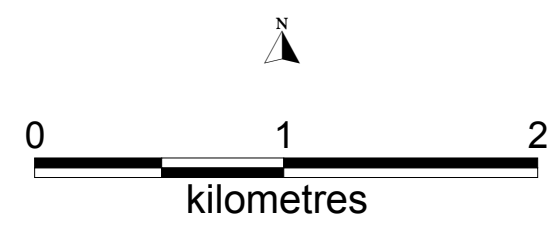
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**Mesa A Transport Corridor  
Vegetation Mapping**  
Sheet 5 of 6

|                         |                     |
|-------------------------|---------------------|
| Author: M Maier         | Date: 29/11/2005    |
| Drawn: P Sawers         | Revised: 30/01/2006 |
| Job No.: 308            | WS No.: WS 09905    |
| Projection: MGA Zone 50 | Scale: 1:35,000     |



- Flora quadrats & relevés
- Mesa J Extension vegetation mapping (Biota 2005b)
- Current Mesa A Transport Corridor survey area
- Original Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Cape Lambert - Pannawonica Railway



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**Mesa A Transport Corridor  
Vegetation Mapping**  
Sheet 6 of 6

|                         |                     |
|-------------------------|---------------------|
| Author: M Maier         | Date: 29/11/2005    |
| Drawn: P Sawers         | Revised: 30/01/2006 |
| Job No.: 308            | WS No.: WS 09905    |
| Projection: MGA Zone 50 | Scale: 1:30,000     |

## Representative photographs of vegetation types



**CcAaAbAsyTeTw** *Corymbia candida* scattered low trees over *Acacia ancistrocarpa*, *A. bivenosa*, *A. synchronicia* open shrubland over *Triodia epactia*, *T. wiseana* hummock grassland (site MATC01)



**ChAbTwTe** *Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa* open shrubland over *Triodia wiseana*, *T. epactia* hummock grassland (site MATC02)



**ElAarTw** *Eucalyptus leucophloia* scattered low trees over *Acacia arida* shrubland to tall shrubland over *Triodia wiseana* hummock grassland (site MATC03)



**ChCzAtrAaTla** *Corymbia hamersleyana*, *C. zygophylla* scattered low trees over *Acacia trachycarpa*, *A. ancistrocarpa* shrubland to open heath over *Triodia lanigera* hummock grassland (site MATC04)



**EcMaAtrPlSg** *Eucalyptus camaldulensis*, *Melaleuca argentea* open forest over *Acacia trachycarpa*, *Petalostylis labicheoides* tall open scrub over *Stemodia grossa* low shrubland (site MATH12)



**AxTw** *Acacia xiphophylla* tall open scrub over *Triodia wiseana* hummock grassland (site MATH17)

## Appendix 2

Raw Data from Quadrats and  
Relevés Assessed for the  
Current Study

## Vegetation Structural Classification and Condition Scale used for the current study

### Vegetation Structural Classes\*

| Stratum                | 70-100% cover                                   | 30-70% cover                             | 10-30% cover                                  | 2-10% cover                                        | <2% cover                                  |
|------------------------|-------------------------------------------------|------------------------------------------|-----------------------------------------------|----------------------------------------------------|--------------------------------------------|
| Trees over 30 m        | Tall closed forest                              | Tall open forest                         | Tall woodland                                 | Tall open woodland                                 | Scattered tall trees                       |
| Trees 10-30 m          | Closed forest                                   | Open forest                              | Woodland                                      | Open woodland                                      | Scattered trees                            |
| Trees under 10 m       | Low closed forest                               | Low open forest                          | Low woodland                                  | Low open woodland                                  | Scattered low trees                        |
| Shrubs over 2 m        | Tall closed scrub                               | Tall open scrub                          | Tall shrubland                                | Tall open shrubland                                | Scattered tall shrubs                      |
| Shrubs 1-2 m           | Closed heath                                    | Open heath                               | Shrubland                                     | Open shrubland                                     | Scattered shrubs                           |
| Shrubs under 1 m       | Low closed heath                                | Low open heath                           | Low shrubland                                 | Low open shrubland                                 | Scattered low shrubs                       |
| Hummock grasses        | Closed hummock grassland                        | Hummock grassland                        | Open hummock grassland                        | Very open hummock grassland                        | Scattered hummock grasses                  |
| Grasses, Sedges, Herbs | Closed tussock grassland / sedgeland / hermland | Tussock grassland / sedgeland / hermland | Open tussock grassland / sedgeland / hermland | Very open tussock grassland / sedgeland / hermland | Scattered tussock grasses / sedges / herbs |

\* Based on Aplin's (1979) modification of the Vegetation classification system of Specht (1970):  
 Aplin T.E.H. (1979). The Flora. Chapter 3 In O'Brien, B.J. (ed.) (1979). Environment and Science. University of Western Australia Press; Specht R.L. (1970). Vegetation. In The Australian Environment. 4th edn (Ed. G.W. Leeper). Melbourne.

### Vegetation Condition Scale\*

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

\* Based on Trudgen M.E. (1988). A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

**Mesa A Site 2MATC01**

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |         |                     |           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Raimond Orifici                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Survey Date</b> | 5/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Wide alluvial floodplain / Bungaroo valley                                                                                                                                                                                                                                                                                                                                                                                 |                    |         |                     |           |
| <b>Soil</b>          | Fine ironstone loam / sandy loam, red colour, some clay                                                                                                                                                                                                                                                                                                                                                                    |                    |         |                     |           |
| <b>Rock</b>          | Ironstone pebbles on soil surface                                                                                                                                                                                                                                                                                                                                                                                          |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Corymbia candida</i> subsp. <i>candida</i> scattered trees over <i>Petalostylis labicheoides</i> ( <i>Acacia trachycarpa</i> , <i>Cassia notabilis</i> , <i>Sida</i> sp. Wittenoom (W.R. Barker 1962), <i>Acacia synchronicia</i> ) open shrubland over <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Cleome viscosa</i> very open herbland over <i>Triodia epactia</i> very open hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Good; some evidence of disturbance on the southern boundary from a cleared track and/or scouring by heavy water flow                                                                                                                                                                                                                                                                                                       |                    |         |                     |           |
| <b>Fire Age</b>      | No visible evidence of fire                                                                                                                                                                                                                                                                                                                                                                                                |                    |         |                     |           |
| <b>Note</b>          | Height above sea level 139m                                                                                                                                                                                                                                                                                                                                                                                                |                    |         |                     |           |

**Mesa A Site 2MATC02**

|                      |                                                                                                                                                                                                                                                                                                                                                      |                    |         |                     |           |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Brian Morgan                                                                                                                                                                                                                                                                                                                                         | <b>Survey Date</b> | 5/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Narrow gravelly pebbly creekbed                                                                                                                                                                                                                                                                                                                      |                    |         |                     |           |
| <b>Soil</b>          | Red-brown sand                                                                                                                                                                                                                                                                                                                                       |                    |         |                     |           |
| <b>Rock</b>          | Unknown                                                                                                                                                                                                                                                                                                                                              |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia tumida</i> var. <i>pilbarensis</i> open heath over <i>Tephrosia rosea</i> var. <i>glabrior</i> , <i>Corchorus sidoides</i> subsp. <i>sidoides</i> low open shrubland over <i>Indigofera monophylla</i> (MJOPP-2) low shrubland over <i>Triodia wiseana</i> scattered hummock grasses |                    |         |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                                                                                                                                                                                            |                    |         |                     |           |
| <b>Fire Age</b>      | ~2 years since fire                                                                                                                                                                                                                                                                                                                                  |                    |         |                     |           |

**Mesa A Site 2MATC03**

|                      |                                                                                                                                                                                                                                                                                                                                       |                    |         |                     |           |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Raimond Orifici                                                                                                                                                                                                                                                                                                                       | <b>Survey Date</b> | 5/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Low mildly sloping colluvial slope down to valley / floodplain                                                                                                                                                                                                                                                                        |                    |         |                     |           |
| <b>Soil</b>          | Skeletal red brown clayey loam, colluvial with rocks and pebbles on surface                                                                                                                                                                                                                                                           |                    |         |                     |           |
| <b>Rock</b>          | Ironstone                                                                                                                                                                                                                                                                                                                             |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Corchorus sidoides</i> subsp. <i>sidoides</i> ( <i>Cassia glutinosa</i> ) open shrubland over <i>Indigofera monophylla</i> low shrubland over <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> open herbland over <i>Triodia wiseana</i> open hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                                                                                                                                                                             |                    |         |                     |           |
| <b>Fire Age</b>      | Looks to have been burnt in the last 18-24 months                                                                                                                                                                                                                                                                                     |                    |         |                     |           |
| <b>Note</b>          | Height above sea level 145 m                                                                                                                                                                                                                                                                                                          |                    |         |                     |           |

**Mesa A Site 2MATC04**

|                      |                                                                                                                                                                                                                                                                                                                                                |                    |         |                     |           |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Michi Maier                                                                                                                                                                                                                                                                                                                                    | <b>Survey Date</b> | 6/07/05 | <b>Quadrat size</b> | 70 x 30 m |
| <b>Habitat</b>       | Hill crest, hill slope                                                                                                                                                                                                                                                                                                                         |                    |         |                     |           |
| <b>Soil</b>          | Clayey loam, red-brown. Surface layer of stones and cracked plate                                                                                                                                                                                                                                                                              |                    |         |                     |           |
| <b>Rock</b>          | Banded Ironstone                                                                                                                                                                                                                                                                                                                               |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Acacia pyrifolia</i> , <i>A. inaequilatera</i> tall open shrubland over <i>Dampiera candidans</i> low open heath over <i>Acacia ptychophylla</i> , <i>Indigofera monophylla</i> (MJOPP-2) low open heath over <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> open herbland over <i>Triodia wiseana</i> open hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Excellent; <i>Triodia</i> hummocks still small ~30 cm suggests regeneration                                                                                                                                                                                                                                                                    |                    |         |                     |           |
| <b>Fire Age</b>      | Within 5 years                                                                                                                                                                                                                                                                                                                                 |                    |         |                     |           |

**Mesa A Site 2MATC05**

|                      |                                                                                                                                                                                                                                                   |                    |         |                     |           |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Brian Morgan                                                                                                                                                                                                                                      | <b>Survey Date</b> | 6/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Floodplain                                                                                                                                                                                                                                        |                    |         |                     |           |
| <b>Soil</b>          | Red-brown clayey loam. Alluvial surface layer and some stones                                                                                                                                                                                     |                    |         |                     |           |
| <b>Rock</b>          | Banded ironstone                                                                                                                                                                                                                                  |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Acacia inaequilatera</i> tall open shrubland over <i>Indigofera monophylla</i> (MJOPP-2) low open shrubland over <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> very open herbland over <i>Triodia wiseana</i> hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Very Good                                                                                                                                                                                                                                         |                    |         |                     |           |
| <b>Fire Age</b>      | ~2 years                                                                                                                                                                                                                                          |                    |         |                     |           |
| <b>Note</b>          | Old flood bank and tracks                                                                                                                                                                                                                         |                    |         |                     |           |

**Mesa A Site 2MATC06**

|                      |                                                                                                                                                                                                                                                                                                           |                    |         |                     |            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|------------|
| <b>Described</b>     | Raimond Orifici                                                                                                                                                                                                                                                                                           | <b>Survey Date</b> | 6/07/05 | <b>Quadrat size</b> | 100 x 25 m |
| <b>Habitat</b>       | Drainage line / ephemeral low line at base of hill                                                                                                                                                                                                                                                        |                    |         |                     |            |
| <b>Soil</b>          | Alluvial and colluvial red-brown sand with ironstone pebbles on soil surface                                                                                                                                                                                                                              |                    |         |                     |            |
| <b>Rock</b>          | Ironstone                                                                                                                                                                                                                                                                                                 |                    |         |                     |            |
| <b>Vegetation</b>    | <i>Eucalyptus victrix</i> open forest over <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> , <i>Acacia trachycarpa</i> tall open shrubland over <i>Cleome viscosa</i> low open heath over <i>Cenchrus ciliaris</i> very open tussock grassland and <i>Triodia wiseana</i> very open hummock grassland |                    |         |                     |            |
| <b>Veg Condition</b> | Good; * <i>Cenchrus ciliaris</i> , * <i>Cenchrus setigerus</i> present. Evidence of cattle grazing                                                                                                                                                                                                        |                    |         |                     |            |
| <b>Fire Age</b>      | No evidence of fire                                                                                                                                                                                                                                                                                       |                    |         |                     |            |
| <b>Note</b>          | Quadrat dimensions 100 x 25 m                                                                                                                                                                                                                                                                             |                    |         |                     |            |

**Mesa A Site 2MATC07**

|                  |                                                                                                                              |                    |         |                     |           |
|------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b> | Raimond Orifici                                                                                                              | <b>Survey Date</b> | 7/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>   | Mild sloping colluvial area at base of hill and sloping down into minor drainage areas leading into a major drainage channel |                    |         |                     |           |
| <b>Soil</b>      | Skeletal red clayey loam with lots of ironstone cobbles and pebbles on the soil surface                                      |                    |         |                     |           |

|                      |                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rock</b>          | Ironstone                                                                                                                                                                |
| <b>Vegetation</b>    | <i>Acacia inaequilatera</i> open shrubland over <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> open herbland over <i>Triodia wiseana</i> hummock grassland |
| <b>Veg Condition</b> | Excellent; no sign of weeds present and no evidence of grazing of Vegetation by livestock                                                                                |
| <b>Fire Age</b>      | Probably burnt 18-24 months ago                                                                                                                                          |

**Mesa A Site 2MATC08**

|                      |                                                                                               |                    |         |                     |           |
|----------------------|-----------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Brian Morgan                                                                                  | <b>Survey Date</b> | 7/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Mid to upper slope of N to NE-facing steep slope of ridge                                     |                    |         |                     |           |
| <b>Soil</b>          | Gravelly, pebbly, cobbly red-brown loamy sand                                                 |                    |         |                     |           |
| <b>Rock</b>          | Schist; thin slices of shaley rock on surface. Very rocky slope                               |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Hakea chordophylla</i> scattered shrubs over <i>Triodia wiseana</i> open hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                     |                    |         |                     |           |
| <b>Fire Age</b>      | ~2 years since fire                                                                           |                    |         |                     |           |
| <b>Note</b>          | Difficult to determine what the burnt shrubs were - no regrowth from bases                    |                    |         |                     |           |

**Mesa A Site 2MATC09**

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |         |                     |           |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Raimond Orifici                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Survey Date</b> | 9/07/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Floodplain adjacent to a drainage line with River Gums ( <i>Eucalyptus camaldulensis</i> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |         |                     |           |
| <b>Soil</b>          | Fine red-brown clayey loam (alluvial deposition). Skeletal layer over ironstone pebbles and cobbles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |         |                     |           |
| <b>Rock</b>          | Ironstone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Corymbia hamersleyana</i> scattered low trees over <i>Stylobasium spathulatum</i> ( <i>Acacia trachycarpa</i> , <i>A. pyrifolia</i> , <i>Grevillea pyramidalis</i> ) tall shrubland over <i>Triodia epactia</i> hummock grassland and <i>Cenchrus setigerus</i> very open tussock grassland.                                                                                                                                                                                                                                                                                         |                    |         |                     |           |
| <b>Veg Condition</b> | Very good; some <i>Cenchrus setigerus</i> scattered through the quadrat and very dense beside the edge line                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |         |                     |           |
| <b>Fire Age</b>      | Mature trees and shrubs show no sign of fire                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |         |                     |           |
| <b>Note</b>          | E edge of quadrat is just within an ephemeral flow line of <i>Eucalyptus camaldulensis</i> over <i>Corymbia hamersleyana</i> open woodland over <i>Acacia trachycarpa</i> , <i>A. pyrifolia</i> and <i>Stylobasium spathulatum</i> tall shrubs over <i>Cenchrus setigerus</i> tussock grassland with <i>Cyperus vaginatus</i> , <i>Malvastrum americanum</i> , <i>Stemodia grossa</i> , <i>Grevillea wickhamii</i> , <i>Gossypium robinsonii</i> , <i>Abutilon trudgenii</i> , <i>Pterocaulon</i> sp., <i>Melhanian oblongifolia</i> , <i>Mukia maderaspatana</i> and <i>Amaranthus</i> |                    |         |                     |           |

**Mesa A Site MAT04**

|                      |                                                                                                                               |                    |          |                     |           |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|-----------|
| <b>Described</b>     | Brian Morgan                                                                                                                  | <b>Survey Date</b> | 30/04/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Flat to very gently sloping, east-facing slope of crest of low rocky ridge                                                    |                    |          |                     |           |
| <b>Soil</b>          | Gravelly, red-brown loam. High surface cover of exposed ironstone                                                             |                    |          |                     |           |
| <b>Rock</b>          | Ironstone                                                                                                                     |                    |          |                     |           |
| <b>Vegetation</b>    | <i>Acacia inaequilatera</i> ( <i>Hakea chordophylla</i> ) scattered tall shrubs over <i>Triodia wiseana</i> hummock grassland |                    |          |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                                                     |                    |          |                     |           |
| <b>Fire Age</b>      | > 7-10 years                                                                                                                  |                    |          |                     |           |

**Mesa A Site MAT05**

|                      |                                                                                                                                                                                                                                                                                                                                               |                    |         |                     |            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|------------|
| <b>Described</b>     | Brian Morgan                                                                                                                                                                                                                                                                                                                                  | <b>Survey Date</b> | 1/05/05 | <b>Quadrat size</b> | 25 x 100 m |
| <b>Habitat</b>       | Steep rocky breakaway and moderately steep, south-facing midslope of low rocky ridge                                                                                                                                                                                                                                                          |                    |         |                     |            |
| <b>Soil</b>          | Gravelly, pebbly, cobbly red-brown sand                                                                                                                                                                                                                                                                                                       |                    |         |                     |            |
| <b>Rock</b>          | Ironstone                                                                                                                                                                                                                                                                                                                                     |                    |         |                     |            |
| <b>Vegetation</b>    | <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered trees over <i>Acacia bivenosa</i> shrubland over <i>Triodia wiseana</i> ( <i>Triodia</i> sp. nov.) hummock grassland                                                                                                                                                        |                    |         |                     |            |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                                                                                                                                                                                     |                    |         |                     |            |
| <b>Fire Age</b>      | >5-7 years since fire                                                                                                                                                                                                                                                                                                                         |                    |         |                     |            |
| <b>Note</b>          | Really two plant communities in quadrat: Veg 1 (breakaway): <i>Eucalyptus leucophloia</i> / <i>Triodia wiseana</i> , <i>Triodia</i> sp. Nov. ( <i>Eriachne mucronata</i> ); Veg 2 (Midslope): <i>Eucalyptus leucophloia</i> / <i>Acacia bivenosa</i> shrubland / <i>Triodia wiseana</i> . Fauna trapline runs along the base of the breakaway |                    |         |                     |            |

**Mesa A Site MATC01**

|                      |                                                                                                                                                                                                                                                                                                                                                                      |                    |          |                     |           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|-----------|
| <b>Described</b>     | Raimond Orifici                                                                                                                                                                                                                                                                                                                                                      | <b>Survey Date</b> | 30/04/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Valley plain, slightly sloping                                                                                                                                                                                                                                                                                                                                       |                    |          |                     |           |
| <b>Soil</b>          | Red alluvial clayey loam with ironstone pebbles on soil surface                                                                                                                                                                                                                                                                                                      |                    |          |                     |           |
| <b>Rock</b>          | Ironstone                                                                                                                                                                                                                                                                                                                                                            |                    |          |                     |           |
| <b>Vegetation</b>    | <i>Corymbia candida</i> subsp. <i>candida</i> scattered low trees over <i>Hakea chordophylla</i> , <i>Acacia ancistrocarpa</i> scattered tall shrubs over <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous) scattered shrubs over <i>Philotus astrolasius</i> var. <i>astrolasius</i> low open shrubland over <i>Triodia epactia</i> closed hummock grassland |                    |          |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                                                                                                                                                                                                            |                    |          |                     |           |
| <b>Fire Age</b>      | >5-7 years since fire                                                                                                                                                                                                                                                                                                                                                |                    |          |                     |           |

**Mesa A Site MATC02**

|                      |                                                                                                             |                    |         |                     |           |
|----------------------|-------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b>     | Brian Morgan                                                                                                | <b>Survey Date</b> | 1/05/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>       | Flat creek floodplain between low rocky ridges                                                              |                    |         |                     |           |
| <b>Soil</b>          | Red-brown loam                                                                                              |                    |         |                     |           |
| <b>Rock</b>          | Ironstone                                                                                                   |                    |         |                     |           |
| <b>Vegetation</b>    | <i>Corymbia hamersleyana</i> low woodland over <i>Triodia wiseana</i> , <i>T. epactia</i> hummock grassland |                    |         |                     |           |
| <b>Veg Condition</b> | Excellent                                                                                                   |                    |         |                     |           |
| <b>Fire Age</b>      | >7-10 years since fire                                                                                      |                    |         |                     |           |

**Mesa A Site MATC03**

|                  |                                       |                    |         |                     |           |
|------------------|---------------------------------------|--------------------|---------|---------------------|-----------|
| <b>Described</b> | Brian Morgan                          | <b>Survey Date</b> | 3/05/05 | <b>Quadrat size</b> | 50 x 50 m |
| <b>Habitat</b>   | Gentle north-facing slope of low rise |                    |         |                     |           |

**Soil** Gravelly, pebbly red-brown sandy loam  
**Rock** Ironstone  
**Vegetation** *Acacia arida* open heath over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 2-3 years since fire  
**Note** Vegetation description reflects estimated mature structure and not current structure (which is juvenile regrowth after recent fire)

**Mesa A Site MATC04**

**Described** Brian Morgan **Survey Date** 3/05/05 **Quadrat size** 50 x 50 m  
**Habitat** Alluvial floodplain - broad valley between mesa and hills  
**Soil** Red loamy sand over sandy loam  
**Rock** Ironstone and some quartzite  
**Vegetation** *Corymbia hamersleyana*, *Corymbia zygophylla* scattered low trees over *Acacia ancistrocarpa* open shrubland over *Triodia lanigera* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 2 years since fire

**Mesa A Site MATH11**

**Described** Michi Maier **Survey Date** 3/08/05 **Quadrat size** 75 x 35 m  
**Habitat** Rocky hillslope below breakaway; North aspect ~15 degrees  
**Soil** Skeletal red-brown fine clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia arida* open heath over *Triodia wiseana* open hummock grassland  
**Veg Condition** Very Good - Excellent; signs of cattle but no obvious grazing  
**Fire Age** burnt ~ 3-4 years ago  
**Note** fauna site MAT18, ~ 200 m West of Robe River

**Mesa A Site MATH12**

**Described** Raimond Orifici **Survey Date** 3/08/05 **Quadrat size** 13 x 200 m  
**Habitat** Stony flood banks. Riparian Vegetation  
**Soil** gravelly, pebbly, cobbly red-brown alluvial sand  
**Rock** Ironstone and Calcrete  
**Vegetation** *Eucalyptus victrix* scattered trees over *Melaleuca argentea* open woodland over *Stemodia grossa*, *Pluchea rubelliflora* open heath and *Cyperus vaginatus* very open tussock sedgeland  
**Veg Condition** Excellent  
**Fire Age** No fire evidence visible on Vegetation

**Mesa A Site MATH13**

**Described** Raimond Orifici **Survey Date** 3/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Alluvia spinifex plain with shrubs in valley area a flood plain of the Robe River  
**Soil** alluvial red loamy clay  
**Rock** small amount of ironstone pebbles on soil surface  
**Vegetation** *Acacia ancistrocarpa* scattered tall shrubs over *Acacia bivenosa* open shrubland over *Cassia* aff. *oligophylla* (thinly sericeous) low open shrubland over *Triodia epactia* closed hummock grassland  
**Veg Condition** Excellent  
**Fire Age** no evidence of fire visible on Vegetation

**Mesa A Site MATH14**

**Described** Brian Morgan **Survey Date** 4/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Broad river bed  
**Soil** pebbly red-brown alluvial sand  
**Rock** Unknown  
**Vegetation** *Eucalyptus camaldulensis* low open woodland over *Petalostylis labicheoides*, *Acacia trachycarpa* tall open shrubland over *Stemodia grossa*, *Cleome viscosa* scattered herbs  
**Veg Condition** Very Good to Excellent; some weeds  
**Fire Age** >4-5 years  
**Note** Lots of Vegetation is regrowth after flood

**Mesa A Site MATH15**

**Described** Raimond Orifici **Survey Date** 5/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Alluvial clay spinifex plain upslope from Robe River and its floodplain  
**Soil** alluvial red, fine-grained clay with a small amount of loam and some ironstone pebbles on soil  
**Rock** Ironstone  
**Vegetation** *Hakea chordophylla*, *Acacia inaequilatera*, *A. synchronicia* tall open shrubland  
**Veg Condition** Excellent  
**Fire Age** No fire evidence visible on trunks of trees  
**Note** Spinifex hummocks quite large

**Mesa A Site MATH16**

**Described** Myles Menz **Survey Date** 7/08/05 **Quadrat size** 50 x 50 m  
**Habitat** stony alluvial plain with some calcareous outcropping  
**Soil** red-brown sandy clay-loam  
**Rock** Ferrous  
**Vegetation** *Acacia bivenosa* tall closed scrub over *Triodia wiseana* hummock grassland

**Veg Condition** Excellent  
**Fire Age** No obvious signs of recent fire

**Mesa A Site MATH17**

**Described** Myles Menz      **Survey Date** 7/08/05      **Quadrat size** 50 x 50 m  
**Habitat** Stony Plain  
**Soil** red-brown, sandy clay-loam  
**Rock** Ironstone, quartz  
**Vegetation** *Acacia xiphophylla* tall open scrub over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** No noticeable signs of fire  
**Note** Continuous surface layer of pebbles

**Mesa A Site MATH18**

**Described** Myles Menz      **Survey Date** 8/08/05      **Quadrat size** 75 x 30 m  
**Habitat** Gentle West facing slope on edge of valley floor  
**Soil** red-brown sandy clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia bivenosa* open shrubland over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 5+ Years  
**Note** Surface layer of pebbles

**Mesa A Site MATH19**

**Described** Myles Menz      **Survey Date** 8/08/05      **Quadrat size** 50 x 50 m  
**Habitat** Alluvial plain  
**Soil** red-brown, sandy clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia atkinsiana*, *A. bivenosa*, *A. ancistrocarpa*, *A. citrinoviridis* tall closed scrub over *Cassia* aff. *oligophylla* (thinly sericeous) low open shrubland over *Sida* aff. *fibulifera*, *S. sp.* Wittenoom (W.R. Barker 1962) low shrubland over *Triodia epactia* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 5+ years, no visible sign of recent burn  
**Note** Sandy surface layer

**Mesa A Site MATH20**

**Described** Myles Menz      **Survey Date** 12/09/05      **Quadrat size** 50 x 50 m  
**Habitat** Cracking clay plain  
**Soil** clayey-loam, some sand and calcrete. Red brown  
**Rock** Ironstone, Calcrete  
**Vegetation** *Acacia farnesiana* scattered shrubs over *Cassia* aff. *oligophylla* (*A. bivenosa*, *A. xiphophylla*) open heath over *Streptoglossa bubakii* closed herbland over *Triodia wiseana* open hummock grassland  
**Veg Condition** Very Good. Some *Malvastrum americanum* and some signs of cattle  
**Fire Age** ~2-3 years

**Mesa A Site MATH21**

**Described** Brian Morgan      **Survey Date** 12/09/05      **Quadrat size** Q 25 x 80 m  
**Habitat** Flood banks of creek (multiple channels)  
**Soil** Red-brown loamy clay  
**Rock** Unknown  
**Vegetation** *Corymbia candida* subsp. *candida* tall open forest over *Acacia coleii* var. *ileocarpa* (*Flueggea virosa* subsp. *melanthesoides*, *Acacia xiphophylla*, *A. ancistrocarpa*) tall shrubland over *Cymbopogon ambiguus* very open tussock grassland and *Triodia wiseana* very open hummock grassland  
**Veg Condition** Very good; \**Malvastrum americanum* present  
**Fire Age** Burnt >7-10 years ago  
**Note** One end of the fauna trapping line runs across the creek bed on one side of the quadrat

**Mesa A Site MATH22**

**Described** Myles Menz      **Survey Date** 17/09/05      **Quadrat size** 50 x 50 m  
**Habitat** Moderate hill slope onto base of slope  
**Soil** red brown, sandy clay loam  
**Rock** Ironstone  
**Vegetation** *Acacia inaequilatera* scattered tall shrubs over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** <5 years. Some burn evidence on *Acacia inaequilatera*

**Mesa A Site MATH23**

**Described** Brian Morgan      **Survey Date** 7/09/05      **Quadrat size** 50 x 50 m  
**Habitat** Flat flood plain immediately adjacent to creek  
**Soil** red brown loamy sand  
**Rock** Unknown  
**Vegetation** *Acacia morrisonii* scattered low trees over *Petalostylis labicheoides*, *Acacia bivenosa* tall shrubland over *Triodia epactia* hummock grassland and *Cenchrus setigerus*, *C. ciliaris* very open tussock grassland  
**Veg Condition** Very Good  
**Fire Age** >7 years since fire

**Mesa A Site MATMA**

|                      |                                                                                                                                                                                |                    |         |                     |   |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------|---|
| <b>Described</b>     | Myles Menz                                                                                                                                                                     | <b>Survey Date</b> | 7/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Low stony hill                                                                                                                                                                 |                    |         |                     |   |
| <b>Soil</b>          | Calcareous loam                                                                                                                                                                |                    |         |                     |   |
| <b>Rock</b>          | Unknown                                                                                                                                                                        |                    |         |                     |   |
| <b>Vegetation</b>    | <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> , <i>Petalostylis labicheoides</i> scattered shrubs over <i>Triodia wiseana</i> hummock grassland |                    |         |                     |   |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                      |                    |         |                     |   |

**Mesa A Site MATMB**

|                      |                                                                                                            |                    |          |                     |   |
|----------------------|------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                | <b>Survey Date</b> | 11/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Rocky hill                                                                                                 |                    |          |                     |   |
| <b>Soil</b>          | Loam                                                                                                       |                    |          |                     |   |
| <b>Rock</b>          | Unknown                                                                                                    |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Eremophila fraseri</i> scattered shrubs to open shrubland over <i>Triodia wiseana</i> hummock grassland |                    |          |                     |   |
| <b>Veg Condition</b> | Excellent                                                                                                  |                    |          |                     |   |

**Mesa A Site MATMC**

|                      |                                                                                                                                                                                                                                                                                |                    |          |                     |   |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                                                                                                                                                                                    | <b>Survey Date</b> | 17/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Cobbly bed of Robe River                                                                                                                                                                                                                                                       |                    |          |                     |   |
| <b>Soil</b>          | Red-brown gravelly loam with extensive cobbles                                                                                                                                                                                                                                 |                    |          |                     |   |
| <b>Rock</b>          | Fluvial                                                                                                                                                                                                                                                                        |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Melaleuca argentea</i> , <i>Eucalyptus camaldulensis</i> scattered trees over <i>Petalostylis labicheoides</i> , <i>Acacia trachycarpa</i> tall open scrub over <i>Tephrosia rosea</i> var. <i>glabrior</i> scattered shrubs over <i>Stemodia grossa</i> low open shrubland |                    |          |                     |   |
| <b>Veg Condition</b> | Excellent                                                                                                                                                                                                                                                                      |                    |          |                     |   |
| <b>Fire Age</b>      | Burnt 3 years ago                                                                                                                                                                                                                                                              |                    |          |                     |   |

**Mesa A Site MATMD**

|                      |                                                                                                                                                                             |                    |          |                     |   |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                                                                                 | <b>Survey Date</b> | 17/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Sandy bed of Robe River                                                                                                                                                     |                    |          |                     |   |
| <b>Soil</b>          | Red-brown sand with patches of cobbles                                                                                                                                      |                    |          |                     |   |
| <b>Rock</b>          | Fluvial                                                                                                                                                                     |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Melaleuca argentea</i> , <i>Eucalyptus camaldulensis</i> open forest over <i>Petalostylis labicheoides</i> tall shrubland over <i>Stemodia grossa</i> low open shrubland |                    |          |                     |   |
| <b>Veg Condition</b> | Very Good - occasional weeds                                                                                                                                                |                    |          |                     |   |
| <b>Fire Age</b>      | Burnt ~3 years ago                                                                                                                                                          |                    |          |                     |   |

**Mesa A Site MATME**

|                      |                                                                                                                                                   |                    |          |                     |   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                                                       | <b>Survey Date</b> | 17/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Plain (clayey)                                                                                                                                    |                    |          |                     |   |
| <b>Soil</b>          | Red-brown clay loam                                                                                                                               |                    |          |                     |   |
| <b>Rock</b>          | Unknown                                                                                                                                           |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Acacia tetragonophylla</i> scattered tall shrubs over <i>Acacia ancistrocarpa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland |                    |          |                     |   |
| <b>Veg Condition</b> | Very Good - occasional weeds                                                                                                                      |                    |          |                     |   |
| <b>Fire Age</b>      | No sign of recent fire                                                                                                                            |                    |          |                     |   |

**Mesa A Site MATMF**

|                      |                                                                                                                                              |                    |          |                     |   |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                                                  | <b>Survey Date</b> | 18/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Stony plain                                                                                                                                  |                    |          |                     |   |
| <b>Soil</b>          | Red-brown fine sandy clay loam                                                                                                               |                    |          |                     |   |
| <b>Rock</b>          | Unknown                                                                                                                                      |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Acacia synchronicia</i> ( <i>A. trachycarpa</i> ) tall open shrubland over <i>Triodia epactia</i> ( <i>T. wiseana</i> ) hummock grassland |                    |          |                     |   |
| <b>Veg Condition</b> | Very Good - occasional weeds                                                                                                                 |                    |          |                     |   |

**Mesa A Site MATMG**

|                      |                                                                                                              |                    |          |                     |   |
|----------------------|--------------------------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                                                  | <b>Survey Date</b> | 18/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Stony plain                                                                                                  |                    |          |                     |   |
| <b>Soil</b>          | Red-brown fine sandy clay loam                                                                               |                    |          |                     |   |
| <b>Rock</b>          | Unknown                                                                                                      |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Acacia arida</i> , <i>A. atkinsiana</i> tall open shrubland over <i>Triodia wiseana</i> hummock grassland |                    |          |                     |   |
| <b>Veg Condition</b> | Excellent                                                                                                    |                    |          |                     |   |
| <b>Fire Age</b>      | No sign of recent fire                                                                                       |                    |          |                     |   |

**Mesa A Site MATMH**

|                      |                                                                                           |                    |          |                     |   |
|----------------------|-------------------------------------------------------------------------------------------|--------------------|----------|---------------------|---|
| <b>Described</b>     | Michi Maier                                                                               | <b>Survey Date</b> | 18/09/05 | <b>Quadrat size</b> | R |
| <b>Habitat</b>       | Stony plain                                                                               |                    |          |                     |   |
| <b>Soil</b>          | Not recorded                                                                              |                    |          |                     |   |
| <b>Rock</b>          | Unknown                                                                                   |                    |          |                     |   |
| <b>Vegetation</b>    | <i>Acacia ancistrocarpa</i> open shrubland over <i>Triodia lanigera</i> hummock grassland |                    |          |                     |   |
| <b>Veg Condition</b> | Excellent                                                                                 |                    |          |                     |   |
| <b>Fire Age</b>      | Burnt 3-4 years ago                                                                       |                    |          |                     |   |

**Mesa A Site MATMI**

|                  |             |                    |          |                     |   |
|------------------|-------------|--------------------|----------|---------------------|---|
| <b>Described</b> | Michi Maier | <b>Survey Date</b> | 18/09/05 | <b>Quadrat size</b> | R |
|------------------|-------------|--------------------|----------|---------------------|---|

**Habitat** Clayey plain  
**Soil** Red-brown clay loam with scatters of gravel and stones on surface  
**Rock** Unknown  
**Vegetation** *Acacia citrinoviridis* tall open shrubland over *Acacia bivenosa* (*A. ancistrocarpa*) open shrubland over *Triodia epactia* hummock grassland  
**Veg Condition** Very Good - occasional weeds

**Mesa A Site MATR11**

**Described** Brian Morgan **Survey Date** 2/08/05 **Quadrat size** 50 X 50 m  
**Habitat** Gentle south-facing slope of flat valley floor with base of Mesa A about 80 m to north of Peg 1  
**Soil** Gravelly, pebbly red-brown loamy sand  
**Rock** Ironstone  
**Vegetation** *Acacia inaequilatera* scattered low trees over *A. bivenosa* (*A. atkinsiana*) tall open scrub over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** Last fire about 4-5 years ago  
**Note** *Acacia atkinsiana* in veg unit to south of the quadrat and just in south-east corner of the quadrat.

**Mesa A Site MATR12**

**Described** Raimond Orifici **Survey Date** 2/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Mild sloping area below footslope of mesa and between mesa and valley  
**Soil** Red-brown alluvial clay loam with ironstone pebbles on soil surface  
**Rock** Ironstone pebbles  
**Vegetation** *Acacia bivenosa* (*A. inaequilatera*, *A. synchronicia*) open shrubland over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** No evidence of fire in the last 5 years

**Mesa A Site MATR-13**

**Described** Raimond Orifici **Survey Date** 5/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Alluvial clay, snakewood plain  
**Soil** Red fine grained clay with small amount of ironstone pebbles on soil surface  
**Rock** Ironstone  
**Vegetation** *Acacia xiphophylla* (*A. tetragonophylla*) low open forest over *Cassia* aff. *oligophylla* (thinly sericeous), *Eremophila forrestii* subsp. *forrestii* open shrubland over *Triodia wiseana*, *Triodia epactia* very open hummock grassland over *Eriachne benthamii* open tussock grassland  
**Veg Condition** Very good  
**Fire Age** No evidence of fire visible on Vegetation

**Mesa A Site MATR14**

**Described** Myles Menz **Survey Date** 6/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Floodplain  
**Soil** Red-brown sandy clay/loam  
**Rock** Ironstone  
**Vegetation** *Acacia synchronicia* tall open shrubland over *Acacia bivenosa* open shrubland over *Triodia wiseana* hummock grassland over *Indigofera boviparda* low open shrubland  
**Veg Condition** Excellent  
**Fire Age** No obvious evidence of recent burn

**Mesa A Site MATR15**

**Described** Myles Menz **Survey Date** 7/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Stony alluvial plain  
**Soil** Red-brown sandy clay-loam  
**Rock** Ironstone  
**Vegetation** *Corymbia candida* subsp. *candida* scattered low trees over *Hakea lorea* scattered tall shrubs over *Acacia ancistrocarpa* open shrubland over *Triodia epactia* closed hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 5+ years

**Mesa A Site MATR16**

**Described** Raimond Orifici **Survey Date** 7/08/05 **Quadrat size** 50 x 50 m  
**Habitat** Very gentle south-west facing slope of flat valley floor  
**Soil** Red-brown gravelly pebbly sand  
**Rock** Ironstone with quartz  
**Vegetation** *Acacia atkinsiana* scattered tall shrubs over *Triodia wiseana* closed tussock grassland.  
**Veg Condition** Excellent; no weeds  
**Fire Age** Last fire >7-10 years ago

**Mesa A Site MATR17**

**Described** Myles Menz **Survey Date** 9/08/05 **Quadrat size** 25 x 100 m  
**Habitat** Moderate slope  
**Soil** Red-brown sandy clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia tumida* var. *pilbarensis* (*Petalostylis labicheoides*) tall open scrub over *A. bivenosa*, *A. ancistrocarpa* shrubland over *Keraudrenia nephrosperma* low open shrubland over *Triodia wiseana* tussock grassland  
**Veg Condition** Excellent  
**Fire Age** >5 years since fire

**Mesa A Site MATR18**

**Described** Myles Menz **Survey Date** 9/07/05 **Quadrat size** 50 x 50 m  
**Habitat** Alluvial plain / valley floor  
**Soil** Red-brown sandy clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia atkinsiana* tall closed scrub over *Triodia wiseana* (*Triodia epactia*) hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 5+ years; no visible signs of recent fire  
**Note** Soil surface layer

**Mesa A Site MATR19**

**Described** Myles Menz **Survey Date** 16/09/05 **Quadrat size** 50 x 50 m  
**Habitat** Floodplain  
**Soil** Sandy clay loam, red brown  
**Rock** Ironstone  
**Vegetation** *Corymbia candida* subsp. *candida* low open shrubland over *Hakea chordophylla* scattered tall shrubs over *Triodia epactia* hummock grassland over *Cenchrus ciliaris* very open tussock grassland  
**Veg Condition** Good. Presence of *\*Cenchrus ciliaris* and signs of cattle  
**Fire Age** no obvious signs of recent fire. >5 years

**Mesa A Site MATR20**

**Described** Brian Morgan **Survey Date** 17/09/05 **Quadrat size** 60 x 40 m  
**Habitat** flat broad plain  
**Soil** gravelly, pebbly red-brown sand  
**Rock** Ironstone  
**Vegetation** *Grevillea wickhamii* subsp. *macrodonata* (*Acacia inaequilatera*) scattered low trees over *Triodia lanigera* hummock grassland  
**Veg Condition** Excellent (no weeds or disturbance)  
**Fire Age** about 2-3 years since fire  
**Note** *Corymbia hamersleyana* not in the quadrat, but is scattered in the veg unit

**Mesa A Site MATR21**

**Described** Brian Morgan **Survey Date** 17/09/05 **Quadrat size** Q 50 x 50 m  
**Habitat** Flat plain  
**Soil** Red-brown clay  
**Rock** Unknown  
**Vegetation** *Corymbia candida* subsp. *candida* low open woodland over *Acacia ancistrocarpa* shrubland over *Triodia wiseana*, *T. epactia* hummock grassland.  
**Veg Condition** Excellent  
**Fire Age** Burnt >4-5 years ago

**Mesa A Site MATR22**

**Described** Brian Morgan **Survey Date** 18/09/05 **Quadrat size** Q 50 x 50 m  
**Habitat** Flat plain  
**Soil** Red-brown sand  
**Rock** Unknown  
**Vegetation** *Hakea chordophylla* (*Acacia inaequilatera*, *A. synchronicia*) scattered tall shrubs over *Triodia epactia* hummock grassland  
**Veg Condition** Very good; some *\*Cenchrus ciliaris*  
**Fire Age** Burnt >7 years ago

**Mesa A Site MATR23**

**Described** Michi Maier **Survey Date** 18/09/05 **Quadrat size** 50 x 50 m  
**Habitat** low rise within band of loamy plain adjacent to Robe River.  
**Soil** Red brown fine clay loam with scatters of fluvial pebbles on surface  
**Rock** Unknown  
**Vegetation** *Corymbia candida* subsp. *candida* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over *Acacia bivenosa*, *A. ancistrocarpa* open shrubland over *Triodia wiseana* hummock grassland  
**Veg Condition** Very Good - a few individuals of *\*Cenchrus*  
**Fire Age** no signs of recent fire, unburnt for >7 years

**Mesa A Site MATR24**

**Described** Brian Morgan **Survey Date** 18/09/05 **Quadrat size** 50 x 50 m  
**Habitat** Very gentle SE-facing slope of plain  
**Soil** Red-brown clay-loam  
**Rock** Unknown  
**Vegetation** *Acacia synchronicia* tall open scrub over *Triodia epactia* open hummock grassland over *Cenchrus ciliaris*, *C. setigerus* very open tussock grassland over *Dysphania rhadinostachya* subsp. *rhadinostachya* scattered herbs  
**Veg Condition** Good; high *\*Cenchrus ciliaris* and *C. setigerus* cover  
**Fire Age** Burnt >5 years ago

**Mesa A Site WAR01**

**Described** Raimond Orifici **Survey Date** 30/03/05 **Quadrat size** 35 x 80  
**Habitat** Alluvial stony clay-loam plain with *Acacia* shrubs over spinifex steppe  
**Soil** Alluvial red clayey loam with ironstone pebbles on soil surface

**Rock** Ironstone  
**Vegetation** *Acacia atkinsiana*, *A. arida* tall open scrub over *Triodia wiseana* closed hummock grassland  
**Veg Condition** Excellent  
**Fire Age** Not burnt for at least 5 years

**Mesa A Site WAR02**

**Described** Raimond Orifici **Survey Date** 30/03/05 **Quadrat size** 100 x 25 m  
**Habitat** Seasonal, alluvial drainage area  
**Soil** Alluvial red clayey loam  
**Rock** Ironstone  
**Vegetation** *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii*, *Acacia atkinsiana*, *A. ancistrocarpa* tall open scrub over *Triodia wiseana* open hummock grassland  
**Veg Condition** Excellent  
**Fire Age** Unburnt for the last 5-7 years

**Mesa A Site WAR04**

**Described** Raimond Orifici **Survey Date** 30/03/05 **Quadrat size** 50 x 50  
**Habitat** Alluvial clay-loam plain of *Acacia* shrubs over spinifex steppe  
**Soil** Red alluvial clay-loam  
**Rock** Ironstone  
**Vegetation** *Acacia bivenosa* open shrubland over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** No evidence of fire  
**Note** Track/gridline runs N-S through middle of quadrat

**Mesa A Site WAR05**

**Described** Brian Morgan **Survey Date** 30/03/05 **Quadrat size** 50 x 50 m  
**Habitat** Broad plain at edge of low ridge  
**Soil** Red-brown gravelly pebbly clay loam  
**Rock** Ironstone  
**Vegetation** *Acacia synchronicia* scattered shrubs over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** >7-10 years since fire

**Mesa A Site WAR06**

**Described** Raimond Orifici **Survey Date** 30/03/05 **Quadrat size** 50 x 50 m  
**Habitat** Broad cobbly drainage line  
**Soil** Red-brown sand loam, alluvial, pebbly and pisolithic. Soil only in scattered shallow patches on bedrock  
**Rock** Ironstone  
**Vegetation** *Acacia arida* (*Grevillea wickhamii*) scattered shrubs over *Triodia wiseana* scattered hummock grasses  
**Veg Condition** Excellent  
**Fire Age** No evidence of recent fire

**Mesa A Site WAR07**

**Described** Brian Morgan **Survey Date** 30/03/05 **Quadrat size** 50 x 50 m  
**Habitat** Flat surface of very gently undulating to flat low ridge  
**Soil** Gravelly, pebbly, cobbly red-brown sandy loam  
**Rock** Ironstone  
**Vegetation** *Acacia atkinsiana* tall open shrubland over *A. arida* open shrubland over *Triodia wiseana* hummock grassland  
**Veg Condition** Excellent  
**Fire Age** 7-10 years since fire  
**Note** Lots of *Tephrosia uniovulata* in nearby recently burnt area

**Mesa A Site Site YARPL01**

**Described** Brian Morgan **Survey Date** 7/04/05 **Quadrat size** 50 x 50 m  
**Habitat** Flood banks of the Robe River  
**Soil** Gravelly, pebbly, cobbly red-brown sand  
**Rock** Unknown  
**Vegetation**  
**Veg Condition** Excellent; some effects from 2004 flood  
**Fire Age** >5-7 years since fire

## Appendix 3

### Summary of Results of the PATN Floristic Analysis

Summary table showing the 25-group and 100-group levels defined for the current PATN analysis, and the vegetation types and sites from the Mesa A Transport Corridor study area within each group.

| gp25 | gp100 | Cape Preston | Mesa A / Mesa G | Mesa A Transport Corridor | Mesa J Extension | Millstream | Brockman 4 | Eight Mile Well | Four Corners Bore | West Angelas | Yandi Expansion | Mindy Mindy | Biota Vegetation Mapping Types (and Associated Sites / Relevés) from the Mesa A Transport Corridor Study (see Section 4.0 for explanation of vegetation codes)                                                                                                                                                                          |
|------|-------|--------------|-----------------|---------------------------|------------------|------------|------------|-----------------|-------------------|--------------|-----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 1     |              | 1               | 9                         | 2                |            |            |                 |                   |              |                 |             | ChAbTwTe (MATC02), AbCAoTw/h (MATH20), EcMaAtrPISg (MATH12, MATH14), CcAcoTw (MATH21), CcChAtrAbPITwTe (2MATC01), ChAsppGOrGspPISsTeTw (2MATC09, MATH23), EvAtrGOrPITw (2MATC06)                                                                                                                                                        |
|      | 2     |              |                 | 2                         |                  |            |            |                 |                   |              |                 |             | EcMaAtrPISg (MATMC, MATMD)                                                                                                                                                                                                                                                                                                              |
|      | 3     |              |                 | 9                         |                  |            |            |                 |                   |              |                 |             | ChAbTw (2MATC05, 2MATC07, 2MATC08), ChCzAtrAaTla (MATR20), AiAbTw (2MATC03, MATH22), ElAiApTtw (2MATC04), AtrTe (YARPL01), ChAtuTwTe (2MATC02)                                                                                                                                                                                          |
|      | 4     |              |                 | 1                         |                  | 1          |            |                 |                   |              |                 |             | AiAbTw (MATMA)                                                                                                                                                                                                                                                                                                                          |
|      | 5     |              | 5               | 23                        |                  |            |            |                 |                   |              |                 |             | AatAbTe (MATH19), AatAbTw (MATR16, MATR18), AiAaAbTw (MATR23), AsyAbAaTe (MATH13, MATR24, MATMF), AsyAbAaTw (MATR14, MATME), AxTw (MATH17), CcAaAbAsyTeTw (MATC01, MATR15, MATR21), ChAbTw (MATH15, MATH16, MATH18, MATR11, MATR12), ChAiAsyHcTe (MATR22), AiAarTw (MATH11), AxCAoTwTe/h (MATR13), CcTe (MATR19), CcAciAaAbTwTe (MATMI) |
| 2    | 6     |              |                 |                           |                  | 3          |            |                 | 2                 |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 7     |              |                 |                           |                  |            |            |                 | 2                 |              |                 | 2           |                                                                                                                                                                                                                                                                                                                                         |
|      | 8     |              |                 |                           |                  | 6          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 9     |              | 4               |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 10    |              | 4               |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 3    | 11    |              | 1               |                           |                  |            |            |                 |                   |              |                 |             | ElAtuAbTwERIm (MATR17)                                                                                                                                                                                                                                                                                                                  |
|      | 12    |              |                 | 1                         |                  |            | 11         |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 13    |              |                 |                           |                  |            | 1          |                 |                   |              | 16              | 6           |                                                                                                                                                                                                                                                                                                                                         |
|      | 14    |              |                 |                           |                  |            |            |                 |                   |              | 7               | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 15    |              |                 |                           |                  |            | 2          |                 |                   |              | 4               |             |                                                                                                                                                                                                                                                                                                                                         |
| 4    | 16    |              |                 |                           |                  |            |            |                 |                   |              | 1               | 10          |                                                                                                                                                                                                                                                                                                                                         |
| 5    | 17    |              |                 |                           |                  | 1          |            |                 | 1                 |              | 2               |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 18    |              |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 19    |              |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 20    | 10           |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 6    | 21    | 13           |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 22    | 24           |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 23    | 15           |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 24    | 18           |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 7    | 25    | 10           |                 | 1                         |                  |            |            |                 |                   |              |                 |             | ERITw (MATMB)                                                                                                                                                                                                                                                                                                                           |
|      | 26    |              |                 |                           |                  | 4          |            |                 | 2                 |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 27    |              |                 |                           |                  | 5          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 28    |              |                 |                           |                  | 5          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 8    | 29    |              |                 |                           |                  |            | 3          |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 30    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 31    |              |                 |                           |                  | 4          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 9    | 32    | 7            |                 |                           |                  |            | 1          |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 33    | 2            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 34    | 2            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 35    | 4            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 36    |              |                 |                           |                  | 2          |            |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 37    |              |                 |                           |                  | 1          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 38    | 4            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 39    | 1            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 10   | 40    | 1            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 41    | 4            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 11   | 42    | 3            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 43    | 1            |                 |                           |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 12   | 44    |              |                 |                           |                  | 10         |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 45    |              |                 |                           |                  |            |            |                 |                   | 7            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 46    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 13   | 47    |              |                 |                           |                  |            |            |                 | 2                 | 14           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 48    |              |                 |                           |                  |            |            |                 |                   | 8            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 49    |              |                 |                           |                  |            |            |                 |                   | 4            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 50    |              |                 |                           |                  |            |            |                 |                   | 15           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 14   | 51    |              |                 |                           |                  |            |            |                 | 16                |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 52    |              |                 |                           |                  |            |            | 2               | 3                 |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 53    |              |                 |                           |                  |            |            |                 | 5                 |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 15   | 54    |              |                 |                           |                  |            |            |                 |                   | 17           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 55    |              |                 |                           |                  |            |            |                 |                   | 3            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 16   | 56    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 57    |              |                 |                           |                  |            |            |                 |                   | 4            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 58    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 59    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 60    |              |                 |                           |                  |            |            |                 |                   | 5            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 61    |              |                 |                           |                  |            |            |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 62    |              |                 |                           |                  |            |            |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 63    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 64    |              |                 |                           |                  |            |            |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 65    |              |                 |                           |                  |            |            |                 |                   | 2            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 17   | 66    |              |                 |                           |                  |            |            |                 |                   | 28           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 67    |              |                 |                           |                  |            |            |                 |                   | 18           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 68    |              |                 |                           |                  |            |            |                 |                   | 7            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 69    |              |                 |                           |                  |            |            |                 |                   | 39           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 18   | 70    |              | 2               |                           |                  |            |            |                 | 2                 |              |                 |             | ChCzAtrAaTla (MATC04), ChAtuTwTe (WAR02)                                                                                                                                                                                                                                                                                                |
|      | 71    |              |                 |                           |                  | 4          |            |                 |                   | 1            |                 | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 72    |              |                 |                           |                  | 18         |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 73    |              | 1               | 2                         |                  | 11         |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 19   | 74    |              |                 |                           |                  | 20         |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 75    |              |                 |                           |                  |            |            |                 | 5                 |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 76    |              |                 |                           |                  |            |            |                 | 2                 |              |                 | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 77    |              |                 |                           |                  |            |            |                 |                   |              |                 | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 78    |              |                 |                           |                  |            |            |                 | 1                 | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 20   | 79    |              |                 |                           |                  | 5          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 21   | 80    |              |                 |                           |                  |            |            |                 | 2                 |              | 15              | 13          |                                                                                                                                                                                                                                                                                                                                         |
|      | 81    |              |                 |                           |                  |            | 18         |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 82    |              |                 |                           |                  |            | 8          |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 22   | 83    |              |                 |                           |                  | 12         |            |                 |                   |              |                 |             | AiAbTw (MAT04)<br>ElAtuAbTwERIm (MAT05)                                                                                                                                                                                                                                                                                                 |
|      | 84    |              | 8               | 1                         | 2                |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 85    |              | 5               |                           |                  | 1          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 86    |              | 4               | 1                         |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 87    |              | 1               |                           | 1                |            |            |                 |                   | 1            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 23   | 88    |              |                 |                           | 5                |            |            |                 |                   | 1            |                 |             | AsyAbAaTw (WAR05), ChCzAtrAaTla (MATMH), AatAiAarAbTw (WAR04), ElAarTw (MATC03), ElAatAarTw (WAR01, WAR07, MATMG)<br>ElAatAtuGwTw (WAR03), ElCcAtuAarTw (WAR06)                                                                                                                                                                         |
|      | 89    |              | 16              | 7                         |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 90    |              | 3               | 2                         |                  |            |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 24   | 91    |              |                 |                           |                  |            | 1          |                 | 1                 | 1            |                 | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 92    |              |                 |                           |                  | 1          |            |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 93    |              |                 |                           |                  |            | 7          |                 |                   |              |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 94    |              |                 |                           |                  |            |            |                 |                   | 9            |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 95    |              |                 |                           |                  |            | 1          |                 |                   | 14           |                 | 1           |                                                                                                                                                                                                                                                                                                                                         |
|      | 96    |              |                 |                           |                  |            |            |                 |                   | 10           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
| 25   | 97    |              |                 |                           |                  |            |            |                 |                   | 18           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 98    |              |                 |                           |                  |            | 1          |                 |                   | 29           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 99    |              |                 |                           |                  |            |            |                 |                   | 22           |                 |             |                                                                                                                                                                                                                                                                                                                                         |
|      | 100   |              |                 |                           |                  |            |            |                 |                   | 10           |                 |             |                                                                                                                                                                                                                                                                                                                                         |

EXPLANATION OF PROJECT CODES

|                           |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| Cape Preston              | Cape Preston mine area, west of Dampier (Biota and Trudgen 1998)                                   |
| Mesa A/ Mesa G            | Mesa A and Mesa G mine areas (Biota 2005a)                                                         |
| Mesa A Transport Corridor | Mesa A transport corridor, Warramboos Deposit and Yarraloola borefield study area (this study)     |
| Mesa J Extension          | Mesa J Extension mine area (Biota 2003)                                                            |
| Millstream                | West Angelas Millstream Rail Segment (Trudgen)                                                     |
| Brockman 4                | Brockman 4 survey area (Biota 2005e)                                                               |
| Eight Mile Well           | West Angelas Eight Mile Well survey (Trudgen and Casson 1998)                                      |
| Four Corners Bore         | West Angelas Four Corners Bore rail corridor (Trudgen and Casson 1998)                             |
| West Angelas              | West Angelas mine area (Trudgen and Casson 1998)                                                   |
| Yandi Expansion           | Hammersley Iron Yandi Expansion area (Biota 2004a)                                                 |
| Mindy Mindy               | Mindy Mindy mine area surveyed as part of FMG Stage B rail corridor and mines survey (Biota 2004b) |

Colour-coding as follows: stony plains; stony hills; clay vegetation; major creeklines; minor creeklines

## Appendix 4

List of Vascular Flora Recorded from the Study Area, Together with Records from the Mesa A and Mesa G, Bungaroo and Mesa J Extension Study Areas

NB. \* denotes introduced species (weeds).

Comparison of *Cassia* vs. *Senna* nomenclature:

|                           |   |                                                      |
|---------------------------|---|------------------------------------------------------|
| <i>Cassia glutinosa</i>   | - | <i>Senna glutinosa</i> subsp. <i>glutinosa</i>       |
| <i>Cassia helmsii</i>     | - | <i>Senna artemisioides</i> subsp. <i>helmsii</i>     |
| <i>Cassia luerseii</i>    | - | <i>Senna glutinosa</i> subsp. <i>x luerseii</i>      |
| <i>Cassia stricta</i>     | - | <i>Senna stricta</i>                                 |
| <i>Cassia notabilis</i>   | - | <i>Senna notabilis</i>                               |
| <i>Cassia oligophylla</i> | - | <i>Senna artemisioides</i> subsp. <i>oligophylla</i> |
| <i>Cassia pruinosa</i>    | - | <i>Senna glutinosa</i> subsp. <i>pruinosa</i>        |
| <i>Cassia venusta</i>     | - | <i>Senna venusta</i>                                 |

| FAMILY (Green No.) / Species                              | Mesa A Transport Corridor (this study) | Mesa A and Mesa G (Biota 2005a) | Bungaroo (Biota 2005c) | Mesa J Extension (Biota 2003) |
|-----------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>ADIANTACEAE (007)</b>                                  |                                        |                                 |                        |                               |
| <i>Ceratopteris thalictroides</i>                         | x                                      |                                 |                        | x                             |
| <i>Cheilanthes brownii</i>                                |                                        | x                               | x                      |                               |
| <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>          | x                                      | x                               | x                      |                               |
| <b>AIZOACEAE (110)</b>                                    |                                        |                                 |                        |                               |
| <i>Trianthema glossostigma</i>                            | x                                      |                                 |                        |                               |
| <i>Trianthema oxycalyptra</i> var. <i>oxycalyptra</i>     | x                                      |                                 |                        |                               |
| <i>Trianthema pilosa</i>                                  | x                                      |                                 | x                      |                               |
| <i>Trianthema triquetra</i>                               | x                                      | x                               | x                      |                               |
| <i>Zaleya galericulata</i>                                |                                        |                                 | x                      |                               |
| <b>AMARANTHACEAE (106)</b>                                |                                        |                                 |                        |                               |
| * <i>Aerva javanica</i>                                   | x                                      |                                 |                        |                               |
| <i>Achyranthes aspera</i>                                 | x                                      |                                 |                        |                               |
| <i>Alternanthera nana</i>                                 | x                                      | x                               | x                      | x                             |
| <i>Alternanthera nodiflora</i>                            | x                                      |                                 |                        |                               |
| <i>Amaranthus</i> aff. <i>interruptus</i> (MATHB-117)     | x                                      |                                 |                        |                               |
| <i>Amaranthus</i> aff. <i>interruptus</i> (MET 16,114)    | x                                      | x                               |                        |                               |
| <i>Amaranthus mitchellii</i>                              |                                        |                                 |                        | x                             |
| <i>Amaranthus pallidiflorus</i>                           | x                                      | x                               | x                      |                               |
| <i>Amaranthus</i> aff. <i>pallidiflorus</i> (D89)         |                                        | x                               |                        |                               |
| <i>Amaranthus</i> sp. (WES26-16)                          | x                                      |                                 |                        |                               |
| <i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>        | x                                      | x                               |                        |                               |
| <i>Gomphrena cunninghamii</i>                             | x                                      | x                               | x                      | x                             |
| <i>Ptilotus aeroides</i>                                  | x                                      |                                 |                        |                               |
| <i>Ptilotus appendiculatus</i> var. <i>appendiculatus</i> | x                                      | x                               | x                      | x                             |
| <i>Ptilotus arthrolasius</i>                              | x                                      | x                               |                        |                               |
| <i>Ptilotus astrolasius</i> var. <i>astrolasius</i>       | x                                      | x                               | x                      | x                             |
| <i>Ptilotus auriculifolius</i>                            | x                                      | x                               | x                      |                               |
| <i>Ptilotus axillaris</i>                                 | x                                      | x                               | x                      | x                             |
| <i>Ptilotus calostachyus</i> var. <i>calostachyus</i>     | x                                      | x                               | x                      | x                             |
| <i>Ptilotus clementii</i>                                 | x                                      |                                 |                        |                               |
| <i>Ptilotus exaltatus</i> var. <i>exaltatus</i>           | x                                      | x                               | x                      |                               |
| <i>Ptilotus fusiformis</i> var. <i>fusiformis</i>         | x                                      | x                               | x                      | x                             |
| <i>Ptilotus gaudichaudii</i> var. <i>gaudichaudii</i>     | x                                      |                                 |                        |                               |
| <i>Ptilotus gomphrenoides</i> var. <i>gomphrenoides</i>   | x                                      |                                 |                        |                               |
| <i>Ptilotus incanus</i> var. <i>incanus</i>               | x                                      | x                               |                        |                               |
| <i>Ptilotus macrocephalus</i>                             | x                                      |                                 |                        |                               |
| <i>Ptilotus murrayi</i>                                   | x                                      |                                 |                        |                               |
| <i>Ptilotus obovatus</i> var. <i>obovatus</i>             | x                                      |                                 | x                      |                               |
| <i>Ptilotus polystachyus</i> var. <i>polystachyus</i>     | x                                      |                                 |                        |                               |
| <b>ANTHERICACEAE (054F)</b>                               |                                        |                                 |                        |                               |
| <i>Corynotheca pungens</i>                                |                                        | x                               |                        |                               |
| <b>APIACEAE (281)</b>                                     |                                        |                                 |                        |                               |
| <i>Trachymene oleracea</i> subsp. <i>oleracea</i>         | x                                      | x                               | x                      | x                             |
| <b>ARECACEAE (033)</b>                                    |                                        |                                 |                        |                               |
| * <i>Phoenix dactylifera</i>                              | x                                      |                                 |                        |                               |
| <b>ASCLEPIADACEAE (305)</b>                               |                                        |                                 |                        |                               |
| <i>Cynanchum floribundum</i>                              |                                        | x                               | x                      |                               |
| <i>Sarcostemma viminalis</i> subsp. <i>australe</i>       | x                                      | x                               |                        |                               |
| <b>ASTERACEAE (345)</b>                                   |                                        |                                 |                        |                               |
| <i>Angianthus acrohyalinus</i>                            | x                                      |                                 |                        |                               |
| * <i>Bidens bipinnata</i>                                 | x                                      | x                               |                        |                               |
| <i>Blumea tenella</i>                                     | x                                      |                                 |                        |                               |
| <i>Calocephalus knappii</i>                               | x                                      |                                 |                        | x                             |

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|----------------------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>ASTERACEAE (continued)</b>                                        |                                        |                                 |                        |                               |
| <i>Calocephalus</i> sp. Pilbara-Desert (M.E. Trudgen 11454)          | x                                      |                                 |                        |                               |
| <i>Calotis hispidula</i>                                             | x                                      |                                 |                        |                               |
| <i>Calotis plumulifera</i>                                           | x                                      |                                 |                        |                               |
| <i>Centipeda minima</i> subsp. <i>macrocephala</i>                   | x                                      | x                               | x                      |                               |
| <i>Flaveria australasica</i>                                         | x                                      | x                               | x                      |                               |
| <i>Gnephosis arachnoidea</i>                                         | x                                      |                                 |                        |                               |
| <i>Ixiochlamys cuneifolia</i>                                        | x                                      |                                 |                        |                               |
| <i>*Lactuca serriola</i>                                             |                                        |                                 | x                      |                               |
| <i>Pentalepis trichodesmoides</i>                                    | x                                      | x                               | x                      | x                             |
| <i>Pluchea dentex</i>                                                | x                                      | x                               | x                      |                               |
| <i>Pluchea dunlopia</i>                                              | x                                      |                                 | x                      | x                             |
| <i>Pluchea ferdinandi-muelleri</i>                                   | x                                      |                                 |                        |                               |
| <i>Pluchea rubelliflora</i>                                          | x                                      | x                               |                        |                               |
| <i>Pluchea tetranthera</i>                                           | x                                      | x                               |                        |                               |
| <i>Pterocaulon sphacelatum</i>                                       |                                        | x                               |                        | x                             |
| <i>Pterocaulon sphaeranthoides</i>                                   | x                                      | x                               |                        |                               |
| <i>Pterocaulon sphaeranthoides</i> x <i>sphacelatum</i>              | x                                      |                                 | x                      |                               |
| <i>Rhodanthe floribunda</i>                                          | x                                      |                                 |                        |                               |
| <i>Rhodanthe margarethae</i>                                         | x                                      | x                               | x                      |                               |
| <i>*Sonchus oleraceus</i>                                            | x                                      |                                 |                        |                               |
| <i>Streptoglossa bubakii</i>                                         | x                                      | x                               | x                      |                               |
| <i>Streptoglossa decurrens</i>                                       | x                                      |                                 | x                      |                               |
| <i>Streptoglossa liatroides</i>                                      | x                                      |                                 |                        |                               |
| <i>Streptoglossa odora</i>                                           | x                                      |                                 |                        |                               |
| <i>Vittadinia</i> sp.                                                | x                                      |                                 |                        |                               |
| <b>BORAGINACEAE (310)</b>                                            |                                        |                                 |                        |                               |
| <i>Ehretia saligna</i> var. <i>saligna</i>                           | x                                      |                                 | x                      |                               |
| <i>Heliotropium chrysocarpum</i>                                     | x                                      |                                 | x                      |                               |
| <i>Heliotropium crispatum</i>                                        | x                                      |                                 |                        |                               |
| <i>Heliotropium cunninghamii</i>                                     | x                                      | x                               |                        |                               |
| <i>Heliotropium heteranthum</i>                                      | x                                      | x                               |                        |                               |
| <i>Heliotropium inexplicitum</i>                                     |                                        |                                 | x                      |                               |
| <i>Heliotropium ?inexplicitum</i>                                    | x                                      |                                 |                        |                               |
| <i>Heliotropium tenuifolium</i>                                      | x                                      | x                               | x                      |                               |
| <i>Heliotropium transforme</i>                                       | x                                      | x                               |                        |                               |
| <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>                 | x                                      | x                               | x                      | x                             |
| <b>BRASSICACEAE (138)</b>                                            |                                        |                                 |                        |                               |
| <i>Lepidium muelleri-ferdinandii</i>                                 | x                                      |                                 |                        |                               |
| <i>Lepidium pedicellosum</i>                                         | x                                      |                                 |                        |                               |
| <i>Lepidium phlebopetalum</i>                                        | x                                      |                                 |                        |                               |
| <i>Lepidium pholidogynum</i>                                         | x                                      |                                 | x                      |                               |
| <i>Lepidium platypetalum</i>                                         | x                                      |                                 |                        |                               |
| <b>CAESALPINIACEAE (164)</b>                                         |                                        |                                 |                        |                               |
| <i>Cassia glutinosa</i>                                              | x                                      | x                               | x                      | x                             |
| <i>Cassia glutinosa</i> x <i>luerssenii</i>                          |                                        | x                               | x                      | x                             |
| <i>Cassia glutinosa</i> x aff. <i>oligophylla</i> (thinly sericeous) | x                                      |                                 |                        |                               |
| <i>Cassia glutinosa</i> x ? <i>oligophylla</i>                       | x                                      |                                 |                        |                               |
| <i>Cassia helmsii</i>                                                | x                                      |                                 |                        |                               |
| <i>Cassia luerssenii</i>                                             | x                                      | x                               | x                      | x                             |
| <i>Cassia luerssenii</i> x 'stricta'                                 | x                                      | x                               |                        |                               |
| <i>Cassia notabilis</i>                                              | x                                      | x                               | x                      | x                             |
| <i>Cassia oligophylla</i>                                            | x                                      | x                               | x                      | x                             |
| <i>Cassia oligophylla</i> x <i>glutinosa</i>                         |                                        |                                 | x                      |                               |
| <i>Cassia oligophylla</i> x <i>helmsii</i>                           |                                        | x                               | x                      | x                             |
| <i>Cassia</i> aff. <i>oligophylla</i> (thinly sericeous)             | x                                      | x                               | x                      |                               |
| <i>Cassia</i> ? <i>oligophylla</i> x                                 | x                                      | x                               |                        |                               |
| <i>Cassia pruinosa</i>                                               | x                                      | x                               | x                      | x                             |
| <i>Cassia pruinosa</i> x <i>luerssenii</i>                           |                                        | x                               |                        |                               |
| <i>Cassia venusta</i>                                                | x                                      | x                               | x                      |                               |
| <i>Cassia</i> sp.                                                    |                                        |                                 | x                      |                               |
| <i>*Parkinsonia aculeata</i>                                         | x                                      |                                 |                        |                               |
| <i>Petalostylis cassioides</i>                                       | x                                      |                                 |                        |                               |
| <i>Petalostylis labicheoides</i>                                     | x                                      | x                               | x                      | x                             |

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| <b>CAMPANULACEAE (339)</b>                                     |                                        |                                 |                        |                               |
| <i>Wahlenbergia tumidifructa</i>                               | x                                      |                                 |                        |                               |
| <b>CAPPARACEAE (137A)</b>                                      |                                        |                                 |                        |                               |
| <i>Capparis spinosa</i> var. <i>nummularia</i>                 | x                                      | x                               | x                      | x                             |
| <i>Capparis umbonata</i>                                       | x                                      |                                 |                        |                               |
| <i>Cleome uncifera</i>                                         | x                                      | x                               |                        |                               |
| <i>Cleome viscosa</i>                                          | x                                      | x                               | x                      | x                             |
| <b>CARYOPHYLLACEAE (113)</b>                                   |                                        |                                 |                        |                               |
| <i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>             | x                                      | x                               |                        |                               |
| <i>Polycarpaea holtzei</i>                                     | x                                      |                                 | x                      |                               |
| <i>Polycarpaea longiflora</i>                                  | x                                      | x                               | x                      | x                             |
| <b>CHENOPODIACEAE (105)</b>                                    |                                        |                                 |                        |                               |
| ? <i>Chenopodium gaudichaudianum</i>                           | x                                      |                                 |                        |                               |
| <i>Chenopodium melanocarpum</i>                                | x                                      | x                               |                        |                               |
| <i>Dysphania glomulifera</i> subsp. <i>eremaea</i>             | x                                      | x                               |                        |                               |
| <i>Dysphania kalpari</i>                                       | x                                      |                                 |                        |                               |
| <i>Dysphania plantaginella</i>                                 | x                                      |                                 |                        |                               |
| <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>   | x                                      | x                               | x                      | x                             |
| <i>Dysphania</i> sp.                                           | x                                      |                                 |                        |                               |
| <i>Enchylaena tomentosa</i> var. <i>tomentosa</i>              | x                                      |                                 |                        |                               |
| <i>Maireana melanocoma</i>                                     | x                                      |                                 |                        |                               |
| <i>Maireana planifolia</i>                                     | x                                      |                                 |                        |                               |
| <i>Rhagodia eremaea</i>                                        | x                                      | x                               | x                      |                               |
| <i>Salsola tragus</i>                                          | x                                      | x                               | x                      |                               |
| <i>Sclerolaena costata</i>                                     | x                                      |                                 |                        |                               |
| <i>Sclerolaena densiflora</i>                                  | x                                      |                                 |                        |                               |
| <b>CONVOLVULACEAE (307)</b>                                    |                                        |                                 |                        |                               |
| <i>Bonamia linearis</i>                                        | x                                      | x                               |                        |                               |
| <i>Bonamia media</i> var. <i>villosa</i>                       | x                                      | x                               | x                      | x                             |
| <i>Bonamia pannosa</i>                                         | x                                      | x                               | x                      |                               |
| <i>Bonamia rosea</i>                                           | x                                      | x                               | x                      |                               |
| <i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>   | x                                      |                                 |                        |                               |
| <i>Evolvulus alsinoides</i> var. <i>decumbens</i>              | x                                      | x                               | x                      |                               |
| <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>           | x                                      | x                               | x                      | x                             |
| <i>Ipomoea coptica</i>                                         | x                                      |                                 |                        |                               |
| <i>Ipomoea muelleri</i>                                        | x                                      | x                               | x                      | x                             |
| <i>Operculina aequiseipala</i>                                 |                                        |                                 | x                      |                               |
| <i>Polymeria ambigua/calycina</i>                              | x                                      |                                 | x                      | x                             |
| <i>Porana commixta</i>                                         | x                                      | x                               | x                      |                               |
| <b>CUCURBITACEAE (337)</b>                                     |                                        |                                 |                        |                               |
| * <i>Citrullus colocynthis</i>                                 | x                                      | x                               |                        |                               |
| <i>Cucumis melo</i> subsp. <i>agrestis</i>                     | x                                      | x                               |                        |                               |
| <i>Mukia maderaspatana</i>                                     | x                                      | x                               | x                      | x                             |
| <i>Mukia</i> sp. D Flora of Australia (A.A. Mitchell PRP 1121) | x                                      | x                               |                        |                               |
| <i>Trichosanthes cucumerina</i>                                | x                                      |                                 |                        |                               |
| <b>CYPERACEAE (032)</b>                                        |                                        |                                 |                        |                               |
| <i>Bulbostylis barbata</i>                                     | x                                      | x                               | x                      |                               |
| <i>Bulbostylis turbinata</i>                                   | x                                      |                                 |                        |                               |
| <i>Cyperus bifax</i>                                           | x                                      | x                               |                        |                               |
| <i>Cyperus cunninghamii</i> subsp. <i>cunninghamii</i>         | x                                      | x                               | x                      |                               |
| <i>Cyperus difformis</i>                                       |                                        | x                               |                        |                               |
| <i>Cyperus hesperius</i>                                       | x                                      | x                               | x                      | x                             |
| <i>Cyperus iria</i>                                            | x                                      |                                 |                        |                               |
| <i>Cyperus squarrosus</i>                                      | x                                      | x                               |                        |                               |
| <i>Cyperus vaginatus</i>                                       | x                                      | x                               | x                      | x                             |
| <i>Eleocharis atropurpurea</i>                                 |                                        | x                               |                        |                               |
| <i>Eleocharis dulcis</i>                                       | x                                      |                                 |                        | x                             |
| <i>Eleocharis geniculata</i>                                   | x                                      |                                 |                        |                               |
| <i>Fimbristylis dichotoma</i>                                  | x                                      | x                               | x                      |                               |
| <i>Fimbristylis microcarya</i>                                 |                                        | x                               |                        |                               |
| <i>Schoenoplectus subulatus</i>                                | x                                      |                                 |                        |                               |
| <b>ELATINACEAE (235)</b>                                       |                                        |                                 |                        |                               |
| <i>Bergia pedicellaris</i>                                     | x                                      | x                               | x                      |                               |
| <i>Bergia perennis</i> subsp. <i>perennis</i>                  | x                                      |                                 |                        |                               |
| <i>Bergia trimera</i>                                          | x                                      |                                 | x                      |                               |

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| <b>EUPHORBIACEAE (185)</b>                                           |                                        |                                 |                        |                               |
| <i>Adriana urticoides</i> var. <i>urticoides</i>                     | x                                      |                                 | x                      |                               |
| <i>Euphorbia australis</i>                                           | x                                      |                                 | x                      |                               |
| <i>Euphorbia australis</i> (mid-green form)                          | x                                      | x                               |                        |                               |
| <i>Euphorbia</i> aff. <i>australis</i> (B191)                        |                                        | x                               |                        |                               |
| <i>Euphorbia</i> aff. <i>australis</i>                               | x                                      |                                 |                        |                               |
| <i>Euphorbia biconvexa</i>                                           | x                                      | x                               |                        | x                             |
| <i>Euphorbia boophthona</i> (large seed form)                        | x                                      | x                               |                        | x                             |
| <i>Euphorbia careyi</i>                                              | x                                      | x                               | x                      |                               |
| <i>Euphorbia coghlanii</i>                                           | x                                      | x                               | x                      |                               |
| <i>Euphorbia</i> aff. <i>drummondii</i> (M87)                        | x                                      |                                 |                        |                               |
| <i>Euphorbia</i> aff. <i>drummondii</i> (MET 15,211)                 | x                                      |                                 |                        |                               |
| * <i>Euphorbia hirta</i>                                             | x                                      | x                               |                        |                               |
| <i>Euphorbia</i> aff. <i>schultzei</i>                               |                                        |                                 |                        | x                             |
| <i>Euphorbia tannensis</i> subsp. <i>eremophila</i> (Hamersley form) | x                                      | x                               | x                      | x                             |
| <i>Euphorbia wheeleri</i>                                            | x                                      |                                 |                        |                               |
| <i>Euphorbia</i> sp. (BPBS10-50)                                     |                                        | x                               |                        |                               |
| <i>Euphorbia</i> sp. (MJB-05)                                        | x                                      | x                               |                        |                               |
| <i>Euphorbia</i> sp. (site 1089)                                     | x                                      |                                 | x                      |                               |
| <i>Euphorbia</i> sp. (site 1163)                                     |                                        |                                 |                        | x                             |
| <i>Euphorbia</i> sp. (not yet identified)                            | x                                      |                                 |                        |                               |
| <i>Flueggea virosa</i> subsp. <i>melanthesoides</i>                  | x                                      | x                               | x                      | x                             |
| <i>Leptopus decaisnei</i> var. <i>decaisnei</i>                      | x                                      | x                               | x                      | x                             |
| <i>Phyllanthus aridus</i>                                            | x                                      |                                 |                        |                               |
| <i>Phyllanthus erwinii</i>                                           | x                                      | x                               | x                      |                               |
| <i>Phyllanthus maderaspatensis</i>                                   | x                                      | x                               | x                      | x                             |
| <i>Phyllanthus reticulatus</i>                                       |                                        |                                 | x                      |                               |
| <b>GENTIANACEAE (303)</b>                                            |                                        |                                 |                        |                               |
| <i>Centaurium clementii</i>                                          | x                                      |                                 |                        |                               |
| <b>GOODENIACEAE (341)</b>                                            |                                        |                                 |                        |                               |
| <i>Dampiera candidans</i>                                            | x                                      | x                               | x                      | x                             |
| <i>Goodenia forrestii</i>                                            | x                                      | x                               | x                      | x                             |
| <i>Goodenia lamprosperma</i>                                         | x                                      | x                               | x                      |                               |
| <i>Goodenia microptera</i>                                           | x                                      | x                               | x                      |                               |
| <i>Goodenia stobbsiana</i>                                           | x                                      | x                               | x                      | x                             |
| <i>Goodenia tenuiloba</i>                                            | x                                      |                                 |                        |                               |
| <i>Scaevola parvifolia</i> subsp. <i>pilbarae</i>                    | x                                      |                                 |                        |                               |
| <i>Scaevola spinescens</i>                                           | x                                      |                                 |                        | x                             |
| <i>Scaevola spinescens</i> (broad form)                              | x                                      | x                               | x                      | x                             |
| <i>Velleia connata</i>                                               | x                                      | x                               |                        |                               |
| <b>GYROSTEMONACEAE (108)</b>                                         |                                        |                                 |                        |                               |
| <i>Codonocarpus cotinifolius</i>                                     | x                                      | x                               | x                      |                               |
| <b>HALORAGACEAE (276)</b>                                            |                                        |                                 |                        |                               |
| <i>Haloragis gossei</i>                                              | x                                      | x                               |                        |                               |
| <i>Haloragis maierae</i>                                             | x                                      |                                 |                        |                               |
| <b>LAMIACEAE (313)</b>                                               |                                        |                                 |                        |                               |
| <i>Basilicum polystachyon</i>                                        | x                                      |                                 |                        |                               |
| <i>Clerodendrum floribundum</i> var. <i>angustifolium</i>            | x                                      | x                               | x                      | x                             |
| * <i>Ocimum basilicum</i>                                            | x                                      |                                 |                        |                               |
| <b>LAURACEAE (131)</b>                                               |                                        |                                 |                        |                               |
| <i>Cassytha capillaris</i>                                           | x                                      | x                               | x                      | x                             |
| <b>LOBELIACEAE (340)</b>                                             |                                        |                                 |                        |                               |
| <i>Lobelia heterophylla</i>                                          | x                                      |                                 |                        |                               |
| <i>Lobelia quadrangularis</i>                                        | x                                      | x                               | x                      |                               |
| <b>LORANTHACEAE (097)</b>                                            |                                        |                                 |                        |                               |
| <i>Amyema preissii</i>                                               | x                                      | x                               | x                      |                               |
| <i>Diplatia grandibractea</i>                                        |                                        | x                               |                        |                               |
| <i>Lysiana casuarinae</i>                                            | x                                      | x                               |                        | x                             |
| <b>LYTHRACEAE (265)</b>                                              |                                        |                                 |                        |                               |
| <i>Ammannia baccifera</i>                                            | x                                      | x                               |                        |                               |
| <i>Ammannia multiflora</i>                                           |                                        | x                               |                        |                               |
| <i>Ammannia</i> sp.                                                  |                                        |                                 | x                      |                               |

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| <b>MALVACEAE (221)</b>                                          |                                        |                                 |                        |                               |
| <i>Abutilon amplum</i>                                          | x                                      |                                 | x                      |                               |
| <i>Abutilon dioicum</i>                                         | x                                      |                                 | x                      |                               |
| <i>Abutilon</i> aff. <i>dioicum</i> (HD195)                     |                                        | x                               |                        |                               |
| <i>Abutilon</i> aff. <i>dioicum</i> (HD72-14)                   |                                        | x                               |                        |                               |
| <i>Abutilon</i> aff. <i>dioicum</i>                             | x                                      |                                 |                        | x                             |
| <i>Abutilon fraseri</i>                                         | x                                      | x                               | x                      | x                             |
| <i>Abutilon</i> aff. <i>hannii</i>                              | x                                      |                                 |                        | x                             |
| <i>Abutilon lepidum</i>                                         | x                                      |                                 |                        |                               |
| <i>Abutilon macrum</i>                                          | x                                      |                                 |                        |                               |
| <i>Abutilon malvifolium</i>                                     | x                                      |                                 |                        |                               |
| <i>Abutilon otocarpum</i>                                       | x                                      | x                               |                        |                               |
| <i>Abutilon otocarpum</i> (acute leaf form)                     | x                                      |                                 |                        |                               |
| <i>Abutilon oxycarpum</i> subsp. <i>prostratum</i>              | x                                      |                                 |                        |                               |
| <i>Abutilon trudgenii</i>                                       | x                                      | x                               | x                      |                               |
| <i>Abutilon</i> sp.                                             | x                                      | x                               | x                      |                               |
| <i>Gossypium australe</i> (Burrup Peninsula form)               | x                                      | x                               | x                      | x                             |
| <i>Gossypium australe</i> (Whim Creek form)                     | x                                      |                                 |                        |                               |
| <i>Gossypium robinsonii</i>                                     | x                                      | x                               | x                      | x                             |
| <i>Hibiscus brachychlaenus</i>                                  | x                                      | x                               |                        |                               |
| <i>Hibiscus brachysiphonius</i>                                 | x                                      |                                 |                        |                               |
| <i>Hibiscus burtonii</i>                                        |                                        | x                               | x                      |                               |
| <i>Hibiscus coatesii</i>                                        |                                        | x                               |                        |                               |
| <i>Hibiscus</i> aff. <i>coatesii</i> (MET 16,542)               | x                                      |                                 |                        |                               |
| <i>Hibiscus</i> aff. <i>coatesii</i>                            |                                        | x                               | x                      |                               |
| <i>Hibiscus goldsworthii</i>                                    | x                                      |                                 | x                      |                               |
| <i>Hibiscus leptocladus</i>                                     | x                                      | x                               | x                      |                               |
| <i>Hibiscus panduriformis</i>                                   | x                                      |                                 |                        |                               |
| <i>Hibiscus platyklamys</i>                                     | x                                      | x                               |                        |                               |
| <i>Hibiscus</i> aff. <i>platyklamys</i> (2MATC2-4)              | x                                      |                                 |                        |                               |
| <i>Hibiscus</i> aff. <i>platyklamys</i> (FMG88-08)              |                                        | x                               | x                      |                               |
| <i>Hibiscus</i> aff. <i>platyklamys</i> (site 1139)             |                                        | x                               | x                      |                               |
| <i>Hibiscus sturtii</i> var. <i>campylochlamys</i>              | x                                      | x                               | x                      |                               |
| <i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i>           | x                                      | x                               | x                      |                               |
| <i>Hibiscus sturtii</i> var. aff. <i>grandiflorus</i> (MATB-57) | x                                      |                                 |                        |                               |
| <i>Hibiscus</i> aff. <i>sturtii</i>                             | x                                      | x                               |                        |                               |
| * <i>Malvastrum americanum</i>                                  | x                                      | x                               | x                      | x                             |
| <i>Sida cardiophylla</i>                                        | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>cardiophylla</i> (FMG102-7)                 | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>cardiophylla</i> (site 1086)                | x                                      |                                 | x                      |                               |
| <i>Sida</i> aff. <i>cardiophylla</i> (site 1215)                | x                                      | x                               |                        |                               |
| <i>Sida clementii</i>                                           | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>clementii</i> (site 664)                    |                                        | x                               |                        |                               |
| <i>Sida echinocarpa</i>                                         | x                                      | x                               | x                      | x                             |
| <i>Sida</i> aff. <i>fibulifera</i> (form not determined)        |                                        | x                               | x                      |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (HD12-39)                    | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (MET 16,494)                 | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (MET Site 1308)              | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (MET Site 1346)              | x                                      |                                 |                        |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (oblong; MET 15 220)         |                                        |                                 | x                      |                               |
| <i>Sida</i> aff. <i>fibulifera</i> (site 1394)                  | x                                      |                                 |                        |                               |
| <i>Sida kingii</i>                                              | x                                      |                                 |                        |                               |
| <i>Sida pilbarensis</i>                                         |                                        |                                 |                        | x                             |
| <i>Sida rohlena</i> subsp. <i>rohlena</i>                       | x                                      | x                               | x                      |                               |
| <i>Sida spinosa</i>                                             | x                                      |                                 |                        |                               |
| <i>Sida subarticulata</i>                                       |                                        |                                 | x                      |                               |
| <i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90)    | x                                      |                                 | x                      |                               |
| <i>Sida</i> sp. Wittenoom (W.R. Barker 1962)                    | x                                      | x                               | x                      |                               |
| <i>Sida</i> sp. 'rugose'                                        | x                                      |                                 |                        |                               |
| <i>Sida</i> sp. (seedlings)                                     | x                                      |                                 |                        |                               |
| <b>MARSILEACEAE (013)</b>                                       |                                        |                                 |                        |                               |
| <i>Marsilea hirsuta</i>                                         | x                                      |                                 |                        |                               |
| <i>Marsilea</i> sp.                                             |                                        | x                               |                        |                               |
| <b>MENISPERMACEAE (122)</b>                                     |                                        |                                 |                        |                               |
| <i>Tinospora smilacina</i>                                      | x                                      |                                 | x                      |                               |

| FAMILY (Green No.) / Species                            | Mesa A Transport Corridor (this study) | Mesa A and Mesa G (Biota 2005a) | Bungaroo (Biota 2005c) | Mesa J Extension (Biota 2003) |
|---------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>MIMOSACEAE (163)</b>                                 |                                        |                                 |                        |                               |
| <i>Acacia acradenia</i>                                 | x                                      | x                               |                        |                               |
| <i>Acacia ampliceps</i>                                 | x                                      |                                 |                        |                               |
| <i>Acacia ancistrocarpa</i>                             | x                                      | x                               | x                      | x                             |
| <i>Acacia arida</i>                                     | x                                      | x                               |                        |                               |
| <i>Acacia atkinsiana</i>                                | x                                      | x                               |                        |                               |
| <i>Acacia bivenosa</i>                                  | x                                      | x                               | x                      | x                             |
| <i>Acacia citrinoviridis</i>                            | x                                      | x                               |                        |                               |
| <i>Acacia colei</i> var. <i>colei</i>                   |                                        | x                               |                        |                               |
| <i>Acacia colei</i> var. <i>ileocarpa</i>               | x                                      |                                 | x                      | x                             |
| <i>Acacia coriacea</i> subsp. <i>pendens</i>            | x                                      |                                 |                        |                               |
| <i>Acacia coriacea</i> subsp. <i>sericophylla</i>       | x                                      | x                               | x                      |                               |
| <i>Acacia cowleana</i>                                  |                                        |                                 | x                      |                               |
| <i>Acacia dictyophleba</i>                              | x                                      |                                 |                        |                               |
| <i>Acacia elachantha</i>                                |                                        | x                               | x                      | x                             |
| <i>Acacia farnesiana</i>                                | x                                      | x                               | x                      | x                             |
| <i>Acacia inaequilatera</i>                             | x                                      | x                               | x                      | x                             |
| <i>Acacia maitlandii</i>                                | x                                      | x                               | x                      |                               |
| <i>Acacia monticola</i>                                 | x                                      |                                 | x                      |                               |
| <i>Acacia morrisonii</i>                                | x                                      |                                 | x                      |                               |
| <i>Acacia orthocarpa</i>                                |                                        |                                 | x                      | x                             |
| <i>Acacia pruinocarpa</i>                               | x                                      | x                               | x                      | x                             |
| <i>Acacia ptychophylla</i>                              | x                                      |                                 | x                      | x                             |
| <i>Acacia pyrifolia</i>                                 | x                                      | x                               | x                      | x                             |
| <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>   | x                                      |                                 | x                      |                               |
| <i>Acacia spondylophylla</i>                            | x                                      |                                 |                        |                               |
| <i>Acacia synchronicia</i>                              | x                                      | x                               | x                      | x                             |
| <i>Acacia tenuissima</i>                                | x                                      |                                 |                        | x                             |
| <i>Acacia tetragonophylla</i>                           | x                                      |                                 |                        |                               |
| <i>Acacia trachycarpa</i>                               | x                                      | x                               | x                      | x                             |
| <i>Acacia tumida</i> var. <i>pilbarensis</i>            | x                                      | x                               | x                      | x                             |
| <i>Acacia wanyu</i>                                     | x                                      |                                 |                        |                               |
| <i>Acacia xiphophylla</i>                               | x                                      | x                               | x                      |                               |
| <i>Dichrostachys spicata</i>                            | x                                      |                                 |                        |                               |
| <i>Neptunia dimorphantha</i>                            | x                                      |                                 |                        |                               |
| <b>MOLLUGINACEAE (110A)</b>                             |                                        |                                 |                        |                               |
| <i>Glinus lotoides</i>                                  | x                                      |                                 |                        |                               |
| <i>Glinus oppositifolius</i>                            | x                                      |                                 | x                      |                               |
| <i>Mollugo molluginis</i>                               | x                                      | x                               | x                      | x                             |
| <b>MORACEAE (087)</b>                                   |                                        |                                 |                        |                               |
| <i>Ficus brachypoda</i>                                 | x                                      | x                               | x                      |                               |
| <i>Ficus opposita</i> var. <i>indecora</i>              | x                                      | x                               | x                      | x                             |
| <b>MYPOPORACEAE (326)</b>                               |                                        |                                 |                        |                               |
| <i>Eremophila forrestii</i> subsp. <i>forrestii</i>     | x                                      | x                               | x                      |                               |
| <i>Eremophila fraseri</i> subsp. <i>fraseri</i>         | x                                      |                                 |                        | x                             |
| <i>Eremophila longifolia</i>                            | x                                      | x                               | x                      | x                             |
| <b>MYRTACEAE (273)</b>                                  |                                        |                                 |                        |                               |
| <i>Corymbia candida</i> subsp. <i>candida</i>           | x                                      | x                               | x                      | x                             |
| <i>Corymbia deserticola</i> subsp. <i>deserticola</i>   | x                                      |                                 |                        |                               |
| <i>Corymbia ferriticola</i> subsp. <i>ferriticola</i>   |                                        | x                               | x                      |                               |
| <i>Corymbia flavescens</i>                              |                                        |                                 | x                      |                               |
| <i>Corymbia hamersleyana</i>                            | x                                      | x                               | x                      | x                             |
| <i>Corymbia zygophylla</i>                              | x                                      | x                               |                        |                               |
| <i>Eucalyptus camaldulensis</i>                         | x                                      | x                               | x                      |                               |
| <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> | x                                      | x                               | x                      | x                             |
| <i>Eucalyptus victrix</i>                               | x                                      | x                               | x                      | x                             |
| <i>Eucalyptus xerothermica</i>                          |                                        |                                 | x                      |                               |
| <i>Melaleuca argentea</i>                               | x                                      |                                 |                        |                               |
| <i>Melaleuca glomerata</i>                              | x                                      |                                 |                        |                               |
| <i>Melaleuca linophylla</i>                             | x                                      |                                 |                        |                               |
| <b>NAJADACEAE (024)</b>                                 |                                        |                                 |                        |                               |
| <i>Najas</i> sp.                                        |                                        | x                               |                        |                               |
| <b>NYCTAGINACEAE (107)</b>                              |                                        |                                 |                        |                               |
| <i>Boerhavia burbidgeana</i>                            | x                                      | x                               | x                      |                               |
| <i>Boerhavia coccinea</i>                               | x                                      | x                               | x                      | x                             |

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|-------------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>NYCTAGINACEAE (continued)</b>                            |                                        |                                 |                        |                               |
| <i>Boerhavia gardneri</i>                                   | x                                      |                                 | x                      |                               |
| <i>Boerhavia repleta</i>                                    | x                                      |                                 |                        |                               |
| <i>Boerhavia schomburgkiana</i>                             | x                                      |                                 |                        |                               |
| <b>OLEACEAE (301)</b>                                       |                                        |                                 |                        |                               |
| <i>Jasminum didymum</i> subsp. <i>lineare</i>               | x                                      | x                               | x                      | x                             |
| <b>PAPAVERACEAE (135)</b>                                   |                                        |                                 |                        |                               |
| * <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>       | x                                      | x                               | x                      | x                             |
| <b>PAPILIONACEAE (165)</b>                                  |                                        |                                 |                        |                               |
| <i>Aeschynomene indica</i>                                  | x                                      |                                 |                        |                               |
| <i>Alysicarpus muelleri</i>                                 | x                                      |                                 |                        |                               |
| <i>Cajanus cinereus</i>                                     | x                                      |                                 | x                      |                               |
| <i>Crotalaria dissitiflora</i> subsp. <i>benthamiana</i>    | x                                      |                                 |                        |                               |
| <i>Crotalaria medicaginea</i>                               | x                                      | x                               |                        | x                             |
| <i>Crotalaria novae-hollandiae</i>                          | x                                      |                                 |                        |                               |
| <i>Cullen graveolens</i>                                    | x                                      |                                 |                        |                               |
| <i>Cullen lachnostachys</i>                                 | x                                      | x                               | x                      |                               |
| <i>Cullen</i> aff. <i>lachnostachys</i> (MET 15,154)        | x                                      |                                 |                        |                               |
| <i>Cullen leucanthum</i>                                    | x                                      |                                 |                        |                               |
| <i>Cullen leucochaetes</i>                                  |                                        |                                 | x                      |                               |
| <i>Cullen martinii</i>                                      | x                                      |                                 | x                      |                               |
| <i>Cullen pogonocarpum</i>                                  | x                                      |                                 |                        |                               |
| <i>Erythrina vesperilio</i>                                 | x                                      | x                               |                        |                               |
| <i>Gastrolobium grandiflorum</i>                            | x                                      |                                 |                        |                               |
| <i>Indigastrum parviflorum</i>                              | x                                      |                                 |                        |                               |
| <i>Indigofera boviparda</i> subsp. <i>boviparda</i>         | x                                      | x                               |                        |                               |
| <i>Indigofera colutea</i>                                   | x                                      | x                               | x                      |                               |
| <i>Indigofera linifolia</i>                                 | x                                      |                                 | x                      |                               |
| <i>Indigofera linnaei</i>                                   | x                                      |                                 | x                      |                               |
| <i>Indigofera monophylla</i> (form not recorded/identified) | x                                      |                                 |                        |                               |
| <i>Indigofera monophylla</i> (BRO 46-12)                    |                                        |                                 | x                      |                               |
| <i>Indigofera monophylla</i> (grey/green leaflet form)      |                                        | x                               |                        |                               |
| <i>Indigofera monophylla</i> (MJOPP-2)                      | x                                      |                                 | x                      | x                             |
| <i>Indigofera monophylla</i> (small calyx form)             |                                        | x                               |                        |                               |
| <i>Indigofera monophylla</i> (small leaflet form)           |                                        | x                               |                        |                               |
| * <i>Indigofera oblongifolia</i>                            | x                                      |                                 |                        |                               |
| <i>Indigofera rugosa</i>                                    | x                                      |                                 |                        |                               |
| <i>Indigofera trita</i>                                     | x                                      |                                 | x                      |                               |
| <i>Indigofera</i> sp. (HD19)                                |                                        | x                               |                        |                               |
| <i>Isotropis atropurpurea</i>                               | x                                      | x                               | x                      |                               |
| <i>Lotus cruentus</i>                                       | x                                      |                                 |                        |                               |
| <i>Rhynchosia bungarensis</i>                               | x                                      |                                 | x                      | x                             |
| <i>Rhynchosia minima</i> var. <i>australis</i>              | x                                      | x                               | x                      | x                             |
| <i>Sesbania cannabina</i>                                   | x                                      | x                               | x                      |                               |
| <i>Sesbania formosa</i>                                     | x                                      |                                 |                        |                               |
| <i>Swainsona complanata</i>                                 | x                                      |                                 |                        |                               |
| <i>Swainsona formosa</i>                                    | x                                      | x                               | x                      | x                             |
| <i>Tephrosia</i> ?aff. <i>clelandii</i> (MATRM-45)          | x                                      |                                 |                        |                               |
| <i>Tephrosia</i> aff. <i>clementii</i> (7) (HD191-11)       | x                                      |                                 |                        |                               |
| <i>Tephrosia densa</i>                                      |                                        | x                               |                        |                               |
| <i>Tephrosia</i> aff. <i>densa</i> (B16-22)                 | x                                      |                                 |                        |                               |
| <i>Tephrosia</i> aff. <i>densa</i> (B17)                    | x                                      |                                 |                        |                               |
| <i>Tephrosia</i> aff. <i>densa</i> (WW22-16)                |                                        |                                 | x                      |                               |
| <i>Tephrosia rosea</i> var. <i>glabrior</i>                 | x                                      | x                               | x                      | x                             |
| <i>Tephrosia</i> aff. <i>rosea</i> (CH3-47)                 |                                        | x                               |                        |                               |
| <i>Tephrosia spechtii</i>                                   | x                                      | x                               | x                      | x                             |
| <i>Tephrosia supina</i>                                     |                                        |                                 | x                      |                               |
| <i>Tephrosia</i> aff. <i>supina</i>                         |                                        |                                 | x                      |                               |
| <i>Tephrosia</i> aff. <i>supina</i> (BUN18-09)              | x                                      |                                 | x                      |                               |
| <i>Tephrosia</i> aff. <i>supina</i> (HD133-20)              | x                                      |                                 | x                      |                               |
| <i>Tephrosia</i> aff. <i>supina</i> (MET 12,357)            | x                                      |                                 | x                      |                               |
| <i>Tephrosia uniovulata</i>                                 | x                                      | x                               | x                      |                               |
| <i>Tephrosia</i> sp. B Kimberley Flora (C.A. Gardner 7300)  | x                                      | x                               | x                      | x                             |
| <i>Tephrosia</i> sp. Bungaroo Creek (M.E. Trudgen 11601)    | x                                      | x                               | x                      | x                             |
| <i>Tephrosia</i> sp.                                        |                                        | x                               |                        |                               |

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|----------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>PAPILIONACEAE (continued)</b>                   |                                        |                                 |                        |                               |
| <i>Vigna lanceolata</i> var. <i>lanceolata</i>     | x                                      |                                 | x                      |                               |
| <b>PASSIFLORACEAE (248)</b>                        |                                        |                                 |                        |                               |
| * <i>Passiflora foetida</i>                        | x                                      |                                 |                        |                               |
| <b>PLUMBAGINACEAE (294)</b>                        |                                        |                                 |                        |                               |
| <i>Plumbago zeylanica</i>                          | x                                      |                                 |                        |                               |
| <b>POACEAE (031)</b>                               |                                        |                                 |                        |                               |
| <i>Aristida burbridgeae</i>                        |                                        |                                 | x                      |                               |
| <i>Aristida contorta</i>                           | x                                      |                                 |                        |                               |
| <i>Aristida holathera</i> var. <i>holathera</i>    | x                                      | x                               | x                      |                               |
| <i>Brachyachne convergens</i>                      | x                                      |                                 | x                      |                               |
| <i>Brachyachne prostrata</i>                       | x                                      |                                 |                        |                               |
| * <i>Cenchrus ciliaris</i>                         | x                                      | x                               | x                      | x                             |
| * <i>Cenchrus setigerus</i>                        | x                                      |                                 | x                      | x                             |
| * <i>Chloris barbata</i>                           | x                                      |                                 |                        |                               |
| <i>Chloris pectinata</i>                           | x                                      |                                 |                        |                               |
| <i>Chrysopogon fallax</i>                          | x                                      | x                               | x                      |                               |
| <i>Cymbopogon ambiguus</i>                         | x                                      | x                               | x                      | x                             |
| <i>Cymbopogon bombycinus</i>                       |                                        |                                 |                        | x                             |
| <i>Cymbopogon obtectus</i>                         | x                                      |                                 |                        |                               |
| <i>Cymbopogon</i> sp.                              |                                        |                                 |                        | x                             |
| <i>Cynodon dactylon</i>                            | x                                      |                                 |                        |                               |
| <i>Dactyloctenium radulans</i>                     | x                                      |                                 |                        |                               |
| <i>Dichanthium fecundum</i>                        | x                                      |                                 |                        |                               |
| <i>Dichanthium sericeum</i> subsp. <i>humilius</i> | x                                      |                                 |                        |                               |
| <i>Digitaria brownii</i>                           | x                                      |                                 |                        |                               |
| <i>Digitaria ctenantha</i>                         | x                                      |                                 |                        |                               |
| * <i>Echinochloa colona</i>                        | x                                      | x                               |                        |                               |
| <i>Enneapogon caeruleus</i>                        | x                                      | x                               |                        |                               |
| <i>Enneapogon lindleyanus</i>                      |                                        |                                 | x                      |                               |
| <i>Enneapogon polyphyllus</i>                      | x                                      |                                 |                        |                               |
| <i>Enneapogon robustissimus</i>                    |                                        |                                 | x                      |                               |
| <i>Eragrostis cumingii</i>                         | x                                      | x                               |                        |                               |
| <i>Eragrostis dielsii</i>                          | x                                      |                                 |                        |                               |
| <i>Eragrostis eriopoda</i>                         | x                                      | x                               | x                      |                               |
| <i>Eragrostis exigua</i>                           | x                                      |                                 |                        |                               |
| <i>Eragrostis leptocarpa</i>                       | x                                      |                                 |                        |                               |
| <i>Eragrostis setifolia</i>                        | x                                      |                                 |                        |                               |
| <i>Eragrostis tenellula</i>                        | x                                      | x                               | x                      |                               |
| <i>Eriachne aristidea</i>                          | x                                      | x                               |                        |                               |
| <i>Eriachne benthamii</i>                          | x                                      |                                 |                        |                               |
| <i>Eriachne ?flaccida</i>                          | x                                      |                                 |                        |                               |
| <i>Eriachne helmsii</i>                            | x                                      | x                               | x                      |                               |
| <i>Eriachne mucronata</i>                          | x                                      | x                               | x                      | x                             |
| <i>Eriachne pulchella</i>                          | x                                      | x                               | x                      | x                             |
| <i>Eriachne tenuiculmis</i>                        | x                                      | x                               | x                      | x                             |
| <i>Eulalia aurea</i>                               | x                                      | x                               |                        | x                             |
| <i>Iseilema dolichotrichum</i>                     | x                                      |                                 |                        |                               |
| <i>Iseilema eremaeum</i>                           | x                                      |                                 |                        |                               |
| <i>Leptochloa digitata</i>                         | x                                      |                                 |                        |                               |
| <i>Paraneurachne muelleri</i>                      | x                                      | x                               | x                      |                               |
| <i>Paspalidium basicladum</i>                      |                                        |                                 |                        | x                             |
| <i>Paspalidium clementii</i>                       | x                                      | x                               |                        |                               |
| <i>Paspalidium rarum</i>                           | x                                      | x                               |                        |                               |
| <i>Paspalidium tabulatum</i>                       | x                                      |                                 | x                      | x                             |
| <i>Paspalidium</i> sp.                             | x                                      |                                 |                        |                               |
| <i>Perotis rara</i>                                | x                                      |                                 | x                      |                               |
| * <i>Setaria verticillata</i>                      | x                                      |                                 |                        | x                             |
| <i>Sporobolus australasicus</i>                    | x                                      | x                               |                        |                               |
| <i>Themeda triandra</i>                            | x                                      | x                               | x                      | x                             |
| <i>Triodia epactia</i>                             | x                                      | x                               | x                      | x                             |
| <i>Triodia lanigera</i>                            | x                                      |                                 |                        |                               |
| <i>Triodia longiceps</i>                           | x                                      |                                 | x                      |                               |
| <i>Triodia schinzii</i>                            | x                                      | x                               |                        |                               |
| <i>Triodia wiseana</i>                             | x                                      | x                               | x                      | x                             |

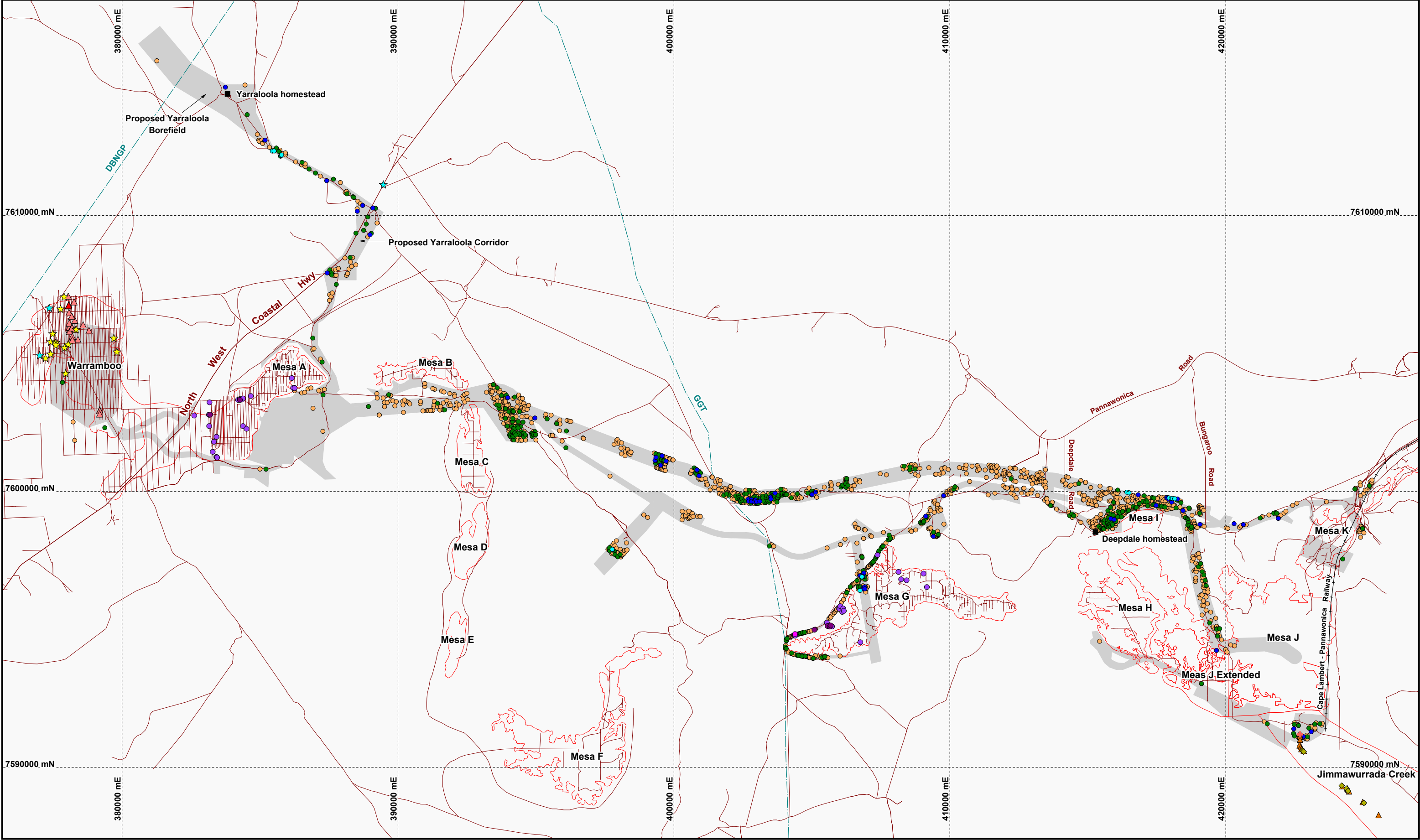
| FAMILY (Green No.) / Species                             | Mesa A Transport Corridor (this study) | Mesa A and Mesa G (Biota 2005a) | Bungaroo (Biota 2005c) | Mesa J Extension (Biota 2003) |
|----------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>POACEAE (continued)</b>                               |                                        |                                 |                        |                               |
| <i>Triodia</i> sp. nov.                                  | x                                      | x                               | x                      | x                             |
| <i>Tripogon loliiformis</i>                              |                                        | x                               |                        |                               |
| <i>Urochloa gilesii</i> subsp. <i>occidentalis</i>       | x                                      |                                 |                        |                               |
| <i>Yakirra australiensis</i> var. <i>australiensis</i>   | x                                      |                                 |                        |                               |
| <b>POLYGALACEAE (183)</b>                                |                                        |                                 |                        |                               |
| <i>Polygala</i> aff. <i>isingii</i>                      | x                                      | x                               |                        |                               |
| <b>POLYGONACEAE (103)</b>                                |                                        |                                 |                        |                               |
| * <i>Acetosa vesicaria</i>                               | x                                      |                                 |                        |                               |
| <b>PORTULACACEAE (111)</b>                               |                                        |                                 |                        |                               |
| <i>Calandrinia ptychosperma</i>                          | x                                      |                                 |                        |                               |
| <i>Calandrinia</i> sp.                                   |                                        | x                               |                        |                               |
| <i>Portulaca oleracea</i>                                | x                                      | x                               | x                      | x                             |
| <i>Portulaca</i> sp.                                     | x                                      |                                 |                        |                               |
| <b>POTAMOGETONACEAE (023)</b>                            |                                        |                                 |                        |                               |
| <i>Potamogeton tricarlinatus</i>                         | x                                      |                                 |                        |                               |
| <b>PROTEACEAE (090)</b>                                  |                                        |                                 |                        |                               |
| <i>Grevillea eriostachya</i>                             | x                                      | x                               |                        |                               |
| <i>Grevillea pyramidalis</i>                             | x                                      | x                               | x                      | x                             |
| <i>Grevillea wickhamii</i>                               | x                                      | x                               | x                      |                               |
| <i>Grevillea wickhamii</i> subsp. <i>aprica</i>          |                                        | x                               |                        | x                             |
| <i>Grevillea wickhamii</i> subsp. <i>hispidula</i>       | x                                      | x                               |                        | x                             |
| <i>Grevillea wickhamii</i> subsp. <i>macrodonata</i>     | x                                      | x                               |                        |                               |
| <i>Hakea chordophylla</i>                                | x                                      | x                               | x                      | x                             |
| <i>Hakea lorea</i>                                       | x                                      | x                               | x                      | x                             |
| <b>RUBIACEAE (331)</b>                                   |                                        |                                 |                        |                               |
| <i>Oldenlandia crouchiana</i>                            | x                                      | x                               | x                      |                               |
| <i>Oldenlandia galioides</i>                             |                                        | x                               |                        |                               |
| <i>Oldenlandia</i> sp. 'gilgai'                          | x                                      |                                 |                        |                               |
| <i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>     | x                                      | x                               | x                      |                               |
| <b>SANTALACEAE (092)</b>                                 |                                        |                                 |                        |                               |
| <i>Santalum lanceolatum</i>                              | x                                      |                                 |                        |                               |
| <b>SAPINDACEAE (207)</b>                                 |                                        |                                 |                        |                               |
| <i>Dodonaea coriacea</i>                                 | x                                      | x                               | x                      | x                             |
| <i>Dodonaea viscosa</i> subsp. <i>mucronata</i>          | x                                      |                                 |                        |                               |
| <b>SCROPHULARIACEAE (316)</b>                            |                                        |                                 |                        |                               |
| <i>Mimulus gracilis</i>                                  | x                                      | x                               |                        |                               |
| <i>Peplidium aithocheilum</i>                            | x                                      | x                               |                        |                               |
| <i>Stemodia grossa</i>                                   | x                                      | x                               | x                      | x                             |
| <i>Stemodia kingii</i>                                   | x                                      |                                 |                        |                               |
| <i>Striga squamigera</i>                                 | x                                      |                                 |                        |                               |
| <b>SOLANACEAE (315)</b>                                  |                                        |                                 |                        |                               |
| * <i>Datura leichhardtii</i>                             | x                                      | x                               |                        |                               |
| <i>Nicotiana benthamiana</i>                             | x                                      | x                               | x                      |                               |
| <i>Nicotiana occidentalis</i> subsp. <i>obliqua</i>      | x                                      |                                 |                        |                               |
| <i>Nicotiana occidentalis</i> subsp. <i>occidentalis</i> | x                                      | x                               |                        |                               |
| <i>Nicotiana</i> sp.                                     |                                        | x                               | x                      | x                             |
| <i>Solanum ashbyae</i>                                   | x                                      |                                 |                        | x                             |
| <i>Solanum centrale</i>                                  |                                        |                                 | x                      |                               |
| <i>Solanum diversiflorum</i>                             | x                                      | x                               | x                      |                               |
| <i>Solanum ellipticum</i>                                | x                                      | x                               |                        | x                             |
| <i>Solanum gabrielae</i>                                 | x                                      | x                               |                        |                               |
| <i>Solanum horridum</i>                                  | x                                      | x                               | x                      |                               |
| <i>Solanum lasiophyllum</i>                              | x                                      |                                 | x                      |                               |
| <i>Solanum phlomoides</i>                                | x                                      | x                               | x                      |                               |
| <i>Solanum sturtianum</i>                                | x                                      | x                               |                        |                               |
| <b>STACKHOUSIACEAE (202)</b>                             |                                        |                                 |                        |                               |
| <i>Stackhousia intermedia</i>                            | x                                      |                                 | x                      |                               |
| <b>STERCULIACEAE (223)</b>                               |                                        |                                 |                        |                               |
| <i>Brachychiton acuminatus</i>                           |                                        |                                 | x                      |                               |
| <i>Keraudrenia nephrosperma</i>                          | x                                      | x                               | x                      |                               |
| <i>Keraudrenia</i> ? <i>nephrosperma</i>                 |                                        |                                 |                        | x                             |
| <i>Melhanian oblongifolia</i>                            | x                                      |                                 |                        |                               |
| <i>Melhanian</i> aff. <i>oblongifolia</i>                |                                        |                                 |                        | x                             |

| FAMILY (Green No.) / Species                                          | Mesa A Transport Corridor (this study) | Mesa A and Mesa G (Biota 2005a) | Bungaroo (Biota 2005c) | Mesa J Extension (Biota 2003) |
|-----------------------------------------------------------------------|----------------------------------------|---------------------------------|------------------------|-------------------------------|
| <b>STERCULIACEAE (continued)</b>                                      |                                        |                                 |                        |                               |
| <i>Melhania</i> sp. (CH15-39)                                         |                                        |                                 | x                      |                               |
| <i>Melhania</i> sp. Turee Creek (MJ1-35)                              | x                                      |                                 |                        |                               |
| * <i>Melochia pyramidata</i>                                          | x                                      |                                 |                        |                               |
| <i>Waltheria indica</i>                                               | x                                      | x                               | x                      | x                             |
| <b>SURIANACEAE (160)</b>                                              |                                        |                                 |                        |                               |
| <i>Stylobasium spathulatum</i>                                        | x                                      |                                 | x                      | x                             |
| <b>THEMELAEACEAE (263)</b>                                            |                                        |                                 |                        |                               |
| <i>Pimelea ammodarid</i>                                              | x                                      |                                 |                        |                               |
| <b>TILIACEAE (220)</b>                                                |                                        |                                 |                        |                               |
| <i>Corchorus crozophorifolius</i>                                     | x                                      |                                 | x                      |                               |
| <i>Corchorus incanus</i>                                              |                                        | x                               |                        |                               |
| <i>Corchorus sidoides</i> subsp. <i>sidoides</i>                      | x                                      | x                               | x                      |                               |
| <i>Corchorus sidoides</i> subsp. aff. <i>vermicularis</i> (MATH15-02) | x                                      |                                 |                        |                               |
| <i>Corchorus tectus</i>                                               |                                        |                                 |                        | x                             |
| <i>Corchorus tridens</i>                                              | x                                      | x                               |                        |                               |
| <i>Triumfetta appendiculata</i>                                       | x                                      |                                 |                        | x                             |
| <i>Triumfetta chaetocarpa</i>                                         | x                                      | x                               | x                      |                               |
| <i>Triumfetta clementii</i>                                           | x                                      | x                               | x                      |                               |
| <i>Triumfetta johnstonii</i>                                          | x                                      | x                               | x                      |                               |
| <i>Triumfetta maconochieana</i>                                       | x                                      | x                               | x                      |                               |
| <i>Triumfetta</i> sp.                                                 |                                        |                                 | x                      |                               |
| <b>TYPHACEAE (020)</b>                                                |                                        |                                 |                        |                               |
| <i>Typha domingensis</i>                                              | x                                      |                                 | x                      |                               |
| <b>VIOLACEAE (243)</b>                                                |                                        |                                 |                        |                               |
| <i>Hybanthus aurantiacus</i>                                          | x                                      | x                               | x                      | x                             |
| <b>ZYGOPHYLLACEAE (173)</b>                                           |                                        |                                 |                        |                               |
| <i>Tribulus astrocarpus</i>                                           | x                                      | x                               |                        |                               |
| <i>Tribulus hirsutus</i>                                              | x                                      | x                               | x                      |                               |
| <i>Tribulus macrocarpus</i>                                           | x                                      | x                               | x                      |                               |
| <i>Tribulus occidentalis</i>                                          | x                                      |                                 |                        |                               |
| <i>Tribulus platypterus</i>                                           | x                                      | x                               | x                      |                               |
| <i>Tribulus suberosus</i>                                             | x                                      | x                               |                        | x                             |
| <i>Tribulus terrestris</i>                                            | x                                      |                                 |                        |                               |

## Appendix 5

### Locations of Priority Flora and Weed Species Recorded from the Study Area

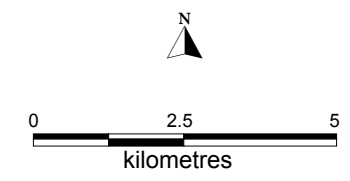
(all records from the current study  
except where specified)



***Abutilon trudgenii* ms.**

| Biota (current study) | Mesa A & G (Biota 2005a) | Bungaroo (Biota 2005b) | B Morgan | Pilbara Iron |
|-----------------------|--------------------------|------------------------|----------|--------------|
| 1 - 5                 | 1 - 5                    | 1 - 5                  | 1 - 5    | 1 - 5        |
| 6 - 20                | 6 - 20                   | 6 - 20                 | 6 - 20   | 6 - 20       |
| 21 - 99               | 21 - 99                  | 21 - 99                | 21 - 99  | 21 - 99      |
| > 100                 |                          |                        |          |              |

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline

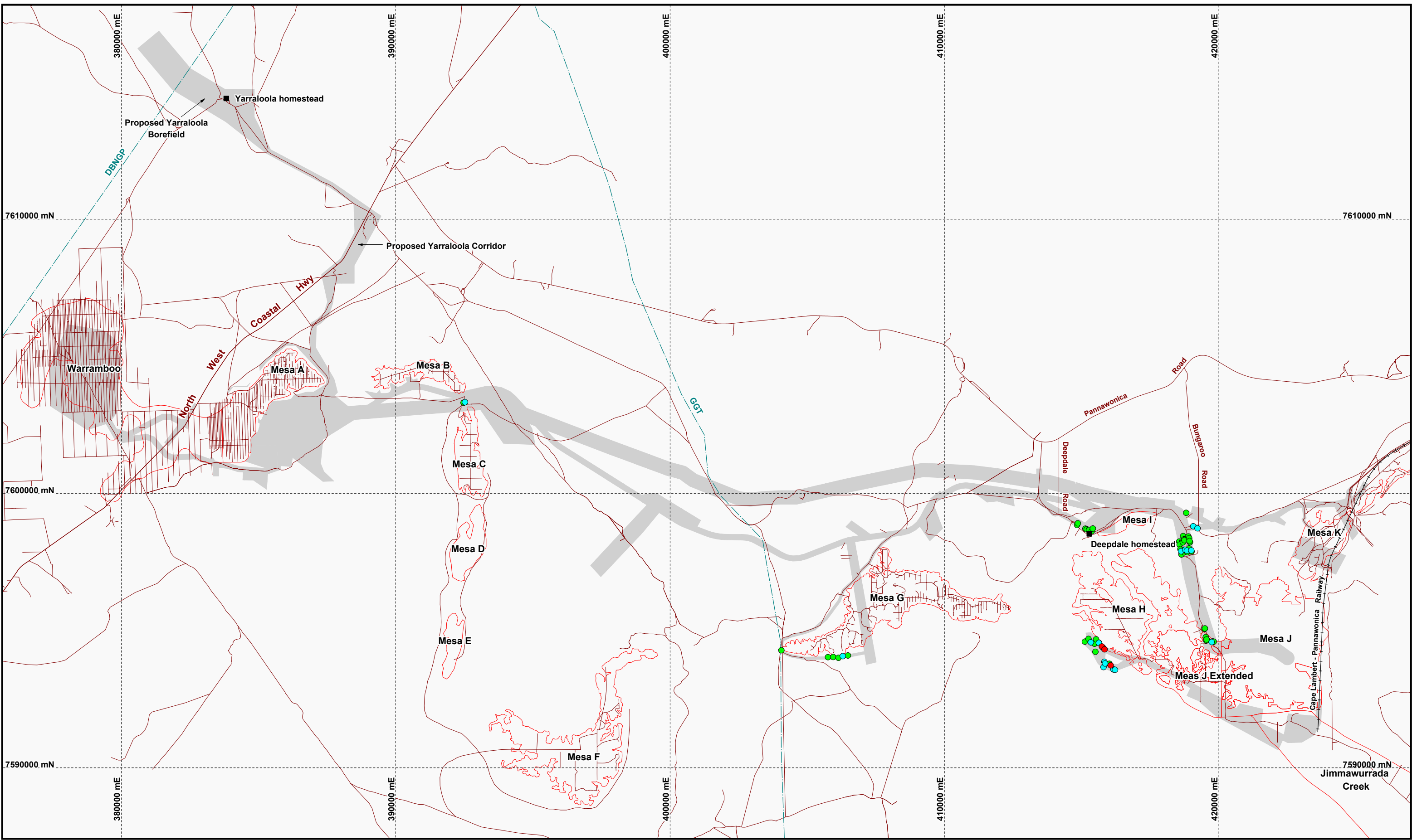




Biota  
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Sciences

**Mesa A Transport Corridor**  
***Abutilon trudgenii* ms.**

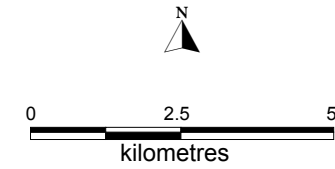
|                         |                           |
|-------------------------|---------------------------|
| Author: M Maier         | Date: 5/12/2005           |
| Drawn: P Sawers         | Revised: 30/01/2006       |
| Job No.: 308            | WS No.: WS 10105 Abutilon |
| Projection: MGA Zone 50 | Scale: 1 : 125,000        |



***Rhynchosia bungarensis***

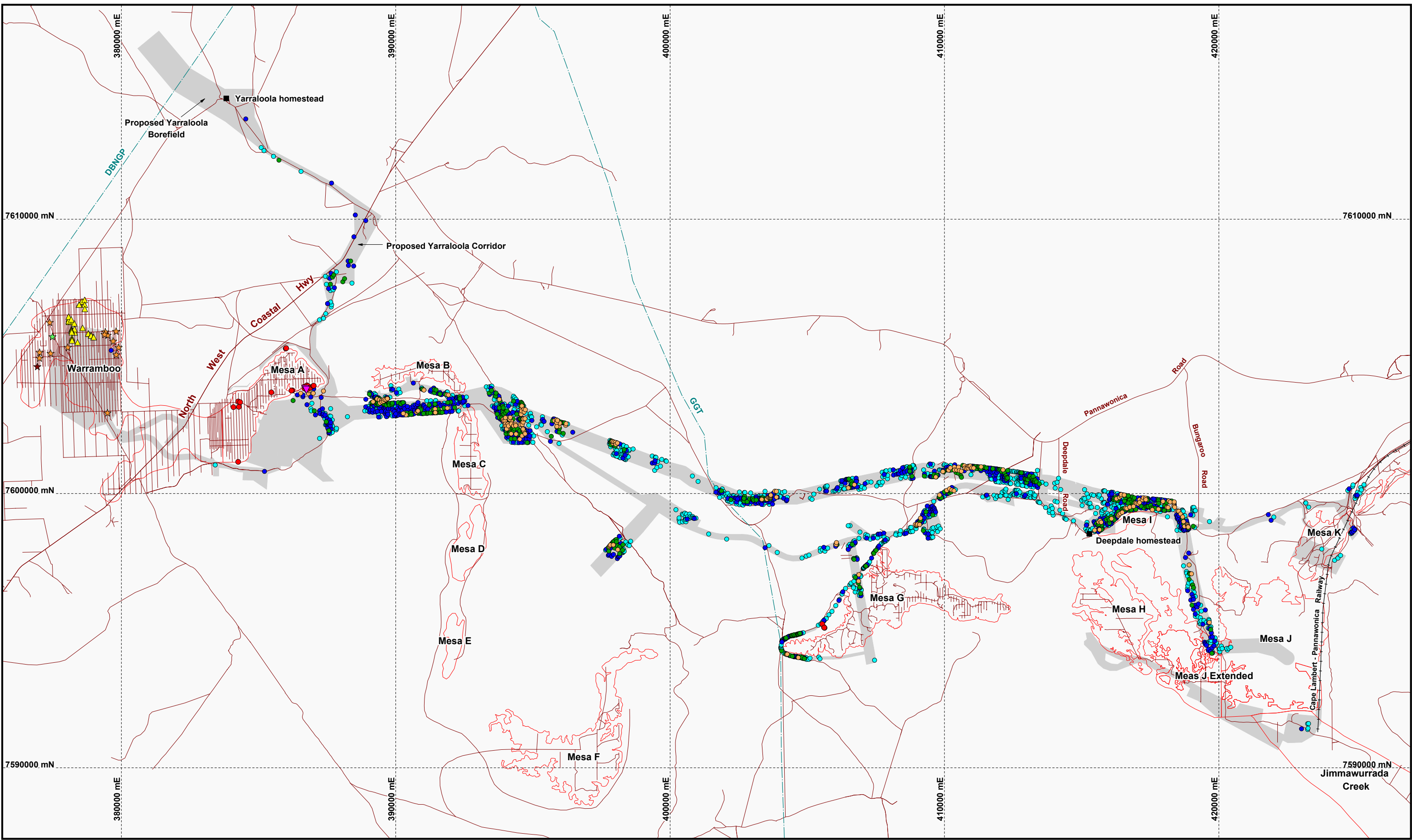
- Biota (current study)**
- 1 - 5
  - 6 - 20
  - 21-99

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline



**Mesa A Transport Corridor  
*Rhynchosia bungarensis***

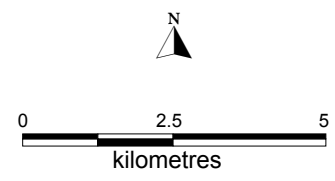
|                         |                             |
|-------------------------|-----------------------------|
| Author: M Maier         | Date: 5/12/2005             |
| Drawn: P Sawers         | Revised: 30/01/2006         |
| Job No.: 308            | WS No.: WS 10105 Rhynchosia |
| Projection: MGA Zone 50 | Scale: 1 : 125,000          |



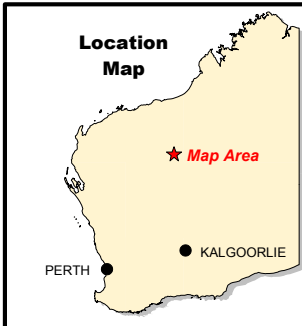
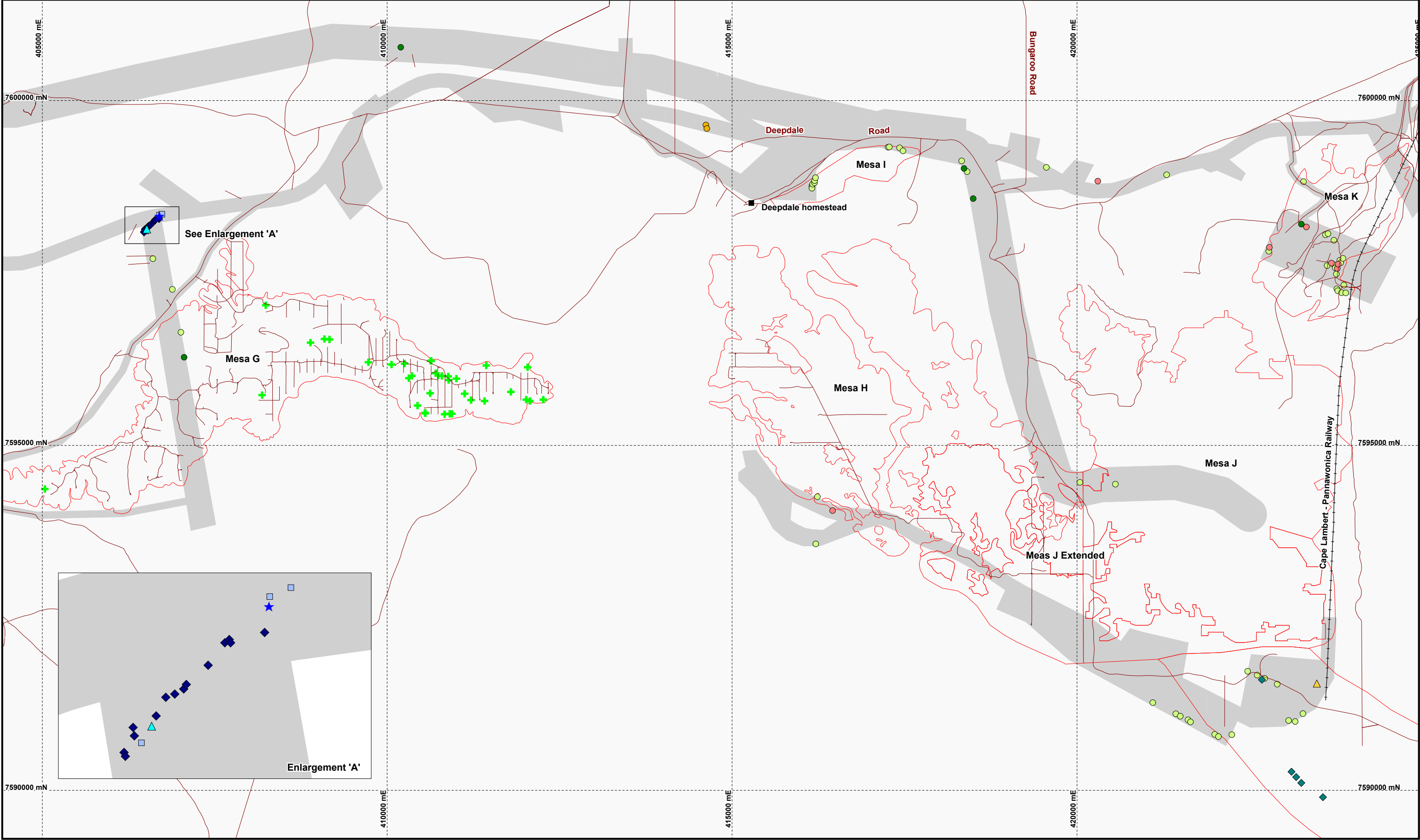
***Sida* sp. Wittenoom**

- | <u>Biota (current study)</u> | <u>Mesa A &amp; G (Biota 2005a)</u> | <u>Pilbara Iron</u> | <u>B Morgan</u> |
|------------------------------|-------------------------------------|---------------------|-----------------|
| ● 1 - 5                      | ● 1 - 5                             | ★ 1 - 5             | ▲ 1 - 5         |
| ● 6 - 20                     | ● 21 - 99                           | ★ 6 - 20            |                 |
| ● 21-99                      |                                     | ★ 21 - 99           |                 |
| ● > 100                      |                                     |                     |                 |

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline



| Mesa A Transport Corridor<br><i>Sida</i> sp. Wittenoom |                       |
|--------------------------------------------------------|-----------------------|
| Author: M Maier                                        | Date: 5/12/2005       |
| Drawn: P Sawers                                        | Revised: 30/01/2006   |
| Job No.: 308                                           | WS No.: WS 10105 Sida |
| Projection: MGA Zone 50                                | Scale: 1 : 125,000    |



- Triodia* sp. nov.**
- | Biota (current study) | Mesa A & G (Biota 2005a)      |
|-----------------------|-------------------------------|
| ● 1 - 5               | ✚ 6 - 20                      |
| ● 6 - 20              |                               |
| ● 21-99               | <u>Bungaroo (Biota 2005b)</u> |
|                       | ◆ 6 - 20                      |

- Phyllanthus aridus***
- Biota (current study)
- ▲ 1 - 5
  - 6 - 20
  - ◆ 21 - 99
  - ★ > 100

- Hibiscus brachysiphonius***
- Biota (current study)
- 1 - 5
  - ▲ 6 - 20

○ Mesa deposit outlines

■ Mesa A Transport Corridor survey area

0 1.5 3 kilometres

N



Biota  
Environmental  
Sciences

### Mesa A Transport Corridor Rare Flora - Other

|                         |                        |
|-------------------------|------------------------|
| Author: M Maier         | Date: 5/12/2005        |
| Drawn: P Sawers         | Revised: 30/01/2006    |
| Job No.: 308            | WS No.: WS 10105 Other |
| Projection: MGA Zone 50 | Scale: 1 : 50,000      |

## Locations of Flora of Conservation Significance

*Abutilon trudgenii* ms.

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE | SPECIMEN_NO | COMMENTS                                |
|-----------------|------------------|----------|---------|-------------|-----------|-------------|-----------------------------------------|
| 377838          | 7603951          |          |         | 1           | 6-20      |             |                                         |
| 378224          | 7602519          | MM       | 31/3/05 | 1           | 1-5       |             |                                         |
| 378284          | 7601850          | MM       | 31/3/05 | 2           | 1-5       |             |                                         |
| 379372          | 7602310          | MM       | 31/3/05 | 10          | 6-20      |             | scattered<br>along edge<br>of old track |
| 381258          | 7615607          | RO       | 2/4/05  | 1           | 1-5       |             |                                         |
| 383746          | 7614650          | RO       | 4/4/05  | 40          | 21-99     |             |                                         |
| 384455          | 7614730          | RO       | 5/4/05  | 1           | 1-5       |             |                                         |
| 384534          | 7613655          |          |         | +           | 6-20      |             |                                         |
| 384901          | 7612941          | RO       | 5/4/05  | 1           | 1-5       |             |                                         |
| 384955          | 7612727          | RO       | 5/4/05  | 3           | 1-5       |             |                                         |
| 384969          | 7612688          | RO       | 5/4/05  | 5           | 1-5       |             |                                         |
| 384997          | 7600811          | MM       | 3/5/05  | 1           | 1-5       |             |                                         |
| 385068          | 7612732          | RO       | 5/4/05  | 5           | 1-5       |             |                                         |
| 385094          | 7612612          | RO       | 5/4/05  | 1           | 1-5       |             |                                         |
| 385166          | 7612703          | RO       | 5/4/05  | 1           | 1-5       |             |                                         |
| 385185          | 7612729          | RO       | 5/4/05  | 40-60       | 21-99     |             |                                         |
| 385217          | 7600805          |          |         | +           | 6-20      |             |                                         |
| 385344          | 7612475          | BM       | 9/4/05  | 3           | 1-5       |             |                                         |
| 385447          | 7612336          | HE       | 9/4/05  | 100         | >100      | YARPLH-7    |                                         |
| 385463          | 7612360          | BM       | 9/4/05  | 4           | 1-5       |             |                                         |
| 385511          | 7612339          | BM       | 9/4/05  | 100         | >100      |             |                                         |
| 385592          | 7612448          | BM       | 9/4/05  | 6           | 6-20      |             |                                         |
| 385683          | 7612323          | BM       | 9/4/05  | 9           | 6-20      |             |                                         |
| 385718          | 7612370          | BM       | 9/4/05  | 3           | 1-5       |             |                                         |
| 385742          | 7612154          | HE       | 8/4/05  | 2           | 1-5       | YARPLH-5    |                                         |
| 385742          | 7612154          | BM       | 8/4/05  | scattered   | 6-20      |             |                                         |
| 385761          | 7612177          | BM       | 9/4/05  | 100         | >100      |             |                                         |
| 385779          | 7612195          | BM       | 9/4/05  | 100         | >100      |             |                                         |
| 385783          | 7612238          | BM       | 9/4/05  | 2           | 1-5       |             |                                         |
| 385856          | 7612239          | BM       | 8/4/05  | 1           | 1-5       | YARPLBM-5   |                                         |
| 385921          | 7612199          | BM       | 8/4/05  | 1           | 1-5       |             |                                         |
| 385921          | 7612271          | HE       | 8/4/05  | 1           | 1-5       | YARPLH-4    |                                         |
| 386253          | 7603651          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 386287          | 7611944          | BM       | 8/4/05  | 1           | 1-5       |             |                                         |
| 386506          | 7603571          | MM       | 28/4/05 | 2           | 1-5       |             |                                         |
| 386506          | 7611838          | BM       | 8/4/05  | 2           | 1-5       |             |                                         |
| 386522          | 7611926          |          |         | +           | 6-20      |             |                                         |
| 386619          | 7603591          | MM       | 28/4/05 | 3           | 1-5       |             |                                         |
| 386628          | 7611816          | BM       | 8/4/05  | 1           | 1-5       |             |                                         |
| 386637          | 7611777          | BM       | 8/4/05  | 1           | 1-5       |             |                                         |
| 386638          | 7611872          | BM       | 8/4/05  | 1           | 1-5       |             |                                         |
| 386736          | 7603717          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 386777          | 7611686          | BM       | 8/4/05  | 6           | 6-20      |             |                                         |
| 386844          | 7603752          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 386910          | 7605560          |          |         | +           | 6-20      |             |                                         |
| 386913          | 7605140          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 386920          | 7603012          | MM       | 1/5/05  | 3           | 1-5       |             |                                         |
| 386954          | 7605178          | MM       | 28/4/05 | 2           | 1-5       |             |                                         |
| 387009          | 7611540          | BM       | 8/4/05  | scattered   | 6-20      |             |                                         |
| 387125          | 7603652          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 387186          | 7611427          | BM       | 8/4/05  | 2           | 1-5       |             |                                         |
| 387190          | 7604800          | MM       | 28/4/05 | 1           | 1-5       |             |                                         |
| 387211          | 7603675          | MM       | 28/4/05 | 4           | 1-5       |             |                                         |
| 387249          | 7604688          | MM       | 28/4/05 | 10          | 6-20      |             |                                         |
| 387278          | 7602179          | MM       | 3/5/05  | 1           | 1-5       |             |                                         |
| 387282          | 7603501          |          |         | +           | 6-20      |             |                                         |
| 387334          | 7603701          | MM       | 28/4/05 | 4           | 1-5       |             |                                         |
| 387416          | 7611263          | BM       | 8/4/05  | 25          | 21-99     |             |                                         |
| 387435          | 7607918          | BM       | 8/4/05  | 25          | 21-99     |             |                                         |
| 387516          | 7606923          | BM       | 9/4/05  | 1           | 1-5       |             |                                         |
| 387521          | 7607130          | BM       | 9/4/05  | 2           | 1-5       |             |                                         |
| 387528          | 7608033          | BM       | 8/4/05  | 6           | 6-20      |             |                                         |
| 387572          | 7607062          | BM       | 9/4/05  | 1           | 1-5       |             |                                         |
| 387586          | 7607922          | BM       | 8/4/05  | 20          | 6-20      |             |                                         |
| 387596          | 7607845          | BM       | 8/4/05  | 15          | 6-20      | YARPLBM-2   |                                         |
| 387621          | 7607194          | BM       | 9/4/05  | 5           | 1-5       |             |                                         |
| 387642          | 7608026          | BM       | 8/4/05  | 5           | 1-5       |             |                                         |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|--------|-------------|------------|-------------|
| 387659          | 7611318          |          |        | +           | 6-20       |             |
| 387680          | 7607825          | BM       | 8/4/05 | 3           | 1-5        |             |
| 387740          | 7608032          | BM       | 8/4/05 | 4           | 1-5        |             |
| 387756          | 7607830          | RO       | 7/4/05 | 3           | 1-5        |             |
| 387764          | 7607503          | BM       | 9/4/05 | 9           | 6-20       |             |
| 387837          | 7608083          | RO       | 7/4/05 | 4           | 1-5        |             |
| 387909          | 7611196          | BM       | 8/4/05 | 4           | 1-5        |             |
| 388075          | 7608464          | RO       | 7/4/05 | 3           | 1-5        |             |
| 388086          | 7610833          | BM       | 8/4/05 | 2           | 1-5        |             |
| 388132          | 7610873          | BM       | 8/4/05 | 1           | 1-5        |             |
| 388134          | 7607834          | RO       | 7/4/05 | 1           | 1-5        |             |
| 388149          | 7610787          | BM       | 8/4/05 | 20          | 6-20       |             |
| 388174          | 7607897          | RO       | 7/4/05 | 2           | 1-5        |             |
| 388197          | 7610793          | BM       | 8/4/05 | 5           | 1-5        |             |
| 388225          | 7608062          | RO       | 7/4/05 | 1           | 1-5        |             |
| 388263          | 7608476          |          |        | +           | 6-20       |             |
| 388278          | 7608315          | RO       | 7/4/05 | 1           | 1-5        |             |
| 388318          | 7608156          | RO       | 7/4/05 | 1           | 1-5        |             |
| 388357          | 7608475          | RO       | 6/4/05 | 1           | 1-5        |             |
| 388370          | 7610680          | BM       | 8/4/05 | 6           | 6-20       |             |
| 388402          | 7610657          | BM       | 8/4/05 | 20          | 6-20       |             |
| 388469          | 7608214          | RO       | 7/4/05 | 1           | 1-5        |             |
| 388476          | 7609361          | RO       | 7/4/05 | 10          | 6-20       |             |
| 388520          | 7610245          | RO       | 6/4/05 | 5           | 1-5        |             |
| 388525          | 7610153          | RO       | 6/4/05 | 60          | 21-99      |             |
| 388546          | 7610513          | BM       | 8/4/05 | 4           | 1-5        |             |
| 388634          | 7610425          | RO       | 6/4/05 | 5           | 1-5        |             |
| 388719          | 7610365          | RO       | 6/4/05 | 80          | 21-99      |             |
| 388756          | 7609464          | RO       | 6/4/05 | 10          | 6-20       |             |
| 388851          | 7609692          | RO       | 6/4/05 | 15          | 6-20       |             |
| 388901          | 7609225          | RO       | 7/4/05 | 5           | 1-5        |             |
| 388907          | 7609951          |          |        | +           | 6-20       |             |
| 388930          | 7603078          | MM       | 2/8/05 | 9           | 6-20       |             |
| 388982          | 7609305          | RO       | 7/4/05 | 50          | 21-99      |             |
| 389030          | 7609351          | RO       | 7/4/05 | 20          | 6-20       |             |
| 389086          | 7610273          | RO       | 6/4/05 | 30          | 21-99      |             |
| 389185          | 7610263          | RO       | 6/4/05 | 10          | 6-20       |             |
| 389235          | 7603547          | BM       | 2/8/05 | 1           | 1-5        | MATB-10     |
| 389242          | 7609729          | RO       | 7/4/05 | 4           | 1-5        |             |
| 389251          | 7603385          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389317          | 7602774          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389325          | 7602767          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389466          | 7603386          | BM       | 2/8/05 | 1           | 1-5        |             |
| 389506          | 7603226          | BM       | 3/8/05 | 2           | 1-5        |             |
| 389513          | 7603070          | BM       | 3/8/05 | 1           | 1-5        |             |
| 389611          | 7603224          | BM       | 3/8/05 | 1           | 1-5        |             |
| 389638          | 7603467          | BM       | 2/8/05 | 2           | 1-5        |             |
| 389664          | 7603507          | BM       | 2/8/05 | 10          | 6-20       | MATB-11     |
| 389734          | 7603480          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389738          | 7603286          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389816          | 7603286          | MM       | 2/8/05 | 1           | 1-5        |             |
| 389886          | 7603103          | BM       | 3/8/05 | 1           | 1-5        |             |
| 389937          | 7603252          | BM       | 3/8/05 | 4           | 1-5        |             |
| 390171          | 7603267          | BM       | 3/8/05 | 1           | 1-5        |             |
| 390184          | 7603136          | BM       | 3/8/05 | 1           | 1-5        |             |
| 390197          | 7602865          | MM       | 2/8/05 | 1           | 1-5        |             |
| 390233          | 7603313          | MM       | 2/8/05 | 1           | 1-5        |             |
| 390287          | 7603268          | BM       | 3/8/05 | 2           | 1-5        |             |
| 390396          | 7603213          | MM       | 2/8/05 | 1           | 1-5        | MATHM-38    |
| 390426          | 7603170          | BM       | 3/8/05 | 1           | 1-5        |             |
| 390807          | 7603184          | MM       | 2/8/05 | 1           | 1-5        |             |
| 390816          | 7603255          | MM       | 2/8/05 | 1           | 1-5        |             |
| 390904          | 7602918          | MM       | 4/8/05 | 1           | 1-5        |             |
| 390972          | 7603805          | MM       | 4/8/05 | 1           | 1-5        |             |
| 390972          | 7603910          | RO       | 4/8/05 | 1           | 1-5        |             |
| 391048          | 7602925          | MM       | 4/8/05 | 1           | 1-5        |             |
| 391069          | 7602925          | MM       | 4/8/05 | 1           | 1-5        |             |
| 391116          | 7602926          | MM       | 4/8/05 | 1           | 1-5        |             |
| 391183          | 7602933          | MM       | 4/8/05 | 2           | 1-5        |             |
| 391261          | 7602934          | MM       | 4/8/05 | 1           | 1-5        |             |
| 391261          | 7603729          | MM       | 4/8/05 | 1           | 1-5        |             |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 391297          | 7603072          | BM       | 4/8/05  | 1           | 1-5        |
| 391307          | 7603140          | RO       | 4/8/05  | 5           | 1-5        |
| 391317          | 7603268          | BM       | 4/8/05  | 1           | 1-5        |
| 391328          | 7603701          | MM       | 4/8/05  | 2           | 1-5        |
| 391432          | 7603196          | RO       | 4/8/05  | 8           | 6-20       |
| 391435          | 7603080          | BM       | 4/8/05  | 2           | 1-5        |
| 391517          | 7602948          | MM       | 4/8/05  | 4           | 1-5        |
| 391550          | 7603073          | BM       | 4/8/05  | 2           | 1-5        |
| 391577          | 7603640          | MM       | 4/8/05  | 1           | 1-5        |
| 391630          | 7602963          | MM       | 4/8/05  | 3           | 1-5        |
| 391641          | 7603205          | RO       | 4/8/05  | 2           | 1-5        |
| 391662          | 7602955          | MM       | 4/8/05  | 3           | 1-5        |
| 391666          | 7603603          | MM       | 4/8/05  | 2           | 1-5        |
| 391692          | 7602956          | MM       | 4/8/05  | 7           | 6-20       |
| 391771          | 7603296          | BM       | 4/8/05  | 1           | 1-5        |
| 391840          | 7603119          | BM       | 4/8/05  | 2           | 1-5        |
| 391872          | 7603198          | RO       | 4/8/05  | 3           | 1-5        |
| 391877          | 7603546          | MM       | 4/8/05  | 1           | 1-5        |
| 391915          | 7603122          | BM       | 4/8/05  | 2           | 1-5        |
| 392039          | 7603514          | MM       | 4/8/05  | 1           | 1-5        |
| 392050          | 7602997          | MM       | 4/8/05  | 1           | 1-5        |
| 392054          | 7603453          | MM       | 4/8/05  | 2           | 1-5        |
| 392109          | 7602991          | MM       | 4/8/05  | 1           | 1-5        |
| 392123          | 7603208          | RO       | 4/8/05  | 1           | 1-5        |
| 392145          | 7603136          | BM       | 4/8/05  | 2           | 1-5        |
| 392220          | 7603138          | BM       | 4/8/05  | 5           | 1-5        |
| 392359          | 7603464          | MM       | 4/8/05  | 1           | 1-5        |
| 392361          | 7603344          | BM       | 4/8/05  | 1           | 1-5        |
| 392409          | 7603512          | MM       | 4/8/05  | 1           | 1-5        |
| 392416          | 7603241          | RO       | 4/8/05  | 1           | 1-5        |
| 392497          | 7603555          | RO       | 4/8/05  | 5           | 1-5        |
| 392534          | 7603327          | RO       | 4/8/05  | 1           | 1-5        |
| 393207          | 7603597          | MM       | 11/9/05 | 1           | 1-5        |
| 393338          | 7603837          | BM       | 11/9/05 | 2           | 1-5        |
| 393351          | 7603606          | MM       | 11/9/05 | 1           | 1-5        |
| 393359          | 7603780          | BM       | 11/9/05 | 2           | 1-5        |
| 393361          | 7603666          | MM       | 4/8/05  | 3           | 1-5        |
| 393375          | 7603774          | BM       | 11/9/05 | 1           | 1-5        |
| 393391          | 7603551          | BM       | 4/8/05  | 2           | 1-5        |
| 393397          | 7603614          | MM       | 11/9/05 | 5           | 1-5        |
| 393406          | 7603663          | MM       | 4/8/05  | 5           | 1-5        |
| 393418          | 7603669          | MM       | 4/8/05  | 1           | 1-5        |
| 393423          | 7603613          | MM       | 11/9/05 | 5           | 1-5        |
| 393444          | 7603376          | BM       | 4/8/05  | 1           | 1-5        |
| 393455          | 7603875          | BM       | 11/9/05 | 10          | 6-20       |
| 393466          | 7603842          | BM       | 11/9/05 | 5           | 1-5        |
| 393490          | 7603761          | BM       | 11/9/05 | 2           | 1-5        |
| 393496          | 7603374          | BM       | 4/8/05  | 1           | 1-5        |
| 393523          | 7603189          | MM       | 5/8/05  | 2           | 1-5        |
| 393562          | 7603673          | MM       | 4/8/05  | 4           | 1-5        |
| 393579          | 7603135          | MM       | 5/8/05  | 7           | 6-20       |
| 393593          | 7603425          | RO       | 4/8/05  | 2           | 1-5        |
| 393598          | 7603759          | BM       | 11/9/05 | 10          | 6-20       |
| 393616          | 7603122          | MM       | 5/8/05  | 8           | 6-20       |
| 393618          | 7603268          | MM       | 4/8/05  | 1           | 1-5        |
| 393646          | 7603607          | MM       | 11/9/05 | 1           | 1-5        |
| 393660          | 7603013          | BM       | 5/8/05  | 7           | 6-20       |
| 393661          | 7603128          | MM       | 5/8/05  | 9           | 6-20       |
| 393677          | 7603128          | MM       | 5/8/05  | 1           | 1-5        |
| 393691          | 7603665          | MM       | 4/8/05  | 1           | 1-5        |
| 393699          | 7603592          | MM       | 11/9/05 | 2           | 1-5        |
| 393708          | 7602948          | RO       | 5/8/05  | 2           | 1-5        |
| 393714          | 7602770          | BM       | 5/8/05  | 1           | 1-5        |
| 393722          | 7603258          | MM       | 4/8/05  | 4           | 1-5        |
| 393735          | 7603188          | MM       | 5/8/05  | 1           | 1-5        |
| 393741          | 7603130          | MM       | 5/8/05  | 2           | 1-5        |
| 393744          | 7602649          | MM       | 5/8/05  | 1           | 1-5        |
| 393747          | 7603011          | BM       | 5/8/05  | 3           | 1-5        |
| 393751          | 7603481          | RO       | 4/8/05  | 10          | 6-20       |
| 393756          | 7602948          | RO       | 5/8/05  | 2           | 1-5        |
| 393756          | 7603008          | BM       | 5/8/05  | 1           | 1-5        |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|--------|-------------|------------|
| 393777          | 7602772          | BM       | 5/8/05 | 4           | 1-5        |
| 393802          | 7603369          | BM       | 4/8/05 | 1           | 1-5        |
| 393811          | 7602713          | MM       | 5/8/05 | 3           | 1-5        |
| 393823          | 7603264          | MM       | 4/8/05 | 1           | 1-5        |
| 393824          | 7602949          | RO       | 5/8/05 | 3           | 1-5        |
| 393827          | 7603550          | BM       | 4/8/05 | 3           | 1-5        |
| 393831          | 7603008          | BM       | 5/8/05 | 3           | 1-5        |
| 393834          | 7602467          | BM       | 5/8/05 | 1           | 1-5        |
| 393840          | 7603120          | MM       | 5/8/05 | 4           | 1-5        |
| 393847          | 7602892          | RO       | 5/8/05 | 1           | 1-5        |
| 393848          | 7603369          | BM       | 4/8/05 | 1           | 1-5        |
| 393852          | 7603242          | MM       | 4/8/05 | 1           | 1-5        |
| 393856          | 7603181          | MM       | 5/8/05 | 1           | 1-5        |
| 393857          | 7602710          | MM       | 5/8/05 | 1           | 1-5        |
| 393866          | 7602770          | BM       | 5/8/05 | 3           | 1-5        |
| 393867          | 7603542          | BM       | 4/8/05 | 1           | 1-5        |
| 393884          | 7603119          | MM       | 5/8/05 | 2           | 1-5        |
| 393891          | 7602650          | MM       | 5/8/05 | 12          | 6-20       |
| 393892          | 7603431          | RO       | 4/8/05 | 1           | 1-5        |
| 393894          | 7603001          | BM       | 5/8/05 | 7           | 6-20       |
| 393894          | 7603358          | BM       | 4/8/05 | 1           | 1-5        |
| 393896          | 7602896          | RO       | 5/8/05 | 2           | 1-5        |
| 393896          | 7603247          | MM       | 4/8/05 | 2           | 1-5        |
| 393902          | 7602953          | RO       | 5/8/05 | 3           | 1-5        |
| 393919          | 7603126          | MM       | 5/8/05 | 3           | 1-5        |
| 393921          | 7603432          | RO       | 4/8/05 | 1           | 1-5        |
| 393921          | 7603486          | RO       | 4/8/05 | 10          | 6-20       |
| 393924          | 7602768          | BM       | 5/8/05 | 5           | 1-5        |
| 393929          | 7603011          | BM       | 5/8/05 | 1           | 1-5        |
| 393935          | 7602647          | MM       | 5/8/05 | 1           | 1-5        |
| 393940          | 7602530          | BM       | 5/8/05 | 4           | 1-5        |
| 393941          | 7602370          | MM       | 5/8/05 | 5           | 1-5        |
| 393943          | 7602945          | RO       | 5/8/05 | 1           | 1-5        |
| 393945          | 7603120          | MM       | 5/8/05 | 5           | 1-5        |
| 393951          | 7602776          | BM       | 5/8/05 | 3           | 1-5        |
| 393963          | 7602367          | MM       | 5/8/05 | 15          | 6-20       |
| 393978          | 7602476          | BM       | 5/8/05 | 4           | 1-5        |
| 393978          | 7603400          |          |        | <1%         | 21-99      |
| 393982          | 7602952          | RO       | 5/8/05 | 2           | 1-5        |
| 393994          | 7603162          | MM       | 5/8/05 | 1           | 1-5        |
| 393995          | 7602292          | MM       | 6/8/05 | 2           | 1-5        |
| 393996          | 7602533          | BM       | 5/8/05 | 1           | 1-5        |
| 393996          | 7602707          | MM       | 5/8/05 | 1           | 1-5        |
| 393997          | 7602763          | BM       | 5/8/05 | 1           | 1-5        |
| 394002          | 7603151          | MM       | 5/8/05 | 3           | 1-5        |
| 394007          | 7603107          | MM       | 5/8/05 | 2           | 1-5        |
| 394011          | 7602359          | MM       | 5/8/05 | 3           | 1-5        |
| 394020          | 7602180          | BM       | 6/8/05 | 2           | 1-5        |
| 394022          | 7602892          | RO       | 5/8/05 | scattered   | 6-20       |
| 394024          | 7602466          | BM       | 5/8/05 | 4           | 1-5        |
| 394030          | 7602713          | MM       | 5/8/05 | 1           | 1-5        |
| 394030          | 7602948          | RO       | 5/8/05 | 2           | 1-5        |
| 394038          | 7602291          | MM       | 6/8/05 | 1           | 1-5        |
| 394040          | 7602357          | MM       | 5/8/05 | 5           | 1-5        |
| 394042          | 7602047          | RO       | 6/8/05 | scattered   | 6-20       |
| 394052          | 7602704          | MM       | 5/8/05 | 2           | 1-5        |
| 394056          | 7602644          | MM       | 5/8/05 | 2           | 1-5        |
| 394059          | 7602467          | BM       | 5/8/05 | 4           | 1-5        |
| 394076          | 7602770          | BM       | 5/8/05 | 2           | 1-5        |
| 394077          | 7601989          | BM       | 6/8/05 | 10          | 6-20       |
| 394079          | 7602355          | MM       | 5/8/05 | 5           | 1-5        |
| 394083          | 7602111          | RO       | 6/8/05 | scattered   | 6-20       |
| 394084          | 7602705          | MM       | 5/8/05 | 4           | 1-5        |
| 394084          | 7602945          | RO       | 5/8/05 | 2           | 1-5        |
| 394085          | 7603010          | BM       | 5/8/05 | 1           | 1-5        |
| 394101          | 7601992          | BM       | 6/8/05 | 4           | 1-5        |
| 394106          | 7602467          | BM       | 5/8/05 | 2           | 1-5        |
| 394106          | 7602647          | MM       | 5/8/05 | 3           | 1-5        |
| 394106          | 7602951          | RO       | 5/8/05 | 2           | 1-5        |
| 394109          | 7602300          | MM       | 6/8/05 | 2           | 1-5        |
| 394109          | 7602770          | BM       | 5/8/05 | 4           | 1-5        |

***Abutilon trudgenii* ms. (continued)**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE   | NO. OF INDS | POPN. SIZE |
|-----------------|------------------|----------|--------|-------------|------------|
| 394115          | 7602893          | RO       | 5/8/05 | 3           | 1-5        |
| 394127          | 7602352          | MM       | 5/8/05 | 20          | 6-20       |
| 394138          | 7602051          | RO       | 6/8/05 | scattered   | 6-20       |
| 394138          | 7602942          | BM       | 5/8/05 | 10          | 6-20       |
| 394142          | 7603001          | BM       | 6/8/05 | 3           | 1-5        |
| 394147          | 7602714          | MM       | 5/8/05 | 5           | 1-5        |
| 394149          | 7602177          | BM       | 6/8/05 | 15          | 6-20       |
| 394153          | 7602532          | BM       | 5/8/05 | 9           | 6-20       |
| 394154          | 7601870          | MM       | 6/8/05 | 5           | 1-5        |
| 394160          | 7601997          | BM       | 6/8/05 | 7           | 6-20       |
| 394162          | 7602468          | BM       | 5/8/05 | 1           | 1-5        |
| 394162          | 7602896          | RO       | 5/8/05 | 8           | 6-20       |
| 394163          | 7602641          | MM       | 5/8/05 | 11          | 6-20       |
| 394168          | 7603367          | BM       | 4/8/05 | 1           | 1-5        |
| 394182          | 7602342          | MM       | 5/8/05 | 5           | 1-5        |
| 394184          | 7602899          | RO       | 6/8/05 | 10          | 6-20       |
| 394193          | 7602288          | MM       | 6/8/05 | 20          | 6-20       |
| 394194          | 7601866          | MM       | 6/8/05 | 10          | 6-20       |
| 394203          | 7602466          | BM       | 5/8/05 | 2           | 1-5        |
| 394204          | 7601994          | BM       | 6/8/05 | 10          | 6-20       |
| 394205          | 7602642          | MM       | 5/8/05 | 1           | 1-5        |
| 394208          | 7602179          | BM       | 6/8/05 | 20          | 6-20       |
| 394214          | 7602352          | MM       | 5/8/05 | 5           | 1-5        |
| 394225          | 7601867          | MM       | 6/8/05 | 5           | 1-5        |
| 394226          | 7603419          | RO       | 4/8/05 | 10          | 6-20       |
| 394232          | 7602115          | RO       | 6/8/05 | scattered   | 6-20       |
| 394238          | 7602292          | MM       | 6/8/05 | 11          | 6-20       |
| 394259          | 7602183          | BM       | 6/8/05 | 2           | 1-5        |
| 394269          | 7602959          | BM       | 6/8/05 | 1           | 1-5        |
| 394271          | 7602352          | MM       | 5/8/05 | 5           | 1-5        |
| 394272          | 7602048          | RO       | 6/8/05 | scattered   | 6-20       |
| 394280          | 7601869          | MM       | 6/8/05 | 5           | 1-5        |
| 394280          | 7602712          | MM       | 6/8/05 | 1           | 1-5        |
| 394297          | 7602295          | MM       | 6/8/05 | 3           | 1-5        |
| 394311          | 7602531          | BM       | 5/8/05 | 2           | 1-5        |
| 394317          | 7603069          | RO       | 6/8/05 | 3           | 1-5        |
| 394324          | 7602358          | MM       | 5/8/05 | scattered   | 6-20       |
| 394336          | 7601999          | BM       | 6/8/05 | 5           | 1-5        |
| 394336          | 7603247          | MM       | 4/8/05 | 1           | 1-5        |
| 394338          | 7601857          | MM       | 6/8/05 | 5           | 1-5        |
| 394340          | 7602554          | BM       | 5/8/05 | 1           | 1-5        |
| 394345          | 7602107          | RO       | 6/8/05 | scattered   | 6-20       |
| 394346          | 7602884          | RO       | 6/8/05 | 1           | 1-5        |
| 394352          | 7602301          | MM       | 6/8/05 | 6           | 6-20       |
| 394357          | 7602530          | BM       | 5/8/05 | 7           | 6-20       |
| 394372          | 7603492          | RO       | 4/8/05 | 1           | 1-5        |
| 394380          | 7602503          | BM       | 5/8/05 | 5           | 1-5        |
| 394382          | 7602294          | MM       | 6/8/05 | 5           | 1-5        |
| 394385          | 7603434          | RO       | 4/8/05 | 1           | 1-5        |
| 394406          | 7602057          | RO       | 6/8/05 | scattered   | 6-20       |
| 394409          | 7602892          | RO       | 6/8/05 | 15          | 6-20       |
| 394413          | 7602302          | MM       | 6/8/05 | 1           | 1-5        |
| 394432          | 7603362          | BM       | 4/8/05 | 1           | 1-5        |
| 394435          | 7601856          | MM       | 6/8/05 | 3           | 1-5        |
| 394437          | 7602949          | BM       | 6/8/05 | 5           | 1-5        |
| 394450          | 7602351          | MM       | 5/8/05 | scattered   | 6-20       |
| 394459          | 7603192          | MM       | 6/8/05 | 2           | 1-5        |
| 394464          | 7601984          | BM       | 6/8/05 | 1           | 1-5        |
| 394468          | 7602110          | RO       | 6/8/05 | scattered   | 6-20       |
| 394468          | 7603254          | MM       | 4/8/05 | 2           | 1-5        |
| 394479          | 7603013          | BM       | 6/8/05 | 2           | 1-5        |
| 394480          | 7602157          | BM       | 6/8/05 | 10          | 6-20       |
| 394491          | 7601855          | MM       | 6/8/05 | 5           | 1-5        |
| 394491          | 7602712          | MM       | 6/8/05 | 2           | 1-5        |
| 394504          | 7602944          | BM       | 6/8/05 | 5           | 1-5        |
| 394509          | 7603370          | BM       | 4/8/05 | 2           | 1-5        |
| 394524          | 7602054          | RO       | 6/8/05 | scattered   | 6-20       |
| 394528          | 7602105          | RO       | 6/8/05 | scattered   | 6-20       |
| 394530          | 7602512          | RO       | 6/8/05 | 10          | 6-20       |
| 394558          | 7603191          | MM       | 6/8/05 | 1           | 1-5        |
| 394559          | 7601980          | BM       | 6/8/05 | 10          | 6-20       |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 394561          | 7602946          | BM       | 6/8/05  | 1           | 1-5        |
| 394567          | 7602112          | RO       | 6/8/05  | 15          | 6-20       |
| 394573          | 7602181          | BM       | 6/8/05  | 1           | 1-5        |
| 394584          | 7603074          | RO       | 6/8/05  | 4           | 1-5        |
| 394587          | 7603011          | BM       | 6/8/05  | 2           | 1-5        |
| 394618          | 7602050          | RO       | 6/8/05  | scattered   | 6-20       |
| 394620          | 7601987          | BM       | 6/8/05  | 2           | 1-5        |
| 394622          | 7601862          | MM       | 6/8/05  | 1           | 1-5        |
| 394626          | 7602724          | MM       | 6/8/05  | 1           | 1-5        |
| 394671          | 7603070          | RO       | 6/8/05  | 5           | 1-5        |
| 394675          | 7602724          | MM       | 6/8/05  | 1           | 1-5        |
| 394682          | 7602974          | BM       | 6/8/05  | 3           | 1-5        |
| 394736          | 7603120          | MM       | 6/8/05  | 2           | 1-5        |
| 394806          | 7602657          | MM       | 6/8/05  | 2           | 1-5        |
| 394840          | 7602108          | RO       | 6/8/05  | scattered   | 6-20       |
| 394848          | 7602489          | MM       | 6/8/05  | 2           | 1-5        |
| 394858          | 7602053          | RO       | 6/8/05  | scattered   | 6-20       |
| 394866          | 7601996          | BM       | 6/8/05  | 20          | 6-20       |
| 394889          | 7602096          | RO       | 6/8/05  | scattered   | 6-20       |
| 394897          | 7602168          | BM       | 6/8/05  | 1           | 1-5        |
| 394916          | 7602060          | RO       | 6/8/05  | scattered   | 6-20       |
| 394955          | 7602113          | RO       | 6/8/05  | 1           | 1-5        |
| 394960          | 7602662          | BM       | 6/8/05  | 25          | 21-99      |
| 394970          | 7602168          | BM       | 6/8/05  | 7           | 6-20       |
| 394989          | 7602053          | RO       | 6/8/05  | scattered   | 6-20       |
| 394999          | 7601866          | MM       | 6/8/05  | 1           | 1-5        |
| 395356          | 7602703          | BM       | 7/8/05  | 2           | 1-5        |
| 395357          | 7602792          | BM       | 7/8/05  | 2           | 1-5        |
| 395406          | 7602628          | BM       | 7/8/05  | 10          | 6-20       |
| 395533          | 7602022          | BM       | 6/8/05  | 1           | 1-5        |
| 395551          | 7602767          | BM       | 7/8/05  | 1           | 1-5        |
| 395600          | 7602033          | BM       | 6/8/05  | 1           | 1-5        |
| 395749          | 7602459          | RO       | 7/8/05  | 7           | 6-20       |
| 395763          | 7602499          | RO       | 7/8/05  | 2           | 1-5        |
| 395854          | 7602199          | MM       | 7/8/05  | 2           | 1-5        |
| 395864          | 7602590          | BM       | 7/8/05  | 2           | 1-5        |
| 395872          | 7602443          | RO       | 7/8/05  | 1           | 1-5        |
| 395949          | 7601823          | MyM      | 13/9/05 | 3           | 1-5        |
| 396085          | 7601584          |          |         | +           | 6-20       |
| 396105          | 7602192          | BM       | 7/8/05  | 10          | 6-20       |
| 396127          | 7602574          | MM       | 7/8/05  | 3           | 1-5        |
| 396209          | 7602546          | MM       | 7/8/05  | 2           | 1-5        |
| 396266          | 7602535          | MM       | 7/8/05  | 1           | 1-5        |
| 396707          | 7601938          | MM       | 14/9/05 | 1           | 1-5        |
| 396726          | 7601913          | MM       | 14/9/05 | 1           | 1-5        |
| 397610          | 7597898          | MM       | 7/8/05  | 1           | 1-5        |
| 397642          | 7597918          | MM       | 7/8/05  | 8           | 6-20       |
| 397649          | 7597939          | MM       | 7/8/05  | 10          | 6-20       |
| 397674          | 7597851          | BM       | 7/8/05  | 15          | 6-20       |
| 397676          | 7597968          | MM       | 7/8/05  | 10          | 6-20       |
| 397684          | 7600553          | BM       | 14/9/05 | 1           | 1-5        |
| 397746          | 7598027          | MM       | 7/8/05  | 5           | 1-5        |
| 397749          | 7597745          | RO       | 7/8/05  | 2           | 1-5        |
| 397766          | 7597901          | BM       | 7/8/05  | 100         | >100       |
| 397773          | 7597886          | BM       | 7/8/05  | 30          | 21-99      |
| 397782          | 7597780          | RO       | 7/8/05  | 5           | 1-5        |
| 397824          | 7598124          | MM       | 7/8/05  | 2           | 1-5        |
| 397832          | 7601706          | MM       | 11/9/05 | 3           | 1-5        |
| 397846          | 7597833          | RO       | 7/8/05  | 10          | 6-20       |
| 397863          | 7598034          | BM       | 7/8/05  | 1           | 1-5        |
| 397868          | 7597708          | RO       | 7/8/05  | 10          | 6-20       |
| 397913          | 7601829          | BM       | 11/9/05 | 1           | 1-5        |
| 397916          | 7598211          | MM       | 7/8/05  | 1           | 1-5        |
| 397921          | 7597940          | RO       | 7/8/05  | 2           | 1-5        |
| 397937          | 7597777          | RO       | 7/8/05  | 1           | 1-5        |
| 397949          | 7601880          | MM       | 11/9/05 | 2           | 1-5        |
| 397962          | 7597631          | BM       | 7/8/05  | 10          | 6-20       |
| 397973          | 7601736          | BM       | 11/9/05 | 1           | 1-5        |
| 398023          | 7601793          | BM       | 11/9/05 | 1           | 1-5        |
| 398050          | 7597717          | BM       | 7/8/05  | 20          | 6-20       |
| 398054          | 7597902          | RO       | 7/8/05  | 1           | 1-5        |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 398077          | 7597627          | MM       | 7/8/05  | 5           | 1-5        |
| 398082          | 7601566          | MM       | 12/9/05 | 1           | 1-5        |
| 398089          | 7597673          | MM       | 7/8/05  | 2           | 1-5        |
| 398099          | 7597772          | BM       | 7/8/05  | 1           | 1-5        |
| 398102          | 7601360          | MM       | 12/9/05 | 1           | 1-5        |
| 398103          | 7601762          | BM       | 11/9/05 | 1           | 1-5        |
| 398115          | 7597692          | MM       | 7/8/05  | 3           | 1-5        |
| 398134          | 7597706          | MM       | 7/8/05  | 5           | 1-5        |
| 398158          | 7597805          | BM       | 7/8/05  | 2           | 1-5        |
| 398167          | 7597727          | MM       | 7/8/05  | 1           | 1-5        |
| 398175          | 7601578          | MM       | 11/9/05 | 1           | 1-5        |
| 398199          | 7597766          | MM       | 7/8/05  | 1           | 1-5        |
| 398217          | 7597859          | BM       | 7/8/05  | 1           | 1-5        |
| 398229          | 7601295          | MM       | 12/9/05 | 1           | 1-5        |
| 398243          | 7601439          | BM       | 12/9/05 | 1           | 1-5        |
| 398274          | 7597843          | MM       | 7/8/05  | 1           | 1-5        |
| 398280          | 7598133          | RO       | 7/8/05  | 1           | 1-5        |
| 398302          | 7597884          | MM       | 7/8/05  | 1           | 1-5        |
| 398329          | 7601521          | MM       | 11/9/05 | 1           | 1-5        |
| 398364          | 7601399          | BM       | 12/9/05 | 1           | 1-5        |
| 398398          | 7601434          | MM       | 12/9/05 | 1           | 1-5        |
| 398412          | 7601344          | BM       | 12/8/05 | 1           | 1-5        |
| 398443          | 7601426          | MM       | 12/9/05 | 1           | 1-5        |
| 398444          | 7601422          | RO       | 12/8/05 | 1           | 1-5        |
| 398908          | 7599150          | MM       | 14/9/05 | 1           | 1-5        |
| 399048          | 7599061          | MyM      | 15/9/05 | 3           | 1-5        |
| 399285          | 7601391          | MM       | 12/8/05 | 2           | 1-5        |
| 399314          | 7601126          | RO       | 12/8/05 | 25          | 21-99      |
| 399339          | 7601016          | BM       | 12/8/05 | 20          | 6-20       |
| 399347          | 7601366          | MM       | 12/8/05 | 10          | 6-20       |
| 399350          | 7601110          | RO       | 12/8/05 | scattered   | 6-20       |
| 399350          | 7601233          | BM       | 12/8/05 | 50          | 21-99      |
| 399364          | 7600868          | MM       | 12/8/05 | 1           | 1-5        |
| 399365          | 7601133          | RO       | 12/8/05 | 10          | 6-20       |
| 399390          | 7601346          | MM       | 12/8/05 | 2           | 1-5        |
| 399401          | 7600855          | MM       | 12/8/05 | 1           | 1-5        |
| 399415          | 7601216          | BM       | 12/8/05 | 20          | 6-20       |
| 399438          | 7600844          | MM       | 12/8/05 | 1           | 1-5        |
| 399439          | 7601112          | RO       | 12/8/05 | 20          | 6-20       |
| 399444          | 7601070          | RO       | 12/8/05 | 15          | 6-20       |
| 399449          | 7600972          | BM       | 12/8/05 | 5           | 1-5        |
| 399455          | 7601198          | BM       | 12/8/05 | 20          | 6-20       |
| 399461          | 7601328          | MM       | 12/8/05 | 20          | 6-20       |
| 399484          | 7601320          | MM       | 12/8/05 | 1           | 1-5        |
| 399486          | 7601081          | RO       | 12/8/05 | 12          | 6-20       |
| 399509          | 7601041          | RO       | 12/8/05 | 5           | 1-5        |
| 399512          | 7600817          | MM       | 12/8/05 | 2           | 1-5        |
| 399518          | 7600948          | BM       | 12/8/05 | 50          | 21-99      |
| 399521          | 7601309          | MM       | 12/8/05 | 5           | 1-5        |
| 399531          | 7601048          | RO       | 12/8/05 | 16          | 6-20       |
| 399532          | 7600809          | MM       | 12/8/05 | 2           | 1-5        |
| 399541          | 7601035          | RO       | 12/8/05 | 1           | 1-5        |
| 399545          | 7601162          | BM       | 12/8/05 | 10          | 6-20       |
| 399546          | 7600806          | MM       | 12/8/05 | 1           | 1-5        |
| 399563          | 7601151          | BM       | 12/8/05 | 20          | 6-20       |
| 399568          | 7601020          | RO       | 12/8/05 | 3           | 1-5        |
| 399572          | 7601292          | MM       | 12/8/05 | 35          | 21-99      |
| 399596          | 7600786          | MM       | 12/8/05 | 1           | 1-5        |
| 399601          | 7601007          | RO       | 12/8/05 | 1           | 1-5        |
| 399620          | 7601269          | MM       | 12/8/05 | 4           | 1-5        |
| 399622          | 7601124          | BM       | 12/8/05 | 20          | 6-20       |
| 399630          | 7600996          | RO       | 12/8/05 | 5           | 1-5        |
| 399640          | 7600768          | MM       | 12/8/05 | 3           | 1-5        |
| 399648          | 7600996          | RO       | 12/8/05 | 1           | 1-5        |
| 399651          | 7601250          | MM       | 12/8/05 | 5           | 1-5        |
| 399655          | 7601124          | BM       | 12/8/05 | 10          | 6-20       |
| 399659          | 7600904          | BM       | 12/8/05 | 5           | 1-5        |
| 399675          | 7601000          | RO       | 12/8/05 | 4           | 1-5        |
| 399687          | 7600758          | MM       | 12/8/05 | 1           | 1-5        |
| 399696          | 7601245          | MM       | 12/8/05 | 5           | 1-5        |
| 399700          | 7601011          | RO       | 12/8/05 | 3           | 1-5        |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 399716          | 7601097          | BM       | 12/8/05 | 30          | 21-99      |
| 399738          | 7601222          | MM       | 12/8/05 | 1           | 1-5        |
| 399749          | 7601086          | BM       | 12/8/05 | 2           | 1-5        |
| 399839          | 7601194          | MM       | 12/8/05 | 2           | 1-5        |
| 399865          | 7601175          | MM       | 12/8/05 | 1           | 1-5        |
| 399953          | 7601137          | MM       | 12/8/05 | 1           | 1-5        |
| 399972          | 7601142          | MM       | 12/8/05 | 1           | 1-5        |
| 400297          | 7598977          | MM       | 15/9/05 | 2           | 1-5        |
| 400300          | 7599280          | MyM      | 15/9/05 | 1           | 1-5        |
| 400328          | 7599109          | BM       | 15/9/05 | 1           | 1-5        |
| 400417          | 7599088          | BM       | 15/9/05 | 1           | 1-5        |
| 400427          | 7599136          | MM       | 15/9/05 | 1           | 1-5        |
| 400444          | 7599250          | MyM      | 15/9/05 | 1           | 1-5        |
| 400524          | 7599017          | BM       | 15/9/05 | 2           | 1-5        |
| 400541          | 7599281          | MM       | 15/9/05 | 1           | 1-5        |
| 400552          | 7599130          | MyM      | 15/9/05 | 2           | 1-5        |
| 400561          | 7599060          | MM       | 15/9/05 | 1           | 1-5        |
| 400576          | 7599051          | MM       | 15/9/05 | 2           | 1-5        |
| 400603          | 7600660          | RO       | 12/8/05 | 1           | 1-5        |
| 400608          | 7600660          | RO       | 12/8/05 | 5           | 1-5        |
| 400613          | 7599235          | MM       | 15/9/05 | 1           | 1-5        |
| 400620          | 7599069          | MyM      | 15/9/05 | 2           | 1-5        |
| 400637          | 7599152          | MyM      | 15/9/05 | 4           | 1-5        |
| 400652          | 7600760          | BM       | 12/8/05 | 1           | 1-5        |
| 400665          | 7599204          | MM       | 15/9/05 | 1           | 1-5        |
| 400678          | 7600729          | BM       | 12/8/05 | 1           | 1-5        |
| 400696          | 7599093          | MyM      | 15/9/05 | 1           | 1-5        |
| 400732          | 7600853          | MM       | 12/8/05 | 20          | 6-20       |
| 400783          | 7600662          | BM       | 12/8/05 | 20          | 6-20       |
| 400792          | 7600811          | MM       | 12/8/05 | 20          | 6-20       |
| 400831          | 7600616          | BM       | 12/8/05 | 10          | 6-20       |
| 400835          | 7600781          | MM       | 12/8/05 | 50          | 21-99      |
| 400854          | 7599096          | MM       | 15/9/05 | 1           | 1-5        |
| 400864          | 7600756          | MM       | 12/8/05 | 20          | 6-20       |
| 400883          | 7600489          | RO       | 12/8/05 | 1           | 1-5        |
| 400902          | 7600731          | MM       | 12/8/05 | 10          | 6-20       |
| 400910          | 7600570          | BM       | 12/8/05 | 25          | 21-99      |
| 400930          | 7600699          | MM       | 12/8/05 | 20          | 6-20       |
| 400941          | 7599103          | BM       | 15/9/05 | 2           | 1-5        |
| 400946          | 7600426          | RO       | 12/8/05 | 3           | 1-5        |
| 400954          | 7599092          | BM       | 15/9/05 | 1           | 1-5        |
| 400956          | 7600460          | RO       | 12/8/05 | 2           | 1-5        |
| 400964          | 7600671          | MM       | 12/8/05 | 10          | 6-20       |
| 400988          | 7600450          | RO       | 12/8/05 | 1           | 1-5        |
| 401018          | 7600440          | RO       | 12/8/05 | 1           | 1-5        |
| 401138          | 7600464          | BM       | 12/8/05 | 1           | 1-5        |
| 401175          | 7600246          | BM       | 12/8/05 | 1           | 1-5        |
| 401176          | 7600329          | RO       | 12/8/05 | 2           | 1-5        |
| 401215          | 7600238          | BM       | 12/8/05 | 1           | 1-5        |
| 401315          | 7600049          | MM       | 12/8/05 | 1           | 1-5        |
| 401372          | 7600526          | MM       | 12/8/05 | 2           | 1-5        |
| 401391          | 7600517          | MM       | 12/8/05 | 1           | 1-5        |
| 401417          | 7600159          | BM       | 12/8/05 | 2           | 1-5        |
| 401485          | 7600150          | BM       | 12/8/05 | 2           | 1-5        |
| 401511          | 7600349          | BM       | 12/8/05 | 1           | 1-5        |
| 401591          | 7600433          | MM       | 11/9/05 | 2           | 1-5        |
| 401619          | 7600350          | BM       | 11/9/05 | 3           | 1-5        |
| 401624          | 7600075          | BM       | 12/8/05 | 2           | 1-5        |
| 401651          | 7599912          | MM       | 12/8/05 | 5           | 1-5        |
| 401667          | 7600255          | BM       | 11/9/05 | 1           | 1-5        |
| 401682          | 7600392          | MM       | 11/9/05 | 1           | 1-5        |
| 401736          | 7599876          | MM       | 12/8/05 | 1           | 1-5        |
| 401747          | 7600030          | BM       | 12/8/05 | 5           | 1-5        |
| 401805          | 7599860          | MM       | 12/8/05 | 15          | 6-20       |
| 401811          | 7600118          | MM       | 11/9/05 | 1           | 1-5        |
| 401817          | 7600057          | MM       | 11/9/05 | 1           | 1-5        |
| 401871          | 7600096          | MM       | 11/9/05 | 1           | 1-5        |
| 401878          | 7599823          | MM       | 12/8/05 | 2           | 1-5        |
| 401894          | 7599980          | BM       | 11/9/05 | 1           | 1-5        |
| 401904          | 7599911          | BM       | 11/9/05 | 15          | 6-20       |
| 401958          | 7600065          | MM       | 11/9/05 | 2           | 1-5        |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 401964          | 7599946          | BM       | 11/9/05 | 2           | 1-5        |
| 401966          | 7599992          | MM       | 11/9/05 | 2           | 1-5        |
| 401989          | 7599871          | BM       | 11/9/05 | 15          | 6-20       |
| 401995          | 7599925          | BM       | 11/9/05 | 1           | 1-5        |
| 402010          | 7600126          | BM       | 11/9/05 | 5           | 1-5        |
| 402011          | 7600066          | MM       | 11/9/05 | 2           | 1-5        |
| 402024          | 7600029          | MM       | 11/9/05 | 2           | 1-5        |
| 402037          | 7599974          | MM       | 11/9/05 | 4           | 1-5        |
| 402044          | 7599913          | BM       | 11/9/05 | 5           | 1-5        |
| 402049          | 7600177          | BM       | 11/9/05 | 1           | 1-5        |
| 402071          | 7599902          | BM       | 11/9/05 | 3           | 1-5        |
| 402102          | 7599818          | BM       | 11/9/05 | 5           | 1-5        |
| 402102          | 7600006          | MM       | 11/9/05 | 2           | 1-5        |
| 402113          | 7599731          | MM       | 11/9/05 | 1           | 1-5        |
| 402139          | 7599873          | BM       | 11/9/05 | 4           | 1-5        |
| 402143          | 7599940          | MM       | 11/9/05 | 5           | 1-5        |
| 402176          | 7599972          | MM       | 11/9/05 | 1           | 1-5        |
| 402178          | 7599917          | MM       | 11/9/05 | 5           | 1-5        |
| 402180          | 7599714          | MM       | 11/9/05 | 3           | 1-5        |
| 402219          | 7599956          | MM       | 11/9/05 | 1           | 1-5        |
| 402231          | 7599896          | MM       | 11/9/05 | 1           | 1-5        |
| 402237          | 7599839          | BM       | 11/9/05 | 20          | 6-20       |
| 402238          | 7599682          | MM       | 11/9/05 | 3           | 1-5        |
| 402294          | 7599743          | BM       | 11/9/05 | 20          | 6-20       |
| 402300          | 7599931          | MM       | 11/9/05 | 1           | 1-5        |
| 402301          | 7599651          | MM       | 11/9/05 | 5           | 1-5        |
| 402313          | 7599861          | MM       | 11/9/05 | 3           | 1-5        |
| 402324          | 7599913          | MM       | 11/9/05 | 1           | 1-5        |
| 402348          | 7599847          | MM       | 11/9/05 | 8           | 6-20       |
| 402365          | 7599781          | BM       | 11/9/05 | 15          | 6-20       |
| 402372          | 7599704          | BM       | 11/9/05 | 10          | 6-20       |
| 402377          | 7599831          | MM       | 11/9/05 | 2           | 1-5        |
| 402412          | 7599622          | MM       | 11/9/05 | 10          | 6-20       |
| 402413          | 7599880          | MM       | 11/9/05 | 1           | 1-5        |
| 402414          | 7599825          | MM       | 11/9/05 | 2           | 1-5        |
| 402418          | 7599686          | BM       | 11/9/05 | 10          | 6-20       |
| 402432          | 7599603          | MM       | 11/9/05 | 3           | 1-5        |
| 402449          | 7599863          | MM       | 11/9/05 | 1           | 1-5        |
| 402457          | 7599802          | MM       | 11/9/05 | 5           | 1-5        |
| 402461          | 7599737          | BM       | 11/9/05 | 15          | 6-20       |
| 402496          | 7599793          | MM       | 11/9/05 | 5           | 1-5        |
| 402503          | 7599849          | MM       | 11/9/05 | 2           | 1-5        |
| 402523          | 7599595          | MM       | 11/9/05 | 1           | 1-5        |
| 402540          | 7599850          | MM       | 11/9/05 | 5           | 1-5        |
| 402542          | 7599654          | BM       | 11/9/05 | 20          | 6-20       |
| 402558          | 7599908          | BM       | 11/9/05 | 10          | 6-20       |
| 402591          | 7599838          | MM       | 11/9/05 | 1           | 1-5        |
| 402606          | 7599651          | BM       | 11/9/05 | 10          | 6-20       |
| 402610          | 7599833          | MM       | 11/9/05 | 1           | 1-5        |
| 402611          | 7600046          | MM       | 11/9/05 | 1           | 1-5        |
| 402615          | 7599778          | MM       | 11/9/05 | 3           | 1-5        |
| 402621          | 7599914          | BM       | 11/9/05 | 20          | 6-20       |
| 402626          | 7599587          | MM       | 11/9/05 | 5           | 1-5        |
| 402663          | 7599768          | MM       | 11/9/05 | 5           | 1-5        |
| 402673          | 7599829          | MM       | 11/9/05 | 5           | 1-5        |
| 402692          | 7599719          | BM       | 11/9/05 | 60          | 21-99      |
| 402706          | 7600037          | MM       | 11/9/05 | 1           | 1-5        |
| 402707          | 7599644          | BM       | 11/9/05 | 30          | 21-99      |
| 402713          | 7599574          | MM       | 11/9/05 | 5           | 1-5        |
| 402718          | 7599893          | BM       | 11/9/05 | 3           | 1-5        |
| 402726          | 7600038          | MM       | 11/9/05 | 20          | 6-20       |
| 402729          | 7599977          | BM       | 11/9/05 | 10          | 6-20       |
| 402761          | 7599754          | MM       | 11/9/05 | 3           | 1-5        |
| 402768          | 7600033          | MM       | 11/9/05 | 3           | 1-5        |
| 402785          | 7599573          | MM       | 11/9/05 | 16          | 6-20       |
| 402797          | 7599759          | MM       | 11/9/05 | 5           | 1-5        |
| 402810          | 7599702          | BM       | 11/9/05 | 55          | 21-99      |
| 402819          | 7599637          | BM       | 11/9/05 | 30          | 21-99      |
| 402841          | 7599579          | MM       | 11/9/05 | 5           | 1-5        |
| 402844          | 7599757          | MM       | 11/9/05 | 10          | 6-20       |
| 402853          | 7599809          | MM       | 11/9/05 | 5           | 1-5        |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 402855          | 7599882          | BM       | 11/9/05 | 1           | 1-5        |
| 402879          | 7600021          | MM       | 11/9/05 | 1           | 1-5        |
| 402906          | 7599808          | MM       | 11/9/05 | 20          | 6-20       |
| 402908          | 7599625          | BM       | 11/9/05 | 30          | 21-99      |
| 402929          | 7599563          | MM       | 11/9/05 | 5           | 1-5        |
| 402937          | 7600024          | MM       | 11/9/05 | 2           | 1-5        |
| 402941          | 7599811          | MM       | 11/9/05 | 20          | 6-20       |
| 402968          | 7599689          | BM       | 11/9/05 | 25          | 21-99      |
| 402987          | 7599567          | MM       | 11/9/05 | 20          | 6-20       |
| 402993          | 7599802          | MM       | 11/9/05 | 5           | 1-5        |
| 402999          | 7599628          | BM       | 11/9/05 | 40          | 21-99      |
| 403000          | 7599893          | BM       | 11/9/05 | 1           | 1-5        |
| 403006          | 7599761          | MM       | 11/9/05 | 10          | 6-20       |
| 403013          | 7599809          | MM       | 11/9/05 | 1           | 1-5        |
| 403028          | 7599569          | MM       | 11/9/05 | 20          | 6-20       |
| 403052          | 7599813          | MM       | 11/9/05 | 5           | 1-5        |
| 403057          | 7599698          | BM       | 11/9/05 | 5           | 1-5        |
| 403063          | 7599577          | MM       | 11/9/05 | 6           | 6-20       |
| 403083          | 7599821          | MM       | 11/9/05 | 1           | 1-5        |
| 403094          | 7599579          | MM       | 11/9/05 | 1           | 1-5        |
| 403114          | 7599639          | BM       | 11/9/05 | 60          | 21-99      |
| 403125          | 7599762          | MM       | 11/9/05 | 5           | 1-5        |
| 403132          | 7599713          | BM       | 11/9/05 | 15          | 6-20       |
| 403137          | 7599764          | MM       | 11/9/05 | 20          | 6-20       |
| 403138          | 7599828          | MM       | 11/9/05 | 5           | 1-5        |
| 403165          | 7599762          | MM       | 11/9/05 | 20          | 6-20       |
| 403209          | 7599828          | MM       | 11/9/05 | 10          | 6-20       |
| 403215          | 7599588          | MM       | 11/9/05 | 3           | 1-5        |
| 403217          | 7599762          | MM       | 11/9/05 | 10          | 6-20       |
| 403226          | 7599904          | BM       | 11/9/05 | 5           | 1-5        |
| 403236          | 7599649          | BM       | 11/9/05 | 20          | 6-20       |
| 403273          | 7599834          | MM       | 11/9/05 | 2           | 1-5        |
| 403287          | 7599781          | MM       | 11/9/05 | 10          | 6-20       |
| 403296          | 7599596          | MM       | 11/9/05 | 15          | 6-20       |
| 403310          | 7599656          | BM       | 11/9/05 | 10          | 6-20       |
| 403312          | 7599785          | MM       | 11/9/05 | 20          | 6-20       |
| 403317          | 7599841          | MM       | 11/9/05 | 5           | 1-5        |
| 403320          | 7599724          | BM       | 11/9/05 | 10          | 6-20       |
| 403337          | 7599603          | MM       | 11/9/05 | 5           | 1-5        |
| 403341          | 7599785          | MM       | 11/9/05 | 10          | 6-20       |
| 403342          | 7599842          | MM       | 11/9/05 | 10          | 6-20       |
| 403381          | 7599849          | MM       | 11/9/05 | 5           | 1-5        |
| 403398          | 7599854          | MM       | 11/9/05 | 2           | 1-5        |
| 403405          | 7599789          | MM       | 11/9/05 | 5           | 1-5        |
| 403432          | 7599918          | BM       | 11/9/05 | 1           | 1-5        |
| 403437          | 7599730          | BM       | 11/9/05 | 10          | 6-20       |
| 403439          | 7599787          | MM       | 11/9/05 | 15          | 6-20       |
| 403449          | 7599608          | MM       | 11/9/05 | 10          | 6-20       |
| 403454          | 7599670          | BM       | 11/9/05 | 20          | 6-20       |
| 403460          | 7598022          |          |         | +           | 6-20       |
| 403461          | 7599784          | MM       | 11/9/05 | 5           | 1-5        |
| 403500          | 7599790          | MM       | 11/9/05 | 30          | 21-99      |
| 403512          | 7599914          | BM       | 11/9/05 | 10          | 6-20       |
| 403515          | 7599725          | BM       | 11/9/05 | 30          | 21-99      |
| 403524          | 7599794          | MM       | 11/9/05 | 20          | 6-20       |
| 403530          | 7599844          | MM       | 11/9/05 | 3           | 1-5        |
| 403537          | 7598067          | MM       | 13/9/05 | 1           | 1-5        |
| 403548          | 7598061          | MM       | 13/9/05 | 2           | 1-5        |
| 403552          | 7599791          | MM       | 11/9/05 | 10          | 6-20       |
| 403571          | 7599925          | BM       | 11/9/05 | 10          | 6-20       |
| 403581          | 7599858          | MM       | 11/9/05 | 20          | 6-20       |
| 403588          | 7599686          | BM       | 11/9/05 | 5           | 1-5        |
| 403590          | 7599797          | MM       | 11/9/05 | 15          | 6-20       |
| 403604          | 7599731          | BM       | 11/9/05 | 10          | 6-20       |
| 403615          | 7599604          | MM       | 11/9/05 | 5           | 1-5        |
| 403619          | 7598013          | MM       | 13/9/05 | 1           | 1-5        |
| 403619          | 7599862          | MM       | 11/9/05 | 10          | 6-20       |
| 403626          | 7599743          | MM       | 11/9/05 | 5           | 1-5        |
| 403640          | 7599703          | MM       | 11/9/05 | 5           | 1-5        |
| 403645          | 7599807          | MM       | 11/9/05 | 15          | 6-20       |
| 403659          | 7599861          | MM       | 11/9/05 | 10          | 6-20       |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS                         |
|-----------------|------------------|----------|---------|-------------|------------|----------------------------------|
| 403668          | 7599941          | BM       | 11/9/05 | 30          | 21-99      |                                  |
| 403733          | 7599616          | MM       | 11/8/05 | scattered   | 6-20       |                                  |
| 403757          | 7599776          | MM       | 11/8/05 | scattered   | 6-20       |                                  |
| 403765          | 7599745          | BM       | 11/8/05 | 20          | 6-20       |                                  |
| 403768          | 7600016          | MM       | 11/8/05 | 1           | 1-5        |                                  |
| 403789          | 7599865          | RO       | 11/8/05 | scattered   | 6-20       |                                  |
| 403805          | 7599805          | RO       | 11/8/05 | scattered   | 6-20       |                                  |
| 403853          | 7599937          | BM       | 11/8/05 | 1           | 1-5        |                                  |
| 403875          | 7600079          | MM       | 11/8/05 | 10          | 6-20       |                                  |
| 403900          | 7599928          | BM       | 11/8/05 | 5           | 1-5        |                                  |
| 403908          | 7599869          | RO       | 11/8/05 | scattered   | 6-20       |                                  |
| 403934          | 7599869          | RO       | 11/8/05 | scattered   | 6-20       |                                  |
| 403935          | 7599935          | BM       | 11/8/05 | 10          | 6-20       |                                  |
| 403956          | 7600075          | MM       | 11/8/05 | 3           | 1-5        |                                  |
| 403997          | 7599950          | BM       | 11/8/05 | 10          | 6-20       |                                  |
| 404013          | 7599884          | RO       | 11/8/05 | scattered   | 6-20       |                                  |
| 404019          | 7600023          | MM       | 11/8/05 | 1           | 1-5        |                                  |
| 404028          | 7599951          | BM       | 11/8/05 | 2           | 1-5        |                                  |
| 404031          | 7600039          | MM       | 11/8/05 | 1           | 1-5        |                                  |
| 404035          | 7594397          | BM       | 6/9/05  | 1           | 1-5        |                                  |
| 404040          | 7594359          | BM       | 6/9/05  | 6           | 6-20       |                                  |
| 404044          | 7594309          | BM       | 6/9/05  | 2           | 1-5        |                                  |
| 404049          | 7599880          | RO       | 11/8/05 | 10          | 6-20       |                                  |
| 404055          | 7594418          | HE       | 6/9/05  | 1           | 1-5        |                                  |
| 404063          | 7594265          | BM       | 6/9/05  | 5           | 1-5        |                                  |
| 404068          | 7594594          | BM       | 6/9/05  | 6           | 6-20       |                                  |
| 404068          | 7594623          | BM       | 6/9/05  | 2           | 1-5        |                                  |
| 404072          | 7594306          | HE       | 6/9/05  | 6           | 6-20       |                                  |
| 404076          | 7594639          | BM       | 6/9/05  | 3           | 1-5        |                                  |
| 404077          | 7594587          | HE       | 6/9/05  | 5           | 1-5        |                                  |
| 404087          | 7599884          | RO       | 11/8/05 | 10          | 6-20       |                                  |
| 404090          | 7594253          | HE       | 6/9/05  | 3           | 1-5        |                                  |
| 404091          | 7594639          | HE       | 6/9/05  | 1           | 1-5        |                                  |
| 404102          | 7594672          | BM       | 6/9/05  | 6           | 6-20       |                                  |
| 404124          | 7594694          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404134          | 7594693          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404144          | 7599887          | RO       | 11/8/05 | 1           | 1-5        |                                  |
| 404152          | 7594175          | BM       | 6/9/05  | 1           | 1-5        |                                  |
| 404170          | 7594709          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404176          | 7594718          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404190          | 7594718          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404211          | 7599823          | RO       | 11/8/05 | 1           | 1-5        |                                  |
| 404212          | 7594701          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404237          | 7594740          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404246          | 7594126          | BM       | 6/9/05  | 1           | 1-5        |                                  |
| 404259          | 7599768          | BM       | 11/8/05 | 10          | 6-20       |                                  |
| 404269          | 7594142          | HE       | 6/9/05  | 20          | 6-20       |                                  |
| 404272          | 7594753          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404289          | 7594768          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404298          | 7594759          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404306          | 7599895          | RO       | 11/8/05 | 1           | 1-5        |                                  |
| 404326          | 7599765          | BM       | 11/8/05 | 4           | 1-5        |                                  |
| 404330          | 7594097          | BM       | 6/9/05  | 4           | 1-5        |                                  |
| 404334          | 7594778          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404346          | 7594787          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404363          | 7594789          | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404382          | 7594793          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404386          | 7594086          | BM       | 6/9/05  | 3           | 1-5        |                                  |
| 404389          | 7594802          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404393          | 7599830          | RO       | 11/8/05 | 2           | 1-5        |                                  |
| 404399          | 7594809          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404409          | 7594807          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404414          | 7594811          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404419          | 7599750          | BM       | 11/8/05 | 1           | 1-5        |                                  |
| 404420          | 7594814          | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404432          | 7594826          | MM       | 6/9/05  | 5           | 1-5        | abundant through this burnt area |
| 404435          | 7594811          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404446          | 7594819          | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS                         |
|-----------------|------------------|----------|---------|-------------|------------|----------------------------------|
| 404458          | 7594067          | BM       | 6/9/05  | 7           | 6-20       |                                  |
| 404463          | 7594826          | MM       | 6/9/05  | 15          | 6-20       | abundant through this burnt area |
| 404473          | 7599914          | RO       | 11/8/05 | 15          | 6-20       |                                  |
| 404487          | 7594832          | MM       | 6/9/05  | 1           | 1-5        | abundant through this burnt area |
| 404488          | 7594075          | HE       | 6/9/05  | scattered   | 6-20       |                                  |
| 404496          | 7594818          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404498          | 7594070          | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404499          | 7594055          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404511          | 7594836          | MM       | 6/9/05  | 15          | 6-20       | abundant through this burnt area |
| 404517          | 7594051          | MM       | 6/9/05  | 6           | 6-20       |                                  |
| 404526          | 7594068          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404526          | 7599741          | BM       | 11/8/05 | 1           | 1-5        |                                  |
| 404534          | 7594062          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404540          | 7594844          | MM       | 6/9/05  | 15          | 6-20       | abundant through this burnt area |
| 404557          | 7594049          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404561          | 7594849          | MM       | 6/9/05  | 5           | 1-5        | abundant through this burnt area |
| 404563          | 7599817          | RO       | 11/8/05 | 1           | 1-5        |                                  |
| 404585          | 7594854          | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404589          | 7594847          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404600          | 7594051          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404602          | 7594045          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404605          | 7594843          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404611          | 7594852          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404619          | 7599770          | BM       | 11/8/05 | 1           | 1-5        |                                  |
| 404620          | 7594862          | MM       | 6/9/05  | 5           | 1-5        | abundant through this burnt area |
| 404623          | 7594038          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404627          | 7594034          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404644          | 7594863          | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404646          | 7594025          | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404646          | 7594051          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404652          | 7594045          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404653          | 7594865          | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404658          | 7594880          | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404663          | 7594863          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404665          | 7594045          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404675          | 7594019          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404680          | 7594037          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404712          | 7594897          | MM       | 6/9/05  | 5           | 1-5        | abundant through this burnt area |
| 404720          | 7594044          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404720          | 7594883          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404721          | 7594032          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404733          | 7594898          | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404734          | 7594885          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404758          | 7594030          | MM       | 6/9/05  | 6           | 6-20       |                                  |
| 404762          | 7594895          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404787          | 7594016          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404794          | 7594903          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404794          | 7600000          | BM       | 11/8/05 | 1           | 1-5        |                                  |
| 404797          | 7594017          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404805          | 7594022          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404819          | 7594020          | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404857          | 7599941          | RO       | 11/8/05 | 10          | 6-20       |                                  |
| 404866          | 7594016          | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404882          | 7594013          | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404890          | 7594934          | BM       | 6/9/05  | 3           | 1-5        |                                  |
| 404893          | 7593982          | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404898          | 7600127          | MM       | 11/8/05 | 4           | 1-5        |                                  |
| 404900          | 7593996          | MyM      | 13/9/05 | 5           | 1-5        |                                  |
| 404922          | 7593976          | MM       | 14/9/05 | 2           | 1-5        |                                  |
| 404923          | 7594929          | HE       | 6/9/05  | 2           | 1-5        |                                  |
| 404956          | 7599979          | RO       | 11/8/05 | 3           | 1-5        |                                  |
| 404980          | 7594949          | HE       | 6/9/05  | 3           | 1-5        |                                  |

***Abutilon frudgenii* ms. (continued)**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | NO. OF INDS | POPN SIZE |
|-----------------|------------------|----------|---------|-------------|-----------|
| 404991          | 7599874          | BM       | 11/8/05 | 20          | 6-20      |
| 404999          | 7600008          | RO       | 11/8/05 | scattered   | 6-20      |
| 405008          | 7599888          | BM       | 11/8/05 | 30          | 21-99     |
| 405017          | 7600005          | RO       | 11/8/05 | 3           | 1-5       |
| 405031          | 7593951          | MM       | 14/9/05 | 2           | 1-5       |
| 405040          | 7593991          | MyM      | 13/9/05 | 1           | 1-5       |
| 405053          | 7593952          | MM       | 14/9/05 | 7           | 6-20      |
| 405099          | 7593997          | MyM      | 13/9/05 | 1           | 1-5       |
| 405103          | 7599903          | MM       | 11/8/05 | 1           | 1-5       |
| 405127          | 7594046          | BM       | 14/9/05 | 3           | 1-5       |
| 405130          | 7595007          | HE       | 6/9/05  | 1           | 1-5       |
| 405135          | 7599975          | RO       | 11/8/05 | 20+         | 21-99     |
| 405140          | 7600019          | RO       | 11/8/05 | 5           | 1-5       |
| 405164          | 7600023          | RO       | 11/8/05 | 3           | 1-5       |
| 405175          | 7599787          | MM       | 11/8/05 | 1           | 1-5       |
| 405208          | 7594031          | BM       | 14/9/05 | 1           | 1-5       |
| 405243          | 7599976          | RO       | 11/8/05 | 1           | 1-5       |
| 405325          | 7593967          | MM       | 14/9/05 | 3           | 1-5       |
| 405359          | 7594033          | BM       | 14/9/05 | 1           | 1-5       |
| 405365          | 7593982          | MM       | 14/9/05 | 10          | 6-20      |
| 405394          | 7594015          | MyM      | 13/9/05 | 1           | 1-5       |
| 405438          | 7593970          | MM       |         | 1           | 1-5       |
| 405453          | 7600158          | BM       | 11/8/05 | 3           | 1-5       |
| 405463          | 7593973          | MM       | 14/9/05 | 1           | 1-5       |
| 405470          | 7594012          | MyM      | 13/9/05 | 8           | 6-20      |
| 405486          | 7594032          | BM       | 14/9/05 | 1           | 1-5       |
| 405505          | 7593983          | MM       | 14/9/05 | 2           | 1-5       |
| 405552          | 7597951          | MM       | 13/9/05 | 5           | 1-5       |
| 405553          | 7593978          | MM       | 14/9/05 | 2           | 1-5       |
| 405580          | 7593972          | MM       | 14/9/05 | 2           | 1-5       |
| 405620          | 7595395          | BM       | 6/9/05  | 2           | 1-5       |
| 405658          | 7595419          | MM       | 6/9/05  | 1           | 1-5       |
| 405663          | 7600081          | RO       | 11/8/05 | 3           | 1-5       |
| 405675          | 7600245          | BM       | 11/8/05 | 1           | 1-5       |
| 405677          | 7595457          | MM       | 6/9/05  | 1           | 1-5       |
| 405687          | 7595447          | MM       | 6/9/05  | 1           | 1-5       |
| 405688          | 7600328          | MM       | 11/8/05 | 1           | 1-5       |
| 405703          | 7600088          | RO       | 11/8/05 | 4           | 1-5       |
| 405713          | 7600231          | BM       | 11/8/05 | 2           | 1-5       |
| 405767          | 7595552          | MM       | 6/9/05  | 1           | 1-5       |
| 405807          | 7595602          | MM       | 6/9/05  | 1           | 1-5       |
| 405823          | 7595624          | MM       | 6/9/05  | 1           | 1-5       |
| 405860          | 7595669          | MM       | 6/9/05  | 1           | 1-5       |
| 405897          | 7595723          | MM       | 6/9/05  | 3           | 1-5       |
| 405898          | 7595704          | MM       | 6/9/05  | 5           | 1-5       |
| 405901          | 7595726          | MM       | 6/9/05  | 1           | 1-5       |
| 405947          | 7595785          | MM       | 6/9/05  | 1           | 1-5       |
| 405956          | 7600256          | BM       | 11/8/05 | 1           | 1-5       |
| 406023          | 7594033          | BM       | 14/9/05 | 1           | 1-5       |
| 406038          | 7598073          | MyM      | 13/9/05 | 1           | 1-5       |
| 406063          | 7600159          | RO       | 11/8/05 | 10          | 6-20      |
| 406075          | 7595982          | BM       | 6/9/05  | 1           | 1-5       |
| 406090          | 7600212          | RO       | 11/8/05 | 20          | 6-20      |
| 406121          | 7600232          | RO       | 11/8/05 | scattered   | 6-20      |
| 406134          | 7600196          | RO       | 11/8/05 | 10          | 6-20      |
| 406146          | 7596082          | BM       | 6/9/05  | 2           | 1-5       |
| 406162          | 7600198          | RO       | 11/8/05 | 2           | 1-5       |
| 406183          | 7600200          | RO       | 11/8/05 | 1           | 1-5       |
| 406200          | 7598269          | BM       | 13/9/05 | 1           | 1-5       |
| 406205          | 7600350          | BM       | 11/8/05 | 1           | 1-5       |
| 406213          | 7596248          | BM       | 6/9/05  | 1           | 1-5       |
| 406220          | 7600463          | MM       | 11/8/05 | 1           | 1-5       |
| 406229          | 7600283          | RO       | 11/8/05 | scattered   | 6-20      |
| 406241          | 7600354          | BM       | 11/8/05 | 1           | 1-5       |
| 406242          | 7600149          | BM       | 11/8/05 | 20          | 6-20      |
| 406250          | 7600214          | RO       | 11/8/05 | 1           | 1-5       |
| 406258          | 7600420          | MM       | 11/8/05 | scattered   | 6-20      |
| 406261          | 7596339          | BM       | 6/9/05  | 6           | 6-20      |
| 406261          | 7600466          | MM       | 11/8/05 | 10          | 6-20      |
| 406265          | 7600358          | BM       | 11/8/05 | 1           | 1-5       |
| 406270          | 7596336          | BM       | 6/9/05  | 10          | 6-20      |

***Abutilon frudgenii* ms. (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO. OF INDS | POPN_SIZE_ |
|------------------|-------------------|----------|---------|-------------|------------|
| 406282           | 7600167           | BM       | 11/8/05 | 5           | 1-5        |
| 406296           | 7596414           | BM       | 6/9/05  | 2           | 1-5        |
| 406306           | 7600218           | RO       | 11/8/05 | 6           | 6-20       |
| 406321           | 7600166           | BM       | 11/8/05 | 2           | 1-5        |
| 406334           | 7600104           | MM       | 11/8/05 | 1           | 1-5        |
| 406349           | 7600170           | BM       | 11/8/05 | 2           | 1-5        |
| 406392           | 7596548           | BM       | 6/9/05  | 12          | 6-20       |
| 406394           | 7596538           | BM       | 6/9/05  | 3           | 1-5        |
| 406417           | 7600185           | BM       | 11/8/05 | 2           | 1-5        |
| 406438           | 7600056           | MM       | 11/8/05 | 2           | 1-5        |
| 406468           | 7596595           | BM       | 6/9/05  | 1           | 1-5        |
| 406474           | 7596628           | BM       | 6/9/05  | 3           | 1-5        |
| 406495           | 7600204           | BM       | 11/8/05 | 2           | 1-5        |
| 406507           | 7596651           | BM       | 6/9/05  | 1           | 1-5        |
| 406533           | 7600210           | BM       | 11/8/05 | 2           | 1-5        |
| 406551           | 7596673           | BM       | 6/9/05  | 3           | 1-5        |
| 406560           | 7598828           | MM       | 13/9/05 | 1           | 1-5        |
| 406578           | 7600419           | BM       | 11/8/05 | 1           | 1-5        |
| 406589           | 7598706           | BM       | 13/9/05 | 1           | 1-5        |
| 406591           | 7596712           | BM       | 6/9/05  | 2           | 1-5        |
| 406629           | 7600343           | RO       | 11/8/05 | 2           | 1-5        |
| 406632           | 7598125           | RO       | 9/8/05  | 1           | 1-5        |
| 406632           | 7598694           | BM       | 13/9/05 | 1           | 1-5        |
| 406635           | 7596773           | BM       | 6/9/05  | 7           | 6-20       |
| 406639           | 7597002           | MM       | 9/8/05  | 2           | 1-5        |
| 406648           | 7597440           | BM       | 9/8/05  | 1           | 1-5        |
| 406671           | 7596709           | MM       | 9/8/05  | 5           | 1-5        |
| 406674           | 7596688           | MM       | 9/8/05  | 3           | 1-5        |
| 406681           | 7596462           | MM       | 9/8/05  | 1           | 1-5        |
| 406682           | 7596606           | MM       | 9/8/05  | 1           | 1-5        |
| 406683           | 7596563           | MM       | 9/8/05  | 15          | 6-20       |
| 406684           | 7596756           | MM       | 9/8/05  | 5           | 1-5        |
| 406690           | 7598654           | BM       | 13/9/05 | 1           | 1-5        |
| 406691           | 7596511           | MM       | 9/8/05  | 6           | 6-20       |
| 406698           | 7596796           | MM       | 9/8/05  | 3           | 1-5        |
| 406701           | 7596828           | MM       | 9/8/05  | 5           | 1-5        |
| 406708           | 7597090           | BM       | 9/8/05  | 2           | 1-5        |
| 406721           | 7596980           | BM       | 9/8/05  | 5           | 1-5        |
| 406721           | 7597018           | BM       | 9/8/05  | 3           | 1-5        |
| 406729           | 7600391           | RO       | 11/8/05 | 1           | 1-5        |
| 406738           | 7600343           | RO       | 11/8/05 | 2           | 1-5        |
| 406745           | 7596410           | RO       | 9/8/05  | 120         | >100       |
| 406750           | 7596946           |          |         | <2%         | 21-99      |
| 406756           | 7597068           | RO       | 9/8/05  | 1           | 1-5        |
| 406757           | 7596437           | RO       | 9/8/05  | scattered   | 6-20       |
| 406758           | 7596537           | RO       | 9/8/05  | scattered   | 6-20       |
| 406771           | 7596903           | MM       | 9/8/05  | 2           | 1-5        |
| 406788           | 7596878           | RO       | 9/8/05  | 10+         | 6-20       |
| 406801           | 7597656           | MM       | 9/8/05  | 1           | 1-5        |
| 406810           | 7597639           | MM       | 9/8/05  | 1           | 1-5        |
| 406814           | 7596910           | BM       | 9/8/05  | 100         | >100       |
| 406820           | 7597622           | MM       | 9/8/05  | 20          | 6-20       |
| 406823           | 7597597           | MM       | 9/8/05  | 3           | 1-5        |
| 406836           | 7596980           | BM       | 9/8/05  | 15          | 6-20       |
| 406847           | 7596915           | BM       | 9/8/05  | 50          | 21-99      |
| 406852           | 7596581           | BM       | 9/8/05  | 1           | 1-5        |
| 406854           | 7596509           | BM       | 9/8/05  | 30          | 21-99      |
| 406862           | 7597124           | BM       | 9/8/05  | 6           | 6-20       |
| 406864           | 7596468           | BM       | 9/8/05  | 30          | 21-99      |
| 406865           | 7596828           | BM       | 9/8/05  | 1           | 1-5        |
| 406875           | 7598296           | MyM      | 13/9/05 | 1           | 1-5        |
| 406881           | 7597042           | RO       | 9/8/05  | 50          | 21-99      |
| 406894           | 7597140           | MM       | 9/8/05  | 1           | 1-5        |
| 406904           | 7596924           | RO       | 9/8/05  | scattered   | 6-20       |
| 406904           | 7598617           | MM       | 13/9/05 | 1           | 1-5        |
| 406905           | 7597133           | MM       | 9/8/05  | 3           | 1-5        |
| 406910           | 7596544           | BM       | 9/8/05  | 50          | 21-99      |
| 406918           | 7597104           | MM       | 9/8/05  | 1           | 1-5        |
| 406921           | 7596470           | BM       | 9/8/05  | 50          | 21-99      |
| 406922           | 7596818           | RO       | 9/8/05  | 15          | 6-20       |
| 406934           | 7598605           | MyM      | 13/9/05 | 1           | 1-5        |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS  |
|-----------------|------------------|----------|---------|-------------|------------|-----------|
| 406935          | 7596542          | RO       | 9/8/05  | scattered   | 6-20       |           |
| 406940          | 7597024          | MM       | 9/8/05  | 1           | 1-5        |           |
| 406944          | 7596974          | MM       | 9/8/05  | 2           | 1-5        |           |
| 406945          | 7596353          | BM       | 9/8/05  | 1           | 1-5        |           |
| 406953          | 7596901          | MM       | 9/8/05  | 1           | 1-5        |           |
| 406959          | 7596888          | MM       | 9/8/05  | 1           | 1-5        |           |
| 406960          | 7596822          | MM       | 9/8/05  | 1           | 1-5        |           |
| 406969          | 7596480          | RO       | 9/8/05  | 1           | 1-5        |           |
| 407011          | 7596542          | MM       | 9/8/05  | 1           | 1-5        |           |
| 407014          | 7596549          | MM       | 9/8/05  | 1           | 1-5        |           |
| 407025          | 7597247          | MM       | 6/9/05  | 4           | 1-5        |           |
| 407043          | 7597271          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407049          | 7597267          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407053          | 7597278          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407056          | 7597283          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407111          | 7597332          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407119          | 7598405          | MyM      | 13/9/05 | 1           | 1-5        |           |
| 407132          | 7597333          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407135          | 7597360          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407163          | 7598373          | MyM      | 13/9/05 | 3           | 1-5        |           |
| 407166          | 7597386          | MM       | 6/9/05  | 10          | 6-20       | seedlings |
| 407173          | 7597393          | MM       | 6/9/05  | 20          | 6-20       | seedlings |
| 407190          | 7597411          | MM       | 6/9/05  | 20          | 6-20       | seedlings |
| 407212          | 7597434          | MM       | 6/9/05  | 10          | 6-20       | seedlings |
| 407225          | 7597448          | MM       | 6/9/05  | 20          | 6-20       | seedlings |
| 407240          | 7597465          | MM       | 6/9/05  | 4           | 1-5        |           |
| 407251          | 7597476          | MM       | 6/9/05  | 5           | 1-5        |           |
| 407302          | 7597557          | MM       | 6/9/05  | 6           | 6-20       |           |
| 407329          | 7597615          | MM       | 6/9/05  | 5           | 1-5        |           |
| 407329          | 7597622          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407342          | 7597648          | BM       | 6/9/05  | 15          | 6-20       |           |
| 407428          | 7597822          | BM       | 6/9/05  | 15          | 6-20       |           |
| 407428          | 7597822          | BM       | 6/9/05  | 15          | 6-20       |           |
| 407431          | 7597844          | BM       | 6/9/05  | 11          | 6-20       |           |
| 407476          | 7600644          | BM       | 8/8/05  | 1           | 1-5        |           |
| 407508          | 7597931          | BM       | 6/9/05  | 15          | 6-20       |           |
| 407529          | 7597977          | BM       | 6/9/05  | 4           | 1-5        |           |
| 407562          | 7598010          | BM       | 6/9/05  | 13          | 6-20       |           |
| 407581          | 7598010          | HE       | 6/9/05  | 9           | 6-20       |           |
| 407583          | 7598049          | BM       | 6/9/05  | 1           | 1-5        |           |
| 407595          | 7598519          | BM       | 13/9/05 | 1           | 1-5        |           |
| 407684          | 7598137          | HE       | 6/9/05  | 2           | 1-5        |           |
| 407704          | 7600603          | RO       | 8/8/05  | 5           | 1-5        |           |
| 407765          | 7598244          | BM       | 6/9/05  | 10          | 6-20       | juveniles |
| 407800          | 7598418          | MyM      | 13/9/05 | 7           | 6-20       |           |
| 407816          | 7598276          | BM       | 6/9/05  | 1           | 1-5        |           |
| 407818          | 7598258          | BM       | 6/9/05  | 13          | 6-20       |           |
| 407829          | 7598284          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407846          | 7598307          | BM       | 6/9/05  | 7           | 6-20       |           |
| 407923          | 7598332          | BM       | 6/9/05  | 3           | 1-5        |           |
| 408294          | 7600907          | MM       | 8/8/05  | 1           | 1-5        |           |
| 408310          | 7600814          | BM       | 8/8/05  | 2           | 1-5        |           |
| 408344          | 7600914          | MM       | 8/8/05  | 6           | 6-20       |           |
| 408421          | 7600852          | BM       | 8/8/05  | 1           | 1-5        |           |
| 408518          | 7600955          | MM       | 8/8/05  | 3           | 1-5        |           |
| 408545          | 7600783          | RO       | 8/8/05  | 15          | 6-20       |           |
| 408555          | 7600889          | BM       | 8/8/05  | 6           | 6-20       |           |
| 408559          | 7598603          | MM       | 13/9/05 | 1           | 1-5        |           |
| 408581          | 7600730          | RO       | 8/8/05  | 2           | 1-5        |           |
| 408600          | 7600973          | MM       | 8/8/05  | 2           | 1-5        |           |
| 408605          | 7598551          | BM       | 13/9/05 | 5           | 1-5        |           |
| 408611          | 7600971          | MM       | 8/8/05  | 1           | 1-5        |           |
| 408667          | 7600842          | RO       | 8/8/05  | 1           | 1-5        |           |
| 408702          | 7600906          | BM       | 8/8/05  | 1           | 1-5        |           |
| 408731          | 7600918          | BM       | 8/8/05  | 1           | 1-5        |           |
| 408734          | 7600815          |          |         | +           | 6-20       |           |
| 408738          | 7600969          | MM       | 8/8/05  | 5           | 1-5        |           |
| 408743          | 7600821          | MM       | 8/8/05  | 1           | 1-5        |           |
| 408748          | 7600623          | BM       | 8/8/05  | 1           | 1-5        |           |
| 408761          | 7598604          | BM       | 13/9/05 | 3           | 1-5        |           |
| 408761          | 7600818          | MM       | 8/8/05  | 1           | 1-5        |           |

***Abutilon frudgenii* ms. (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO_ OF_INDS | POPN_SIZE_ | COMMENTS       |
|------------------|-------------------|----------|---------|-------------|------------|----------------|
| 408763           | 7600919           | BM       | 8/8/05  | 1           | 1-5        |                |
| 408770           | 7600816           | MM       | 8/8/05  | 1           | 1-5        |                |
| 408856           | 7600561           | MM       | 8/8/05  | 1           | 1-5        |                |
| 408918           | 7600836           | MM       | 8/8/05  | 2           | 1-5        |                |
| 408936           | 7598872           | MyM      | 13/9/05 | 20          | 6-20       |                |
| 408974           | 7598823           | MM       | 13/9/05 | 3           | 1-5        |                |
| 408989           | 7598852           | MM       | 13/9/05 | 10          | 6-20       |                |
| 409016           | 7598879           | MM       | 13/9/05 | 10          | 6-20       |                |
| 409016           | 7598966           | MyM      | 13/9/05 | 5           | 1-5        |                |
| 409036           | 7598867           | BM       | 13/9/05 | 10          | 6-20       |                |
| 409055           | 7598908           | MM       | 13/9/05 | 15          | 6-20       |                |
| 409056           | 7598932           | MM       | 13/9/05 | 5           | 1-5        |                |
| 409071           | 7599008           | MyM      | 13/9/05 | 5           | 1-5        |                |
| 409086           | 7598942           | MM       | 13/9/05 | 4           | 1-5        |                |
| 409108           | 7598985           | MM       | 13/9/05 | 5           | 1-5        |                |
| 409125           | 7599103           | MyM      | 13/9/05 | 50          | 21-99      | minor flowline |
| 409134           | 7599034           | MM       | 13/9/05 | 15          | 6-20       |                |
| 409152           | 7599047           | MM       | 13/9/05 | 5           | 1-5        |                |
| 409168           | 7599084           | MM       | 13/9/05 | 20          | 6-20       |                |
| 409175           | 7599097           | MM       | 13/9/05 | 8           | 6-20       |                |
| 409176           | 7598968           | BM       | 13/9/05 | 1           | 1-5        |                |
| 409211           | 7599159           | MM       | 13/9/05 | 3           | 1-5        |                |
| 409216           | 7599046           | BM       | 13/9/05 | 1           | 1-5        |                |
| 409229           | 7598650           | BM       | 15/9/05 | 5           | 1-5        |                |
| 409239           | 7600862           | RO       | 8/8/05  | 1           | 1-5        |                |
| 409246           | 7599082           | BM       | 13/9/05 | 2           | 1-5        |                |
| 409269           | 7598673           | MM       | 15/9/05 | 1           | 1-5        |                |
| 409283           | 7599381           | MyM      | 13/9/05 | 5           | 1-5        | minor flowline |
| 409306           | 7599305           | MM       | 13/9/05 | 1           | 1-5        |                |
| 409314           | 7598678           | MyM      | 15/9/05 | 1           | 1-5        |                |
| 409352           | 7598535           | MM       | 15/9/05 | 1           | 1-5        |                |
| 409364           | 7598423           | MM       | 15/9/05 | 2           | 1-5        |                |
| 409384           | 7598474           | MM       | 15/9/05 | 3           | 1-5        |                |
| 409394           | 7598460           | MM       | 15/9/05 | 1           | 1-5        |                |
| 409405           | 7598370           | BM       | 15/9/05 | 30          | 21-99      |                |
| 409409           | 7598523           | MyM      | 15/9/05 | 8           | 6-20       |                |
| 409414           | 7599618           | MyM      | 13/9/05 | 3           | 1-5        |                |
| 409438           | 7599243           | BM       | 15/9/05 | 5           | 1-5        |                |
| 409441           | 7598446           | MyM      | 15/9/05 | 1           | 1-5        |                |
| 409451           | 7598408           | MyM      | 15/9/05 | 2           | 1-5        |                |
| 409453           | 7599649           | MyM      | 13/9/05 | 2           | 1-5        |                |
| 409462           | 7598396           | MyM      | 15/9/05 | 2           | 1-5        |                |
| 409476           | 7599548           | MM       | 13/9/05 | 1           | 1-5        |                |
| 409478           | 7600620           | MM       | 8/8/05  | 5           | 1-5        |                |
| 409502           | 7600623           | MM       | 8/8/05  | 5           | 1-5        |                |
| 409518           | 7598359           | MM       | 15/9/05 | 2           | 1-5        |                |
| 409523           | 7598382           | MM       | 15/9/05 | 3           | 1-5        |                |
| 409524           | 7598401           | MM       | 15/9/05 | 5           | 1-5        |                |
| 409536           | 7599528           | BM       | 13/9/05 | 2           | 1-5        |                |
| 409544           | 7599373           | BM       | 15/9/05 | 5           | 1-5        |                |
| 409551           | 7599444           | MyM      | 13/9/05 | 3           | 1-5        |                |
| 409554           | 7598559           | BM       | 15/9/05 | 1           | 1-5        |                |
| 409556           | 7599534           | MM       | 15/9/05 | 1           | 1-5        |                |
| 409576           | 7598406           | BM       | 15/9/05 | 10          | 6-20       |                |
| 409578           | 7598441           | BM       | 15/9/05 | 20          | 6-20       |                |
| 409594           | 7599289           | MyM      | 15/9/05 | 2           | 1-5        |                |
| 409645           | 7600622           | MM       | 8/8/05  | 2           | 1-5        |                |
| 409658           | 7599371           | BM       | 15/9/05 | 3           | 1-5        |                |
| 409677           | 7599323           | BM       | 15/9/05 | 1           | 1-5        |                |
| 409708           | 7600824           | RO       | 8/8/05  | 2           | 1-5        |                |
| 409722           | 7600674           | BM       | 8/8/05  | 2           | 1-5        |                |
| 409766           | 7600670           | BM       | 8/8/05  | 1           | 1-5        |                |
| 409773           | 7599847           | MM       | 13/9/05 | 25          | 21-99      |                |
| 409786           | 7598814           | MM       | 15/9/05 | 1           | 1-5        |                |
| 409799           | 7599856           | MM       | 13/9/05 | 5           | 1-5        |                |
| 409799           | 7600861           | RO       | 8/8/05  | 1           | 1-5        |                |
| 409811           | 7599869           | MM       | 13/9/05 | 3           | 1-5        |                |
| 409828           | 7600853           | RO       | 8/8/05  | 1           | 1-5        |                |
| 409844           | 7599881           | MM       | 13/9/05 | 1           | 1-5        |                |
| 409898           | 7600000           | MyM      | 13/9/05 | 1           | 1-5        |                |
| 409942           | 7600800           | RO       | 8/8/05  | 2           | 1-5        |                |

***Abutilon frutigenii* ms. (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO_ OF_INDS | POPN_SIZE_ | COMMENTS              |
|------------------|-------------------|----------|---------|-------------|------------|-----------------------|
| 409992           | 7600058           | MyM      | 13/9/05 | 2           | 1-5        |                       |
| 410002           | 7599988           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 410039           | 7599922           | BM       | 13/9/05 | 4           | 1-5        |                       |
| 410074           | 7600040           | MM       | 13/9/05 | 5           | 1-5        |                       |
| 410084           | 7600114           | MyM      | 13/9/05 | 1           | 1-5        | alluvial plain        |
| 410092           | 7600051           | MM       | 13/9/05 | 3           | 1-5        |                       |
| 410142           | 7600074           | MM       | 13/9/05 | 10          | 6-20       |                       |
| 410187           | 7600172           | MyM      | 13/9/05 | 20          | 6-20       | edge of drainage line |
| 410242           | 7600117           | MM       | 13/9/05 | 5           | 1-5        |                       |
| 410342           | 7600864           | RO       | 8/8/05  | 5           | 1-5        |                       |
| 410491           | 7600838           | RO       | 8/8/05  | 3           | 1-5        |                       |
| 410563           | 7600950           | BM       | 8/8/05  | 1           | 1-5        |                       |
| 410578           | 7600829           | RO       | 8/8/05  | 2           | 1-5        |                       |
| 410595           | 7600951           | BM       | 8/8/05  | 5           | 1-5        |                       |
| 410598           | 7600644           | BM       | 8/8/05  | 1           | 1-5        |                       |
| 410721           | 7600362           | MyM      | 13/9/05 | 1           | 1-5        |                       |
| 410805           | 7600911           | MM       | 8/8/05  | 3           | 1-5        |                       |
| 410997           | 7600935           | BM       | 10/9/05 | 4           | 1-5        |                       |
| 411000           | 7600750           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411040           | 7600850           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411069           | 7600807           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411282           | 7600777           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411320           | 7600506           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411394           | 7599877           | MyM      | 13/9/05 | 2           | 1-5        |                       |
| 411416           | 7600955           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 411449           | 7600878           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411496           | 7600939           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 411497           | 7600870           | BM       | 10/9/05 | 3           | 1-5        |                       |
| 411507           | 7600922           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 411508           | 7600744           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411529           | 7600737           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411544           | 7600872           | BM       | 10/9/05 | 2           | 1-5        |                       |
| 411606           | 7600928           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 411613           | 7600861           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411632           | 7599937           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 411662           | 7600780           | BM       | 10/9/05 | 3           | 1-5        |                       |
| 411686           | 7600535           | BM       | 10/9/05 | 2           | 1-5        |                       |
| 411689           | 7600922           | MM       | 10/9/05 | 3           | 1-5        |                       |
| 411692           | 7600717           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411705           | 7600923           | MM       | 10/9/05 | 3           | 1-5        |                       |
| 411752           | 7600848           | BM       | 10/9/05 | 2           | 1-5        |                       |
| 411765           | 7600597           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411932           | 7600213           | MyM      | 13/9/05 | 2           | 1-5        |                       |
| 411934           | 7600632           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 411938           | 7600666           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 411955           | 7600579           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411976           | 7600754           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 411992           | 7600421           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412005           | 7600673           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412009           | 7600140           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 412077           | 7600121           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 412093           | 7600657           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412127           | 7600664           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412136           | 7600608           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412169           | 7600612           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 412183           | 7600850           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412210           | 7599941           | BM       | 13/9/05 | 2           | 1-5        |                       |
| 412215           | 7600532           | BM       | 10/9/05 | 1           | 1-5        |                       |
| 412224           | 7600462           | BM       | 10/9/05 | 7           | 6-20       |                       |
| 412239           | 7600163           | MyM      | 13/9/05 | 1           | 1-5        |                       |
| 412246           | 7600129           | MyM      | 13/9/05 | 4           | 1-5        |                       |
| 412258           | 7600084           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 412306           | 7600841           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 412310           | 7600376           | MM       | 10/9/05 | 3           | 1-5        |                       |
| 412324           | 7599876           | MM       | 13/9/05 | 3           | 1-5        |                       |
| 412350           | 7600834           | MM       | 10/9/05 | 2           | 1-5        |                       |
| 412382           | 7600821           | MM       | 10/9/05 | 1           | 1-5        |                       |
| 412394           | 7600360           | MM       | 10/9/05 | 3           | 1-5        |                       |
| 412400           | 7599771           | MyM      | 13/9/05 | 1           | 1-5        |                       |
| 412432           | 7600069           | MM       | 13/9/05 | 1           | 1-5        |                       |
| 412569           | 7600526           | MM       | 10/9/05 | 1           | 1-5        |                       |

***Abutilon frutigenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 412588          | 7600725          | BM       | 10/9/05 | 2           | 1-5        |
| 412598          | 7599944          | MM       | 10/9/05 | 1           | 1-5        |
| 412624          | 7600531          | MM       | 10/9/05 | 2           | 1-5        |
| 412674          | 7600113          | MM       | 10/9/05 | 1           | 1-5        |
| 412684          | 7600779          | MM       | 10/9/05 | 1           | 1-5        |
| 412690          | 7600115          | MM       | 10/9/05 | 3           | 1-5        |
| 412693          | 7600523          | MM       | 10/9/05 | 1           | 1-5        |
| 412735          | 7600508          | MM       | 10/9/05 | 1           | 1-5        |
| 412791          | 7600699          | BM       | 10/9/05 | 2           | 1-5        |
| 412800          | 7599908          | MM       | 10/9/05 | 2           | 1-5        |
| 412803          | 7600550          | MM       | 10/9/05 | 1           | 1-5        |
| 412836          | 7599912          | MM       | 10/9/05 | 1           | 1-5        |
| 412932          | 7600410          | BM       | 10/9/05 | 1           | 1-5        |
| 412939          | 7600016          | BM       | 10/9/05 | 3           | 1-5        |
| 412942          | 7599943          | BM       | 10/9/05 | 1           | 1-5        |
| 412973          | 7600526          | MM       | 10/9/05 | 1           | 1-5        |
| 412983          | 7600061          | MM       | 10/9/05 | 1           | 1-5        |
| 412990          | 7600272          | MM       | 10/9/05 | 1           | 1-5        |
| 413002          | 7600516          | MM       | 10/9/05 | 3           | 1-5        |
| 413040          | 7600450          | MM       | 10/9/05 | 2           | 1-5        |
| 413129          | 7600500          | MM       | 10/9/05 | 1           | 1-5        |
| 413146          | 7600322          | BM       | 10/9/05 | 1           | 1-5        |
| 413157          | 7600498          | MM       | 10/9/05 | 1           | 1-5        |
| 413161          | 7600632          | BM       | 10/9/05 | 2           | 1-5        |
| 413182          | 7599858          | MM       | 10/9/05 | 1           | 1-5        |
| 413192          | 7600572          | BM       | 10/9/05 | 1           | 1-5        |
| 413227          | 7600360          | BM       | 10/9/05 | 1           | 1-5        |
| 413243          | 7600446          | MM       | 10/9/05 | 4           | 1-5        |
| 413254          | 7600442          | MM       | 10/9/05 | 2           | 1-5        |
| 413268          | 7600689          | MM       | 10/9/05 | 1           | 1-5        |
| 413283          | 7600439          | MM       | 10/9/05 | 1           | 1-5        |
| 413311          | 7600486          | MM       | 10/9/05 | 2           | 1-5        |
| 413313          | 7600421          | MM       | 10/9/05 | 2           | 1-5        |
| 413332          | 7600361          | BM       | 10/9/05 | 4           | 1-5        |
| 413347          | 7600627          | BM       | 10/9/05 | 1           | 1-5        |
| 413405          | 7600422          | MM       | 10/9/05 | 1           | 1-5        |
| 413409          | 7600223          | MM       | 10/9/05 | 1           | 1-5        |
| 413410          | 7600298          | BM       | 10/9/05 | 1           | 1-5        |
| 413416          | 7600362          | BM       | 10/9/05 | 1           | 1-5        |
| 413438          | 7599682          | RO       | 13/8/05 | 1           | 1-5        |
| 413453          | 7600241          | MM       | 9/9/05  | 1           | 1-5        |
| 413457          | 7600351          | BM       | 9/9/05  | 2           | 1-5        |
| 413463          | 7600784          | MM       | 9/9/05  | 1           | 1-5        |
| 413473          | 7600133          | BM       | 6/9/05  | 1           | 1-5        |
| 413487          | 7599743          | BM       | 12/8/05 | 1           | 1-5        |
| 413513          | 7599750          | BM       | 12/8/05 | 1           | 1-5        |
| 413514          | 7599738          | BM       | 12/8/05 | 2           | 1-5        |
| 413535          | 7599611          | RO       | 13/8/05 | 2           | 1-5        |
| 413558          | 7599573          | RO       | 13/8/05 | 1           | 1-5        |
| 413653          | 7599495          | RO       | 13/8/05 | 9           | 6-20       |
| 413687          | 7599490          | RO       | 13/8/05 | 3           | 1-5        |
| 413714          | 7599610          | BM       | 12/8/05 | 1           | 1-5        |
| 413865          | 7599362          | RO       | 13/8/05 | 1           | 1-5        |
| 414079          | 7600372          | MM       | 9/9/05  | 1           | 1-5        |
| 414108          | 7600410          | BM       | 9/9/05  | 1           | 1-5        |
| 414184          | 7600232          | BM       | 9/9/05  | 1           | 1-5        |
| 414207          | 7600278          | MM       | 9/9/05  | 1           | 1-5        |
| 414224          | 7600533          | MM       | 9/9/05  | 2           | 1-5        |
| 414288          | 7600511          | MM       | 9/9/05  | 1           | 1-5        |
| 414306          | 7599271          | RO       | 13/8/05 | 1           | 1-5        |
| 414328          | 7599207          | BM       | 12/8/05 | 2           | 1-5        |
| 414339          | 7599121          | RO       | 12/8/05 | 15          | 6-20       |
| 414345          | 7600185          | BM       | 9/9/05  | 1           | 1-5        |
| 414394          | 7600228          | MM       | 9/9/05  | 1           | 1-5        |
| 414422          | 7599182          | BM       | 12/8/05 | 20          | 6-20       |
| 414428          | 7599163          | BM       | 12/8/05 | 2           | 1-5        |
| 414434          | 7599058          | RO       | 12/8/05 | 1           | 1-5        |
| 414492          | 7599121          | BM       | 12/8/05 | 10          | 6-20       |
| 414547          | 7600257          | MM       | 9/9/05  | 2           | 1-5        |
| 414556          | 7599151          | BM       | 12/8/05 | 1           | 1-5        |
| 414572          | 7599146          | BM       | 12/8/05 | 1           | 1-5        |

***Abutilon frutigenii* ms. (continued)**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | NO. OF INDS | POPN SIZE |
|-----------------|------------------|----------|---------|-------------|-----------|
| 414675          | 7600286          |          |         | +           | 6-20      |
| 414694          | 7599944          | MM       | 9/9/05  | 1           | 1-5       |
| 414747          | 7600394          | MM       | 9/9/05  | 1           | 1-5       |
| 414750          | 7598876          | RO       | 12/8/05 | 1           | 1-5       |
| 414812          | 7599857          | MM       | 12/9/05 | 1           | 1-5       |
| 414837          | 7599689          | MM       | 12/9/05 | 1           | 1-5       |
| 414855          | 7599700          | MM       | 12/9/05 | 1           | 1-5       |
| 414871          | 7599855          | MM       | 12/9/05 | 1           | 1-5       |
| 414909          | 7600318          | MM       | 9/9/05  | 1           | 1-5       |
| 414923          | 7600336          | MM       | 9/9/05  | 1           | 1-5       |
| 415004          | 7599749          | MM       | 12/9/05 | 1           | 1-5       |
| 415018          | 7599565          | MM       | 12/9/05 | 1           | 1-5       |
| 415042          | 7598923          | RO       | 12/8/05 | 1           | 1-5       |
| 415074          | 7599682          | MM       | 12/9/05 | 2           | 1-5       |
| 415087          | 7598861          | BM       | 12/8/05 | 1           | 1-5       |
| 415088          | 7598862          | MM       | 8/9/05  | 1           | 1-5       |
| 415107          | 7600141          | BM       | 9/9/05  | 2           | 1-5       |
| 415123          | 7599550          | MM       | 12/9/05 | 2           | 1-5       |
| 415139          | 7599639          | MM       | 12/9/05 | 1           | 1-5       |
| 415143          | 7598707          | RO       | 12/8/05 | 3           | 1-5       |
| 415151          | 7599536          | MM       | 12/9/05 | 3           | 1-5       |
| 415162          | 7598699          | RO       | 12/8/05 | 1           | 1-5       |
| 415165          | 7599652          | MM       | 12/9/05 | 1           | 1-5       |
| 415170          | 7598845          | BM       | 8/9/05  | 3           | 1-5       |
| 415183          | 7598934          | MM       | 8/9/05  | 2           | 1-5       |
| 415189          | 7598858          | RO       | 12/8/05 | 2           | 1-5       |
| 415199          | 7598715          | MM       | 8/9/05  | 1           | 1-5       |
| 415239          | 7599677          | MM       | 12/9/05 | 2           | 1-5       |
| 415270          | 7598926          | BM       | 8/9/05  | 3           | 1-5       |
| 415271          | 7599501          | MM       | 12/9/05 | 1           | 1-5       |
| 415274          | 7598998          | MM       | 8/9/05  | 3           | 1-5       |
| 415274          | 7599651          | MM       | 12/9/05 | 2           | 1-5       |
| 415290          | 7598601          | RO       | 12/8/05 | 1           | 1-5       |
| 415296          | 7598666          | BM       | 12/8/05 | 1           | 1-5       |
| 415303          | 7598789          | MM       | 8/9/05  | 1           | 1-5       |
| 415307          | 7599762          | MM       | 9/9/05  | 1           | 1-5       |
| 415316          | 7599490          | MM       | 12/9/05 | 1           | 1-5       |
| 415327          | 7599058          | MM       | 8/9/05  | 1           | 1-5       |
| 415329          | 7598806          | MM       | 8/9/05  | 1           | 1-5       |
| 415345          | 7598635          | BM       | 12/8/05 | 1           | 1-5       |
| 415347          | 7598695          | BM       | 8/9/05  | 1           | 1-5       |
| 415359          | 7598595          | BM       | 12/8/05 | 1           | 1-5       |
| 415363          | 7599748          | MM       | 9/9/05  | 1           | 1-5       |
| 415389          | 7599742          | MM       | 9/9/05  | 1           | 1-5       |
| 415389          | 7599954          | MM       | 9/9/05  | 1           | 1-5       |
| 415398          | 7598730          | RO       | 12/8/05 | 8           | 6-20      |
| 415408          | 7598735          | BM       | 8/9/05  | 2           | 1-5       |
| 415410          | 7598644          | BM       | 8/9/05  | 1           | 1-5       |
| 415425          | 7598587          | MM       | 8/9/05  | 1           | 1-5       |
| 415427          | 7594572          | MM       | 3/5/05  | 1           | 1-5       |
| 415432          | 7599039          | BM       | 8/9/05  | 1           | 1-5       |
| 415446          | 7600192          | MM       | 9/9/05  | 1           | 1-5       |
| 415449          | 7599722          | MM       | 9/9/05  | 1           | 1-5       |
| 415452          | 7599882          | BM       | 9/9/05  | 1           | 1-5       |
| 415462          | 7598684          | BM       | 8/9/05  | 1           | 1-5       |
| 415473          | 7599174          | MM       | 8/9/05  | 1           | 1-5       |
| 415475          | 7598664          | RO       | 12/8/05 | 10          | 6-20      |
| 415485          | 7598616          | MM       | 8/9/05  | 5           | 1-5       |
| 415493          | 7599004          | BM       | 8/9/05  | 1           | 1-5       |
| 415494          | 7599860          | BM       | 9/9/05  | 1           | 1-5       |
| 415499          | 7598874          | MM       | 8/9/05  | 1           | 1-5       |
| 415510          | 7598959          | MM       | 8/9/05  | 1           | 1-5       |
| 415511          | 7598865          | MM       | 8/9/05  | 1           | 1-5       |
| 415520          | 7598631          | MM       | 8/9/05  | 2           | 1-5       |
| 415522          | 7599983          | MM       | 9/9/05  | 1           | 1-5       |
| 415537          | 7598965          | MM       | 8/9/05  | 1           | 1-5       |
| 415539          | 7598643          | MM       | 8/9/05  | 10          | 6-20      |
| 415541          | 7598903          | MM       | 8/9/05  | 5           | 1-5       |
| 415554          | 7599901          | MM       | 9/9/05  | 1           | 1-5       |
| 415559          | 7598991          | MM       | 8/9/05  | 1           | 1-5       |
| 415563          | 7598923          | MM       | 8/9/05  | 15          | 6-20      |

***Abutilon frutigenii* ms. (continued)**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE   | NO. OF INDS | POPN SIZE |
|-----------------|------------------|----------|--------|-------------|-----------|
| 415564          | 7598658          | MM       | 8/9/05 | 10          | 6-20      |
| 415578          | 7598643          | BM       | 8/9/05 | 15          | 6-20      |
| 415591          | 7598945          | MM       | 8/9/05 | 5           | 1-5       |
| 415594          | 7598759          | BM       | 8/9/05 | 3           | 1-5       |
| 415595          | 7598856          | BM       | 8/9/05 | 10          | 6-20      |
| 415597          | 7598681          | MM       | 8/9/05 | 5           | 1-5       |
| 415600          | 7599951          | MM       | 9/9/05 | 1           | 1-5       |
| 415618          | 7598967          | MM       | 8/9/05 | 10          | 6-20      |
| 415626          | 7599946          | MM       | 9/9/05 | 1           | 1-5       |
| 415631          | 7598791          | BM       | 8/9/05 | 2           | 1-5       |
| 415643          | 7598711          | MM       | 8/9/05 | 3           | 1-5       |
| 415662          | 7599935          | MM       | 9/9/05 | 1           | 1-5       |
| 415671          | 7599009          | MM       | 8/9/05 | 5           | 1-5       |
| 415679          | 7599089          | MM       | 8/9/05 | 2           | 1-5       |
| 415686          | 7598638          | BM       | 8/9/05 | 1           | 1-5       |
| 415686          | 7598725          | MM       | 8/9/05 | 10          | 6-20      |
| 415695          | 7598751          | MM       | 8/9/05 | 10          | 6-20      |
| 415710          | 7599147          | BM       | 8/9/05 | 2           | 1-5       |
| 415713          | 7598951          | BM       | 8/9/05 | 10          | 6-20      |
| 415716          | 7599093          | MM       | 8/9/05 | 4           | 1-5       |
| 415723          | 7598850          | BM       | 8/9/05 | 15          | 6-20      |
| 415726          | 7599973          | BM       | 9/9/05 | 1           | 1-5       |
| 415729          | 7599302          | BM       | 8/9/05 | 8           | 6-20      |
| 415740          | 7599121          | MM       | 8/9/05 | 1           | 1-5       |
| 415741          | 7599055          | MM       | 8/9/05 | 10          | 6-20      |
| 415744          | 7598712          | MM       | 8/9/05 | 6           | 6-20      |
| 415747          | 7599148          | MM       | 8/9/05 | 1           | 1-5       |
| 415749          | 7598785          | MM       | 8/9/05 | 10          | 6-20      |
| 415771          | 7600103          | MM       | 9/9/05 | 2           | 1-5       |
| 415779          | 7599649          | MM       | 9/9/05 | 5           | 1-5       |
| 415781          | 7598897          | BM       | 8/9/05 | 1           | 1-5       |
| 415782          | 7599216          | BM       | 8/9/05 | 4           | 1-5       |
| 415784          | 7598798          | MM       | 8/9/05 | 10          | 6-20      |
| 415789          | 7598967          | BM       | 8/9/05 | 15          | 6-20      |
| 415811          | 7598748          | MM       | 8/9/05 | 10          | 6-20      |
| 415817          | 7598820          | MM       | 8/9/05 | 7           | 6-20      |
| 415819          | 7599097          | MM       | 8/9/05 | 1           | 1-5       |
| 415820          | 7600099          | MM       | 9/9/05 | 3           | 1-5       |
| 415827          | 7599424          | MM       | 8/9/05 | 6           | 6-20      |
| 415835          | 7599658          | MM       | 9/9/05 | 1           | 1-5       |
| 415837          | 7599014          | BM       | 8/9/05 | 30          | 21-99     |
| 415838          | 7599180          | MM       | 8/9/05 | 6           | 6-20      |
| 415843          | 7599254          | BM       | 8/9/05 | 2           | 1-5       |
| 415847          | 7598762          | MM       | 8/9/05 | 4           | 1-5       |
| 415854          | 7599444          | MM       | 8/9/05 | 1           | 1-5       |
| 415857          | 7598848          | MM       | 8/9/05 | 7           | 6-20      |
| 415859          | 7598941          | BM       | 8/9/05 | 2           | 1-5       |
| 415877          | 7599457          | MM       | 8/9/05 | 4           | 1-5       |
| 415878          | 7599204          | MM       | 8/9/05 | 3           | 1-5       |
| 415881          | 7599118          | MM       | 8/9/05 | 2           | 1-5       |
| 415896          | 7599937          | BM       | 7/9/05 | 3           | 1-5       |
| 415898          | 7598792          | MM       | 8/9/05 | 15          | 6-20      |
| 415899          | 7598652          | BM       | 8/9/05 | 1           | 1-5       |
| 415899          | 7599050          | BM       | 8/9/05 | 15          | 6-20      |
| 415909          | 7599225          | MM       | 8/9/05 | 1           | 1-5       |
| 415919          | 7599143          | MM       | 8/9/05 | 6           | 6-20      |
| 415929          | 7599411          | BM       | 8/9/05 | 1           | 1-5       |
| 415932          | 7599608          | MM       | 7/9/05 | 6           | 6-20      |
| 415933          | 7598786          | MM       | 8/9/05 | 1           | 1-5       |
| 415938          | 7598863          | MM       | 8/9/05 | 15          | 6-20      |
| 415942          | 7599909          | MM       | 7/9/05 | 1           | 1-5       |
| 415948          | 7598806          | MM       | 8/9/05 | 4           | 1-5       |
| 415950          | 7599167          | MM       | 8/9/05 | 5           | 1-5       |
| 415951          | 7599601          | MM       | 7/9/05 | 4           | 1-5       |
| 415953          | 7598981          | BM       | 8/9/05 | 40          | 21-99     |
| 415953          | 7599882          | MM       | 7/9/05 | 2           | 1-5       |
| 415968          | 7599099          | BM       | 8/9/05 | 5           | 1-5       |
| 415971          | 7598890          | MM       | 8/9/05 | 2           | 1-5       |
| 415986          | 7599595          | MM       | 7/9/05 | 3           | 1-5       |
| 415990          | 7598834          | MM       | 8/9/05 | 2           | 1-5       |
| 415996          | 7598767          | BM       | 8/9/05 | 1           | 1-5       |

**Abutilon trudgenii ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POPN_SIZE_ | COMMENTS |
|-----------------|------------------|----------|--------|-------------|------------|----------|
| 416000          | 7599210          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416005          | 7599768          | BM       | 7/9/05 | 2           | 1-5        |          |
| 416013          | 7598840          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416013          | 7598919          | MM       | 8/9/05 | 10          | 6-20       |          |
| 416013          | 7599040          | BM       | 8/9/05 | 10          | 6-20       |          |
| 416013          | 7599683          | BM       | 7/9/05 | 4           | 1-5        |          |
| 416015          | 7599941          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416051          | 7599672          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416057          | 7599799          | MM       | 7/9/05 | 2           | 1-5        |          |
| 416064          | 7599930          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416077          | 7599582          | MM       | 7/9/05 | 2           | 1-5        |          |
| 416081          | 7598904          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416082          | 7600050          | MM       | 7/9/05 | 8           | 6-20       |          |
| 416089          | 7599080          | BM       | 8/9/05 | 20          | 6-20       |          |
| 416094          | 7598969          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416101          | 7599269          | MM       | 8/9/05 | 6           | 6-20       |          |
| 416103          | 7599981          | BM       | 7/9/05 | 2           | 1-5        |          |
| 416133          | 7599409          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416148          | 7599114          | BM       | 8/9/05 | 5           | 1-5        |          |
| 416168          | 7599221          | BM       | 8/9/05 | 15          | 6-20       |          |
| 416172          | 7599766          | MM       | 7/9/05 | 3           | 1-5        |          |
| 416175          | 7599457          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416199          | 7599154          | BM       | 8/9/05 | 3           | 1-5        |          |
| 416216          | 7599351          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416217          | 7599455          | MM       | 8/9/05 | 2           | 1-5        |          |
| 416220          | 7599078          | MM       | 8/9/05 | 15          | 6-20       |          |
| 416260          | 7599278          | BM       | 8/9/05 | 20          | 6-20       |          |
| 416265          | 7599127          | MM       | 8/9/05 | 2           | 1-5        |          |
| 416277          | 7599455          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416283          | 7599138          | MM       | 8/9/05 | 2           | 1-5        |          |
| 416290          | 7599388          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416297          | 7599165          | MM       | 8/9/05 | 2           | 1-5        |          |
| 416335          | 7599188          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416358          | 7599235          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416369          | 7599717          | MM       | 7/9/05 | 1           | 1-5        |          |
| 416389          | 7599710          | MM       | 7/9/05 | 2           | 1-5        |          |
| 416407          | 7599268          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416414          | 7599973          | MM       | 7/9/05 | 200         | >100       | flowline |
| 416422          | 7599759          | MM       | 7/9/05 | 1           | 1-5        |          |
| 416423          | 7599323          | BM       | 8/9/05 | 2           | 1-5        |          |
| 416423          | 7599672          | BM       | 7/9/05 | 3           | 1-5        |          |
| 416440          | 7599288          | MM       | 8/9/05 | 10          | 6-20       |          |
| 416440          | 7599492          | MM       | 7/9/05 | 1           | 1-5        |          |
| 416466          | 7599429          | BM       | 8/9/05 | 4           | 1-5        |          |
| 416469          | 7599654          | BM       | 7/9/05 | 2           | 1-5        |          |
| 416472          | 7599350          | BM       | 8/9/05 | 1           | 1-5        |          |
| 416478          | 7599313          | MM       | 8/9/05 | 10          | 6-20       |          |
| 416492          | 7599954          | MM       | 7/9/05 | 200         | >100       |          |
| 416512          | 7599439          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416514          | 7599328          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416572          | 7599441          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416585          | 7599410          | BM       | 8/9/05 | 5           | 1-5        |          |
| 416592          | 7599681          | MM       | 7/9/05 | 1           | 1-5        |          |
| 416599          | 7599859          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416600          | 7599469          | MM       | 7/9/05 | 5           | 1-5        |          |
| 416622          | 7599770          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416629          | 7599391          | MM       | 8/9/05 | 5           | 1-5        |          |
| 416646          | 7599457          | MM       | 7/9/05 | 10          | 6-20       |          |
| 416650          | 7599851          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416662          | 7599417          | MM       | 8/9/05 | 1           | 1-5        |          |
| 416724          | 7599816          | BM       | 7/9/05 | 5           | 1-5        |          |
| 416732          | 7599410          | MM       | 8/9/05 | 10          | 6-20       |          |
| 416741          | 7599383          | BM       | 8/9/05 | 3           | 1-5        |          |
| 416743          | 7599640          | MM       | 7/9/05 | 1           | 1-5        |          |
| 416752          | 7599505          | BM       | 7/9/05 | 2           | 1-5        |          |
| 416765          | 7599425          | MM       | 7/9/05 | 10          | 6-20       |          |
| 416797          | 7599795          | BM       | 7/9/05 | 1           | 1-5        |          |
| 416807          | 7599403          | MM       | 7/9/05 | 2           | 1-5        |          |
| 416809          | 7599684          | MM       | 7/9/05 | 5           | 1-5        |          |
| 416828          | 7599880          | MM       | 7/9/05 | 30          | 21-99      |          |
| 416831          | 7599624          | MM       | 7/9/05 | 2           | 1-5        |          |

***Abutilon frudgenii* ms. (continued)**

| <b>EASTING_(WGS84)</b> | <b>NORTHING_(WGS84)</b> | <b>RECORDER</b> | <b>DATE</b> | <b>NO._OF_INDS</b> | <b>POPN_SIZE_</b> |
|------------------------|-------------------------|-----------------|-------------|--------------------|-------------------|
| 416864                 | 7599562                 | MM              | 7/9/05      | 10                 | 6-20              |
| 416891                 | 7599785                 | BM              | 7/9/05      | 1                  | 1-5               |
| 416927                 | 7599574                 | MM              | 8/9/05      | 1                  | 1-5               |
| 416928                 | 7599718                 | BM              | 7/9/05      | 1                  | 1-5               |
| 416941                 | 7599504                 | BM              | 8/9/05      | 4                  | 1-5               |
| 417002                 | 7599640                 | MM              | 7/9/05      | 10                 | 6-20              |
| 417003                 | 7599744                 | BM              | 7/9/05      | 1                  | 1-5               |
| 417044                 | 7599846                 | MM              | 7/9/05      | scattered          | 6-20              |
| 417067                 | 7599564                 | MM              | 8/9/05      | 2                  | 1-5               |
| 417098                 | 7599615                 | MM              | 7/9/05      | 10                 | 6-20              |
| 417105                 | 7599555                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417106                 | 7599771                 | BM              | 7/9/05      | 3                  | 1-5               |
| 417113                 | 7599673                 | BM              | 7/9/05      | 8                  | 6-20              |
| 417154                 | 7599612                 | MM              | 7/9/05      | 10                 | 6-20              |
| 417171                 | 7599476                 | BM              | 8/9/05      | 10                 | 6-20              |
| 417214                 | 7599774                 | BM              | 7/9/05      | 5                  | 1-5               |
| 417217                 | 7599545                 | MM              | 8/9/05      | 2                  | 1-5               |
| 417246                 | 7599618                 | MM              | 7/9/05      | 2                  | 1-5               |
| 417269                 | 7599474                 | BM              | 8/9/05      | 5                  | 1-5               |
| 417271                 | 7599537                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417312                 | 7599526                 | MM              | 8/9/05      | 3                  | 1-5               |
| 417339                 | 7599776                 | BM              | 7/9/05      | 8                  | 6-20              |
| 417340                 | 7599455                 | BM              | 8/9/05      | 3                  | 1-5               |
| 417347                 | 7599674                 | BM              | 7/9/05      | 1                  | 1-5               |
| 417350                 | 7599624                 | MM              | 7/9/05      | 1                  | 1-5               |
| 417359                 | 7599519                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417395                 | 7599762                 | BM              | 7/9/05      | 8                  | 6-20              |
| 417401                 | 7599528                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417433                 | 7599529                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417451                 | 7599652                 | BM              | 7/9/05      | 1                  | 1-5               |
| 417452                 | 7599599                 | MM              | 7/9/05      | 5                  | 1-5               |
| 417477                 | 7599493                 | MM              | 8/9/05      | 25                 | 21-99             |
| 417490                 | 7599639                 | BM              | 7/9/05      | 2                  | 1-5               |
| 417513                 | 7599744                 | BM              | 7/9/05      | 3                  | 1-5               |
| 417514                 | 7599568                 | MM              | 7/9/05      | 1                  | 1-5               |
| 417523                 | 7599483                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417554                 | 7599472                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417575                 | 7599407                 | BM              | 8/9/05      | 2                  | 1-5               |
| 417586                 | 7599803                 | MM              | 7/9/05      | 3                  | 1-5               |
| 417608                 | 7599558                 | MM              | 7/9/05      | 2                  | 1-5               |
| 417613                 | 7599468                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417657                 | 7599735                 | BM              | 7/9/05      | 1                  | 1-5               |
| 417659                 | 7599472                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417673                 | 7599540                 | MM              | 7/9/05      | 1                  | 1-5               |
| 417684                 | 7599463                 | MM              | 8/9/05      | 10                 | 6-20              |
| 417684                 | 7599787                 | MM              | 7/9/05      | 1                  | 1-5               |
| 417726                 | 7599374                 | BM              | 8/9/05      | 1                  | 1-5               |
| 417729                 | 7599456                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417729                 | 7599648                 | BM              | 7/9/05      | 2                  | 1-5               |
| 417751                 | 7599532                 | MM              | 7/9/05      | 1                  | 1-5               |
| 417764                 | 7599452                 | MM              | 8/9/05      | 8                  | 6-20              |
| 417764                 | 7599788                 | MM              | 7/9/05      | 3                  | 1-5               |
| 417795                 | 7599430                 | MM              | 8/9/05      | 15                 | 6-20              |
| 417801                 | 7599729                 | BM              | 7/9/05      | 2                  | 1-5               |
| 417807                 | 7599639                 | BM              | 7/9/05      | 3                  | 1-5               |
| 417831                 | 7599527                 | MM              | 7/9/05      | 2                  | 1-5               |
| 417841                 | 7599425                 | MM              | 8/9/05      | 5                  | 1-5               |
| 417859                 | 7599777                 | MM              | 7/9/05      | 80                 | 21-99             |
| 417870                 | 7599342                 | BM              | 8/9/05      | 4                  | 1-5               |
| 417895                 | 7599420                 | MM              | 8/9/05      | 3                  | 1-5               |
| 417896                 | 7599512                 | MM              | 7/9/05      | 3                  | 1-5               |
| 417906                 | 7599775                 | MM              | 7/9/05      | 80                 | 21-99             |
| 417915                 | 7599732                 | BM              | 7/9/05      | 70                 | 21-99             |
| 417949                 | 7599403                 | MM              | 8/9/05      | 2                  | 1-5               |
| 417954                 | 7599764                 | MM              | 7/9/05      | 100                | >100              |
| 417963                 | 7599712                 | BM              | 7/9/05      | 5                  | 1-5               |
| 417980                 | 7599509                 | MM              | 7/9/05      | 3                  | 1-5               |
| 418008                 | 7599386                 | MM              | 8/9/05      | 2                  | 1-5               |
| 418020                 | 7599696                 | BM              | 7/9/05      | 3                  | 1-5               |
| 418025                 | 7599754                 | MM              | 7/9/05      | 200                | >100              |
| 418039                 | 7599614                 | BM              | 7/9/05      | 30                 | 21-99             |

***Abutilon frudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 418051          | 7599382          | MM       | 8/9/05  | 5           | 1-5        |
| 418059          | 7599503          | MM       | 7/9/05  | 5           | 1-5        |
| 418073          | 7599745          | MM       | 7/9/05  | 100         | >100       |
| 418100          | 7599673          | BM       | 7/9/05  | 2           | 1-5        |
| 418110          | 7599500          | MM       | 7/9/05  | 5           | 1-5        |
| 418150          | 7599492          | MM       | 7/9/05  | 5           | 1-5        |
| 418151          | 7599737          | MM       | 7/9/05  | 100         | >100       |
| 418162          | 7599412          | MM       | 8/9/05  | 5           | 1-5        |
| 418199          | 7599404          | MM       | 8/9/05  | 10          | 6-20       |
| 418227          | 7599692          | BM       | 7/9/05  | 6           | 6-20       |
| 418252          | 7599726          | MM       | 7/9/05  | 30          | 21-99      |
| 418273          | 7599674          | BM       | 7/9/05  | 2           | 1-5        |
| 418323          | 7599425          | MM       | 7/9/05  | 1           | 1-5        |
| 418340          | 7599434          | MM       | 7/9/05  | 2           | 1-5        |
| 418366          | 7599650          | BM       | 7/9/05  | 1           | 1-5        |
| 418377          | 7599592          | MM       | 7/9/05  | 20          | 6-20       |
| 418422          | 7599258          | MM       | 10/8/05 | 4           | 1-5        |
| 418449          | 7599306          | MM       | 10/8/05 | 60          | 21-99      |
| 418453          | 7599212          | RO       | 10/8/05 | 2           | 1-5        |
| 418477          | 7599103          | BM       | 10/8/05 | 2           | 1-5        |
| 418492          | 7599352          | BM       | 10/8/05 | 1           | 1-5        |
| 418497          | 7599129          | RO       | 10/8/05 | 1           | 1-5        |
| 418538          | 7599350          | BM       | 10/8/05 | 1           | 1-5        |
| 418541          | 7599052          | RO       | 10/8/05 | 10          | 6-20       |
| 418601          | 7598648          | BM       | 10/8/05 | 1           | 1-5        |
| 418609          | 7599015          | RO       | 10/8/05 | scattered   | 6-20       |
| 418621          | 7598779          | RO       | 10/8/05 | 10          | 6-20       |
| 418626          | 7598981          | RO       | 10/8/05 | scattered   | 6-20       |
| 418633          | 7598930          | RO       | 10/8/05 | scattered   | 6-20       |
| 418646          | 7598870          | RO       | 10/8/05 | scattered   | 6-20       |
| 418651          | 7598826          | RO       | 10/8/05 | 1           | 1-5        |
| 418667          | 7599400          | MM       | 10/8/05 | 10          | 6-20       |
| 418676          | 7598768          | RO       | 10/8/05 | 10          | 6-20       |
| 418683          | 7599383          | MM       | 10/8/05 | 2           | 1-5        |
| 418686          | 7598647          | RO       | 9/7/05  | 1           | 1-5        |
| 418687          | 7598729          | RO       | 10/8/05 | 2           | 1-5        |
| 418714          | 7598892          | BM       | 10/8/05 | 5           | 1-5        |
| 418718          | 7598683          | RO       | 10/8/05 | 2           | 1-5        |
| 418738          | 7598661          | RO       | 10/8/05 | 7           | 6-20       |
| 418739          | 7598641          | RO       | 9/7/05  | 4           | 1-5        |
| 418741          | 7598538          | RO       | 9/7/05  | 1           | 1-5        |
| 418744          | 7598589          | RO       | 9/7/05  | 1           | 1-5        |
| 418750          | 7598803          | BM       | 10/8/05 | 5           | 1-5        |
| 418752          | 7598744          | BM       | 10/8/05 | 5           | 1-5        |
| 418761          | 7598719          | BM       | 10/8/05 | 10          | 6-20       |
| 418778          | 7599133          | MM       | 10/8/05 | 1           | 1-5        |
| 418780          | 7597483          | RO       | 9/7/05  | 3           | 1-5        |
| 418787          | 7598679          | BM       | 10/8/05 | 6           | 6-20       |
| 418805          | 7597628          | BM       | 9/7/05  | 1           | 1-5        |
| 418839          | 7597566          | BM       | 9/7/05  | 4           | 1-5        |
| 418844          | 7598922          | MM       | 10/8/05 | 3           | 1-5        |
| 418849          | 7597124          | MyM      | 9/7/05  | 2           | 1-5        |
| 418862          | 7598846          | MM       | 10/8/05 | 1           | 1-5        |
| 418872          | 7598804          | MM       | 10/8/05 | 1           | 1-5        |
| 418892          | 7598737          | MM       | 10/8/05 | 2           | 1-5        |
| 418899          | 7598716          | MM       | 10/8/05 | 1           | 1-5        |
| 418900          | 7596737          | RO       | 9/7/05  | 2           | 1-5        |
| 418900          | 7596825          | RO       | 9/7/05  | 5           | 1-5        |
| 418910          | 7597124          | BM       | 9/7/05  | 2           | 1-5        |
| 418916          | 7596873          | RO       | 9/7/05  | 2           | 1-5        |
| 418917          | 7597396          | RO       | 9/7/05  | 5           | 1-5        |
| 418928          | 7597090          | RO       | 9/7/05  | 2           | 1-5        |
| 418944          | 7597208          | RO       | 9/7/05  | 1           | 1-5        |
| 418961          | 7597713          | RO       | 9/7/05  | 4           | 1-5        |
| 418964          | 7598692          | MyM      | 5/7/05  | 2           | 1-5        |
| 418974          | 7599224          | MyM      | 5/7/05  | 3           | 1-5        |
| 418997          | 7597342          | RO       | 9/7/05  | 1           | 1-5        |
| 419008          | 7597272          | RO       | 9/7/05  | 6           | 6-20       |
| 419016          | 7597749          | MyM      | 9/7/05  | 3           | 1-5        |
| 419022          | 7599467          | BM       | 10/8/05 | 3           | 1-5        |
| 419037          | 7597599          | MyM      | 9/7/05  | 3           | 1-5        |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|---------|-------------|------------|-------------|
| 419042          | 7599374          | BM       | 10/8/05 | 4           | 1-5        |             |
| 419044          | 7599335          | BM       | 10/8/05 | 2           | 1-5        |             |
| 419044          | 7599488          | BM       | 10/8/05 | 1           | 1-5        |             |
| 419052          | 7599395          | BM       | 10/8/05 | 4           | 1-5        |             |
| 419054          | 7599212          | MyM      | 5/7/05  | 10          | 6-20       |             |
| 419058          | 7599426          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419061          | 7596216          | RO       | 9/7/05  | 5           | 1-5        |             |
| 419066          | 7598806          |          |         | <1%         | 21-99      |             |
| 419067          | 7597227          | RO       | 9/7/05  | 5           | 1-5        |             |
| 419068          | 7599413          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419075          | 7596140          | RO       | 9/7/05  | 3           | 1-5        |             |
| 419075          | 7597176          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419080          | 7599438          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419081          | 7599169          | MyM      | 5/7/05  | 2           | 1-5        |             |
| 419081          | 7599394          | RO       | 10/8/05 | 2           | 1-5        |             |
| 419090          | 7597385          | MyM      | 9/7/05  | 10          | 6-20       |             |
| 419106          | 7597304          | MyM      | 9/7/05  | 2           | 1-5        |             |
| 419114          | 7596253          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419118          | 7599436          | RO       | 10/8/05 | 2           | 1-5        |             |
| 419120          | 7598765          | RO       | 5/7/05  | 1           | 1-5        | 2MATC-48    |
| 419121          | 7593033          |          |         | +           | 6-20       |             |
| 419122          | 7599374          | RO       | 10/8/05 | 3           | 1-5        |             |
| 419137          | 7595870          | MyM      | 9/7/05  | 5           | 1-5        |             |
| 419140          | 7597161          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419143          | 7596852          | RO       | 9/7/05  | 3           | 1-5        |             |
| 419144          | 7596242          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419145          | 7597089          | RO       | 9/7/05  | 6           | 6-20       |             |
| 419147          | 7595521          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419147          | 7599377          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419159          | 7596955          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419167          | 7596753          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419177          | 7596884          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419184          | 7596519          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419192          | 7596031          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419197          | 7597060          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419204          | 7599314          | BM       | 10/8/05 | 1           | 1-5        |             |
| 419205          | 7595859          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419205          | 7596973          | RO       | 9/7/05  | 6           | 6-20       |             |
| 419206          | 7596605          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419218          | 7598732          | RO       | 4/7/05  | 3           | 1-5        |             |
| 419223          | 7596652          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419235          | 7596839          | RO       | 9/7/05  | 3           | 1-5        |             |
| 419243          | 7596379          | RO       | 9/7/05  | 3           | 1-5        |             |
| 419249          | 7596588          | RO       | 9/7/05  | 5           | 1-5        |             |
| 419254          | 7596780          | MyM      | 9/7/05  | 5+          | 6-20       |             |
| 419262          | 7596734          | MyM      | 9/7/05  | 4           | 1-5        |             |
| 419287          | 7595693          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419289          | 7596178          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419291          | 7596590          | MyM      | 9/7/05  | 9           | 6-20       |             |
| 419323          | 7596492          | MyM      | 9/7/05  | 2           | 1-5        |             |
| 419336          | 7595928          | BM       | 9/7/05  | 1           | 1-5        |             |
| 419347          | 7596429          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419356          | 7596355          | MyM      | 9/7/05  | 3           | 1-5        |             |
| 419417          | 7595235          | MyM      | 9/7/05  | 10+         | 6-20       |             |
| 419452          | 7595627          | BM       | 9/7/05  | 1           | 1-5        |             |
| 419455          | 7595311          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419551          | 7595087          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 419612          | 7595029          | BM       | 8/7/05  | 2           | 1-5        |             |
| 419634          | 7595406          | MyM      | 9/7/05  | 3           | 1-5        |             |
| 419660          | 7595023          | BM       | 8/7/05  | 2           | 1-5        |             |
| 419664          | 7594239          | RO       | 8/7/05  | 30          | 21-99      |             |
| 419671          | 7595107          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 419673          | 7595007          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419690          | 7594769          | BM       | 8/7/05  | 1           | 1-5        |             |
| 419705          | 7594753          |          |         | +           | 6-20       |             |
| 419705          | 7595039          | MyM      | 8/7/05  | 2           | 1-5        |             |
| 419726          | 7594917          | RO       | 8/7/05  | 2           | 1-5        |             |
| 419767          | 7594766          | RO       | 8/7/05  | 1           | 1-5        |             |
| 419782          | 7595025          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419851          | 7594622          | RO       | 8/7/05  | 1           | 1-5        |             |
| 419997          | 7594275          | MyM      | 8/7/05  | 1           | 1-5        |             |

***Abutilon trudgenii* ms. (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO. OF_INDS    | POPN_SIZE_ | SPECIMEN_NO |
|------------------|-------------------|----------|---------|----------------|------------|-------------|
| 420017           | 7598679           | RO       | 6/7/05  | 4              | 1-5        |             |
| 420050           | 7594180           | RO       | 8/7/05  | 1              | 1-5        |             |
| 420073           | 7598661           | RO       | 5/7/05  | 1              | 1-5        |             |
| 420178           | 7594439           | RO       | 8/7/05  | 1              | 1-5        |             |
| 420302           | 7598832           |          |         | <2%            | 21-99      |             |
| 420320           | 7594404           | RO       | 8/7/05  | 2              | 1-5        | 2MATC-142   |
| 420496           | 7598702           | RO       | 6/7/05  | 1              | 1-5        |             |
| 420549           | 7598752           | RO       | 6/7/05  | 2              | 1-5        |             |
| 420637           | 7598800           |          |         | <2%            | 21-99      |             |
| 420741           | 7598792           | RO       | 6/7/05  | 1              | 1-5        |             |
| 421249           | 7599037           |          |         | +              | 6-20       |             |
| 421324           | 7599084           | RO       | 6/7/05  | 2              | 1-5        |             |
| 421400           | 7591650           | MM       | 28/4/05 | 1              | 1-5        |             |
| 421506           | 7591579           | MM       | 28/4/05 | 10             | 6-20       |             |
| 421564           | 7599147           | RO       | 6/7/05  | 1              | 1-5        |             |
| 421740           | 7599209           | BM       | 6/7/05  | 6              | 6-20       |             |
| 421805           | 7599232           | MyM      | 7/7/05  | 3              | 1-5        |             |
| 421848           | 7599212           | BM       | 6/7/05  | 11             | 6-20       |             |
| 421880           | 7599165           | BM       | 6/7/05  | 3              | 1-5        |             |
| 421898           | 7599141           | MyM      | 7/7/05  | 3              | 1-5        |             |
| 421906           | 7599022           |          |         | <1%            | 21-99      |             |
| 421924           | 7599082           | BM       | 6/7/05  | 1              | 1-5        |             |
| 422002           | 7599143           | BM       | 6/7/05  | 1              | 1-5        |             |
| 422115           | 7599214           | BM       | 6/7/05  | 1              | 1-5        |             |
| 422181           | 7599279           | BM       | 6/7/05  | 1              | 1-5        |             |
| 422427           | 7599497           | BM       | 6/7/05  | 1              | 1-5        |             |
| 422457           | 7591228           | MM       | 30/4/05 | scattered      | 6-20       |             |
| 422466           | 7591398           | MM       | 30/4/05 | 20+; scattered | 21-99      |             |
| 422484           | 7591557           | MM       | 30/4/05 | scattered      | 6-20       |             |
| 422488           | 7591614           | MM       | 30/4/05 | 4              | 1-5        |             |
| 422492           | 7591136           | MM       | 30/4/05 | 20             | 6-20       |             |
| 422576           | 7599573           | BM       | 7/7/05  | 1              | 1-5        |             |
| 422607           | 7591549           | MM       | 30/4/05 | 1              | 1-5        |             |
| 422614           | 7591102           | MM       | 30/4/05 | 5              | 1-5        |             |
| 422638           | 7591515           | MM       | 30/4/05 | 6              | 6-20       |             |
| 422687           | 7591192           | MM       | 30/4/05 | 50+            | 21-99      |             |
| 422730           | 7591082           | MM       | 30/4/05 | 5              | 1-5        |             |
| 422811           | 7591112           | MM       | 30/4/05 | 20+            | 21-99      |             |
| 422885           | 7591048           | MM       | 30/4/05 | 1              | 1-5        |             |
| 422918           | 7591038           | MM       | 30/4/05 | 1              | 1-5        | MAT-16      |
| 422947           | 7591164           | MM       | 30/4/05 | 4              | 1-5        |             |
| 422954           | 7591033           | MM       | 30/4/05 | 2              | 1-5        |             |
| 422960           | 7591108           | MM       | 30/4/05 | 15             | 6-20       |             |
| 423013           | 7591421           |          |         | +              | 6-20       |             |
| 423050           | 7591479           | MM       | 30/4/05 | 2              | 1-5        |             |
| 423097           | 7591291           | MM       | 30/4/05 | 50             | 21-99      |             |
| 423113           | 7591468           | MM       | 30/4/05 | 5              | 1-5        |             |
| 423224           | 7591567           | MM       | 30/4/05 | 10             | 6-20       |             |
| 423236           | 7591381           | MM       | 30/4/05 | 1              | 1-5        |             |
| 423236           | 7591397           | MM       | 30/4/05 | 1              | 1-5        |             |
| 423236           | 7591430           | MM       | 30/4/05 | 5              | 1-5        |             |
| 423269           | 7591610           | MM       | 30/4/05 | 1              | 1-5        |             |
| 423411           | 7591579           | MM       | 30/4/05 | 6              | 6-20       |             |
| 423478           | 7591533           | MM       | 30/4/05 | 1              | 1-5        |             |
| 423497           | 7591594           | MM       | 30/4/05 | 1              | 1-5        |             |
| 423656           | 7599624           | BM       | 7/7/05  | 1              | 1-5        |             |
| 424238           | 7597551           |          |         | +              | 6-20       |             |
| 424680           | 7600087           | BM       | 7/7/05  | 6              | 6-20       |             |
| 424697           | 7600112           | BM       | 7/7/05  | 1              | 1-5        |             |
| 424809           | 7598540           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424836           | 7598592           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424838           | 7598570           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424864           | 7598544           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424870           | 7600316           | BM       | 7/7/05  | 3              | 1-5        |             |
| 424877           | 7598609           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424881           | 7600224           | BM       | 7/7/05  | 2              | 1-5        |             |
| 424886           | 7598341           | MM       | 16/9/05 | 1              | 1-5        |             |
| 424886           | 7599846           | MyM      | 7/7/05  | 2              | 1-5        |             |
| 424905           | 7598744           | MM       | 16/9/05 | 2              | 1-5        |             |
| 424906           | 7598622           | MM       | 16/9/05 | 5              | 1-5        |             |
| 424927           | 7598719           | MM       | 16/9/05 | 1              | 1-5        |             |

***Abutilon trudgenii* ms. (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 424960          | 7598677          | MM       | 16/9/05 | 1           | 1-5        |
| 424961          | 7598656          | MM       | 16/9/05 | 7           | 6-20       |
| 425000          | 7599937          | RO       | 7/7/05  | 1           | 1-5        |
| 425009          | 7598502          | MM       | 16/9/05 | 3           | 1-5        |
| 425056          | 7600046          | MyM      | 7/7/05  | 2           | 1-5        |
| 425123          | 7600059          | RO       | 7/7/05  | 3           | 1-5        |
| 425196          | 7600134          | RO       | 7/7/05  | 5           | 1-5        |
| 425207          | 7600209          | RO       | 7/7/05  | 20          | 6-20       |
| 425224          | 7600178          | MyM      | 7/7/05  | 2           | 1-5        |
| 425236          | 7600351          | RO       | 7/7/05  | 2           | 1-5        |
| 425269          | 7600270          | RO       | 7/7/05  | 3           | 1-5        |
| 425291          | 7600319          | RO       | 7/7/05  | 3           | 1-5        |
| 425304          | 7600409          | RO       | 7/7/05  | 1           | 1-5        |

***Abutilon trudgenii* ms. (additional records from survey work by B. Morgan)**

| EASTING_(WGS84) | NORTHING_(WGS84) | NO_INDS | POPN_SIZE |
|-----------------|------------------|---------|-----------|
| 378101          | 7605868          | 1       | 1-5       |
| 378090          | 7605957          | 1       | 1-5       |
| 378063          | 7606741          | 7       | 6-20      |
| 378070          | 7606767          | 1       | 1-5       |
| 378048          | 7607074          | 1       | 1-5       |
| 378179          | 7606344          | 1       | 1-5       |
| 378299          | 7605872          | 3       | 1-5       |
| 378282          | 7606205          | 1       | 1-5       |
| 378260          | 7606870          | 2       | 1-5       |
| 378400          | 7605507          | 1       | 1-5       |
| 378587          | 7606039          | 1       | 1-5       |
| 378801          | 7605832          | 1       | 1-5       |
| 379191          | 7602956          | 1       | 1-5       |
| 379190          | 7602932          | 1       | 1-5       |
| 379188          | 7602809          | 1       | 1-5       |
| 378097          | 7605799          | 4       | 1-5       |
| 378085          | 7606103          | 1       | 1-5       |
| 378078          | 7606483          | 1       | 1-5       |
| 378063          | 7606728          | 3       | 1-5       |
| 378171          | 7606348          | 1       | 1-5       |
| 378185          | 7605948          | 1       | 1-5       |
| 378185          | 7605933          | 5       | 1-5       |
| 378196          | 7605624          | 1       | 1-5       |
| 378201          | 7605493          | 2       | 1-5       |

***Abutilon trudgenii* ms. (additional records from survey work by Pilbara Iron)**

| EASTING_(WGS84) | NORTHING_(WGS84) | NO_INDS | POPN_SIZE |
|-----------------|------------------|---------|-----------|
| 378048          | 7605337          | 1       | 1-5       |
| 378333          | 7605877          | 2       | 1-5       |
| 389468          | 7611130          | 10      | 6-20      |
| 377898          | 7607063          |         | 1-5       |
| 377356          | 7606656          | 10      | 6-20      |
| 377409          | 7605436          |         | 1-5       |
| 377770          | 7606622          | 1       | 1-5       |
| 377598          | 7605405          | 5       | 1-5       |
| 377488          | 7605726          | 5       | 1-5       |
| 377014          | 7604943          | 20      | 6-20      |
| 377222          | 7604837          |         | 1-5       |
| 377414          | 7604989          |         | 1-5       |
| 379811          | 7605067          |         | 1-5       |
| 379700          | 7605564          |         | 1-5       |
| 377956          | 7604285          |         | 1-5       |
| 377603          | 7605313          |         | 1-5       |
| 377912          | 7605218          |         | 1-5       |

***Hibiscus brachysiphonius***

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|---------|-------------|------------|-------------|
| 414620          | 7599645          | MM       | 12/9/05 | 1           | 1-5        |             |
| 414634          | 7599594          | MM       | 12/9/05 | 1           | 1-5        | MATHM-316   |
| 423477          | 7591548          | MM       | 30/4/05 |             | 6-20       | MAT-22      |

***Phyllanthus aridus***

| EASTING_<br>(WGS84) | NORTHING_<br>(WGS84) | RECORDER | DATE    | NO._OF_IND     | POPN_SIZE_ | SPECIMEN_NO | COMMENTS                                                                            |
|---------------------|----------------------|----------|---------|----------------|------------|-------------|-------------------------------------------------------------------------------------|
| 406473              | 7598095              | MM       | 9/8/05  | scattered; 50+ | 21-99      |             |                                                                                     |
| 406475              | 7598089              | MM       | 9/8/05  | scattered; 50+ | 21-99      | MATRM-44    |                                                                                     |
| 406487              | 7598134              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406489              | 7598121              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406500              | 7598110              | BM       | 9/8/05  | 10             | 6-20       | MATB-96     |                                                                                     |
| 406516              | 7598136              | BM       | 9/8/05  | 5              | 1-5        |             |                                                                                     |
| 406523              | 7598152              | BM       | 9/8/05  | 50             | 21-99      |             |                                                                                     |
| 406538              | 7598181              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406552              | 7598186              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406566              | 7598194              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406570              | 7598201              | BM       | 9/8/05  | 50             | 21-99      |             |                                                                                     |
| 406604              | 7598231              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406630              | 7598266              | MyM      | 13/9/05 | 20+; scattered | 21-99      |             |                                                                                     |
| 406637              | 7598271              | BM       | 9/8/05  | 50             | 21-99      |             |                                                                                     |
| 406639              | 7598266              | MM       | 9/8/05  | scattered; 20+ | 21-99      |             |                                                                                     |
| 406692              | 7598282              | MyM      | 13/9/05 | 20+; scattered | 21-99      |             |                                                                                     |
| 406699              | 7598322              | MM       | 13/9/05 | 100            | >100       |             | 100 in a 5m by 5m area;<br>would be hundreds<br>scattered all through this<br>creek |
| 406700              | 7598338              | MM       | 13/9/05 | 20             | 6-20       |             | scattered all through this<br>creek; hundreds in total                              |
| 406733              | 7598352              | MM       | 13/9/05 | 20             | 6-20       |             |                                                                                     |

***Rhynchosia bungeensis***

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|---------|------------|------------|-------------|
| 392471          | 7603312          | RO       | 4/8/05  | 1          | 1-5        |             |
| 392522          | 7603329          | MM       | 4/8/05  | 7          | 6-20       | MATHM-42    |
| 404054          | 7594286          | BM       | 6/9/05  | 1          | 1-5        |             |
| 405755          | 7594034          | BM       | 14/9/05 | 1          | 1-5        |             |
| 405943          | 7594040          | BM       | 14/9/05 | 1          | 1-5        |             |
| 406138          | 7594011          | MyM      | 13/9/05 | 1          | 1-5        |             |
| 406293          | 7594070          | MyM      | 13/9/05 | 14         | 6-20       |             |
| 406480          | 7594094          | BM       | 14/9/05 | 1          | 1-5        |             |
| 414833          | 7598853          | RO       | 12/8/05 | 2          | 1-5        |             |
| 414861          | 7598914          | BM       | 12/8/05 | 1          | 1-5        |             |
| 415118          | 7594600          | MM       | 3/5/05  | 2          | 1-5        |             |
| 415137          | 7598719          | RO       | 12/8/05 | 1          | 1-5        |             |
| 415185          | 7598696          | MM       | 8/9/05  | 2          | 1-5        |             |
| 415251          | 7594701          | MM       | 3/5/05  | 5          | 1-5        |             |
| 415264          | 7598676          | BM       | 12/8/05 | 1          | 1-5        |             |
| 415271          | 7598668          | BM       | 12/8/05 | 1          | 1-5        |             |
| 415334          | 7594574          | MM       | 3/5/05  | 10         | 6-20       |             |
| 415368          | 7598627          | MM       | 8/9/05  | 1          | 1-5        |             |
| 415409          | 7598723          | RO       | 12/8/05 | 1          | 1-5        |             |
| 415468          | 7594523          | MM       | 3/5/05  | 1          | 1-5        |             |
| 415502          | 7594229          | MM       | 3/5/05  | 4          | 1-5        |             |
| 415524          | 7594685          | MM       | 3/5/05  | 2          | 1-5        |             |
| 415626          | 7594556          | MM       | 3/5/05  |            | 6-20       |             |
| 415630          | 7594556          | MM       | 3/5/05  | 3          | 1-5        |             |
| 415735          | 7594422          | MM       | 3/5/05  |            | 21-99      |             |
| 415779          | 7594377          | MM       | 3/5/05  | 10         | 6-20       |             |
| 415798          | 7593672          | MM       | 3/5/05  |            | 6-20       |             |
| 415829          | 7593865          | MM       | 3/5/05  | 10         | 6-20       |             |
| 415833          | 7594321          | MM       | 3/5/05  |            | 21-99      | MAT-66      |
| 415851          | 7593803          | MM       | 3/5/05  |            | 6-20       |             |
| 416012          | 7593793          | MM       | 3/5/05  | 3          | 1-5        |             |
| 416056          | 7593739          | MM       | 3/5/05  |            | 21-99      |             |
| 416159          | 7593586          | MM       | 3/5/05  |            | 6-20       |             |
| 416214          | 7593573          | MM       | 3/5/05  |            | 6-20       |             |
| 418557          | 7598247          | MyM      | 9/7/05  | 1          | 1-5        |             |
| 418571          | 7598133          | MyM      | 9/7/05  | 1          | 1-5        |             |
| 418599          | 7597972          | MyM      | 9/7/05  | 2          | 1-5        |             |
| 418624          | 7597897          | MyM      | 9/7/05  | 8          | 6-20       |             |
| 418637          | 7597780          | MyM      | 9/7/05  | 4          | 1-5        |             |
| 418674          | 7598271          | BM       | 9/7/05  | 1          | 1-5        |             |
| 418689          | 7598220          | BM       | 9/7/05  | 1          | 1-5        |             |
| 418700          | 7598450          | RO       | 9/7/05  | 1          | 1-5        |             |
| 418732          | 7598328          | RO       | 9/7/05  | 2          | 1-5        |             |
| 418733          | 7597951          | BM       | 9/7/05  | 1          | 1-5        |             |

***Rhynchosia bungalowensis***

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|--------|-------------|------------|-------------|
| 418739          | 7597856          | BM       | 9/7/05 | 3           | 1-5        |             |
| 418745          | 7598302          | RO       | 9/7/05 | 1           | 1-5        |             |
| 418775          | 7597950          |          |        |             | 6-20       |             |
| 418805          | 7597937          | RO       | 9/7/05 | 1           | 1-5        |             |
| 418810          | 7599296          | MyM      | 5/7/05 | 3           | 1-5        |             |
| 418837          | 7597917          |          |        |             | 6-20       |             |
| 418852          | 7597861          | RO       | 9/7/05 | 2           | 1-5        |             |
| 418879          | 7597912          | RO       | 9/7/05 | 1           | 1-5        |             |
| 418890          | 7598432          | MyM      | 9/7/05 | 1           | 1-5        |             |
| 418896          | 7597942          | RO       | 9/7/05 | 3           | 1-5        |             |
| 418913          | 7598000          | RO       | 9/7/05 | 1           | 1-5        |             |
| 418917          | 7598370          | MyM      | 9/7/05 | 1           | 1-5        |             |
| 418932          | 7598270          | MyM      | 9/7/05 | 1           | 1-5        |             |
| 418949          | 7598227          | MyM      | 9/7/05 | 1           | 1-5        |             |
| 418996          | 7597925          | MyM      | 9/7/05 | 7           | 6-20       |             |
| 419006          | 7597885          | MyM      | 9/7/05 | 3           | 1-5        |             |
| 419066          | 7598806          |          |        |             | 6-20       |             |
| 419221          | 7598732          | RO       | 4/7/05 | 10          | 6-20       | 2MATC-43    |
| 419476          | 7595060          | BM       | 8/7/05 | 1           | 1-5        |             |
| 419492          | 7595081          | MyM      | 9/7/05 | 1           | 1-5        |             |
| 419525          | 7594763          | MyM      | 8/7/05 | 1           | 1-5        |             |
| 419543          | 7594641          | MyM      | 8/7/05 | 1           | 1-5        |             |
| 419555          | 7594677          | MyM      | 8/7/05 | 2           | 1-5        |             |
| 419738          | 7594584          | RO       | 8/7/05 | 10          | 6-20       |             |
| 419776          | 7594606          | BM       | 8/7/05 | 1           | 1-5        |             |
| 419813          | 7594598          | BM       | 8/7/05 | 1           | 1-5        |             |

***Sida* sp. Wittenoom (W.R. Barker 1962)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS    | POPN_SIZE_ | SPECIMEN_NO | COMMENTS        |
|-----------------|------------------|----------|---------|----------------|------------|-------------|-----------------|
| 379626          | 7605218          |          |         | +              | 6-20       |             |                 |
| 383420          | 7601042          | MM       | 3/5/05  | 1              | 1-5        |             |                 |
| 384534          | 7613655          |          |         | +              | 6-20       |             |                 |
| 385094          | 7612612          | RO       | 5/4/05  | 1              | 1-5        |             |                 |
| 385197          | 7612499          | RO       | 5/4/05  | 3              | 1-5        |             |                 |
| 385217          | 7600805          |          |         | +              | 6-20       |             |                 |
| 385544          | 7612291          | HE       | 9/4/05  | 1              | 1-5        | YARPLH-9    |                 |
| 385742          | 7612154          | HE       | 8/4/05  | 40             | 21-99      | YARPLH-6    |                 |
| 386258          | 7603389          | MM       | 1/5/05  | scattered; 20+ | 21-99      |             |                 |
| 386411          | 7603595          | MM       | 28/4/05 | 10             | 6-20       |             |                 |
| 386535          | 7603658          | MM       | 28/4/05 | 100            | >100       |             |                 |
| 386546          | 7611744          | BM       | 8/4/05  | 4              | 1-5        |             |                 |
| 386615          | 7603529          | MM       | 28/4/05 | 10             | 6-20       |             |                 |
| 386619          | 7603591          | MM       | 28/4/05 | 10             | 6-20       |             |                 |
| 386763          | 7603240          | MM       | 1/5/05  | 10             | 6-20       |             | all dead        |
| 386814          | 7603643          | MM       | 28/4/05 | 100            | >100       |             |                 |
| 386844          | 7603752          | MM       | 28/4/05 | 100            | >100       |             |                 |
| 386903          | 7603095          | MM       | 1/5/05  | 1              | 1-5        |             |                 |
| 386905          | 7603518          |          |         | +              | 6-20       |             |                 |
| 386920          | 7603012          | MM       | 1/5/05  | 2              | 1-5        |             |                 |
| 386944          | 7603290          | MM       | 1/5/05  | 3              | 1-5        |             |                 |
| 386993          | 7603655          | MM       | 28/4/05 | 200            | >100       |             |                 |
| 387012          | 7603814          | MM       | 28/4/05 | 6              | 6-20       |             |                 |
| 387030          | 7603015          | MM       | 1/5/05  | 20+            | 21-99      |             |                 |
| 387074          | 7602867          | MM       | 1/5/05  | 15             | 6-20       |             |                 |
| 387219          | 7603000          | BM       | 1/8/05  | 1              | 1-5        |             |                 |
| 387220          | 7602977          | BM       | 1/8/05  | 3              | 1-5        |             |                 |
| 387220          | 7606332          | BM       | 9/4/05  | 3              | 1-5        |             |                 |
| 387224          | 7602010          | MM       | 3/5/05  | 3              | 1-5        |             |                 |
| 387234          | 7603027          | MM       | 1/5/05  | 20             | 6-20       |             |                 |
| 387239          | 7602915          | MM       | 1/5/05  | 12             | 6-20       |             |                 |
| 387282          | 7603501          |          |         | +              | 6-20       |             |                 |
| 387323          | 7602972          | BM       | 1/8/05  | 3              | 1-5        |             |                 |
| 387330          | 7603092          | MM       | 1/8/05  | 10             | 6-20       |             |                 |
| 387333          | 7602882          | MM       | 1/8/05  | 20             | 6-20       |             | along old track |
| 387355          | 7602834          | MM       | 1/8/05  | 6              | 6-20       | MATHM-2     | edge of track   |
| 387363          | 7602901          | BM       | 1/8/05  | 20             | 6-20       |             |                 |
| 387363          | 7603736          | MM       | 28/4/05 | 200            | >100       |             |                 |
| 387366          | 7606387          | BM       | 9/4/05  | 5              | 1-5        |             |                 |
| 387417          | 7602730          | MM       | 2/8/05  | 5              | 1-5        |             |                 |
| 387424          | 7602916          | BM       | 1/8/05  | 1              | 1-5        |             |                 |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POP_N_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|--------|-------------|-------------|-------------|
| 387424          | 7602916          | BM       | 1/8/05 | 5           | 1-5         |             |
| 387426          | 7602860          | RO       | 1/8/05 | 10          | 6-20        |             |
| 387435          | 7607918          | BM       | 8/4/05 | 2           | 1-5         |             |
| 387441          | 7602503          | MM       | 2/8/05 | 1           | 1-5         |             |
| 387448          | 7606556          | BM       | 9/4/05 | 3           | 1-5         |             |
| 387466          | 7602617          | RO       | 2/8/05 | 40          | 21-99       |             |
| 387472          | 7607629          | BM       | 9/4/05 | 4           | 1-5         | YARPLBM-10  |
| 387474          | 7602509          | BM       | 2/8/05 | 10          | 6-20        |             |
| 387499          | 7602729          | MM       | 2/8/05 | 10          | 6-20        |             |
| 387502          | 7602684          | BM       | 2/8/05 | 2           | 1-5         |             |
| 387516          | 7606923          | BM       | 9/4/05 | 2           | 1-5         |             |
| 387516          | 7606923          | BM       | 9/4/05 | 7           | 6-20        | YARPLBM-10  |
| 387519          | 7602393          | RO       | 2/8/05 | 15          | 6-20        |             |
| 387520          | 7602525          | BM       | 2/8/05 | 10          | 6-20        |             |
| 387534          | 7602560          | RO       | 2/8/05 | scattered   | 6-20        |             |
| 387553          | 7607469          | BM       | 9/4/05 | 10          | 6-20        |             |
| 387559          | 7602208          | BM       | 2/8/05 | 20          | 6-20        |             |
| 387562          | 7607868          | BM       | 9/4/05 | 1           | 1-5         |             |
| 387565          | 7602295          | RO       | 2/8/05 | 25          | 21-99       |             |
| 387571          | 7602464          | BM       | 2/8/05 | 1           | 1-5         |             |
| 387571          | 7602526          | BM       | 2/8/05 | 10          | 6-20        |             |
| 387571          | 7602526          | RO       | 2/8/05 | scattered   | 6-20        |             |
| 387580          | 7602726          | MM       | 2/8/05 | 1           | 1-5         |             |
| 387584          | 7602230          | BM       | 2/8/05 | 20          | 6-20        | MATHB-5     |
| 387588          | 7602559          | RO       | 2/8/05 | 10          | 6-20        |             |
| 387588          | 7602682          | BM       | 2/8/05 | 7           | 6-20        |             |
| 387594          | 7602826          | MM       | 1/8/05 | 1           | 1-5         |             |
| 387596          | 7607845          | BM       | 8/4/05 | 10          | 6-20        |             |
| 387607          | 7602183          | MM       | 2/8/05 | 1           | 1-5         |             |
| 387617          | 7607632          | BM       | 9/4/05 | 40          | 21-99       |             |
| 387619          | 7602475          | BM       | 2/8/05 | 10          | 6-20        |             |
| 387621          | 7602729          | MM       | 2/8/05 | 2           | 1-5         |             |
| 387624          | 7607400          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387625          | 7606983          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387626          | 7603094          | MM       | 1/8/05 | 2           | 1-5         | MATHM-6     |
| 387628          | 7602592          | RO       | 2/8/05 | 7           | 6-20        |             |
| 387629          | 7602817          | MM       | 1/8/05 | 2           | 1-5         |             |
| 387642          | 7608026          | BM       | 8/4/05 | 20          | 6-20        | YARPLBM-1   |
| 387646          | 7606799          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387648          | 7602355          | RO       | 2/8/05 | 10          | 6-20        |             |
| 387654          | 7602548          | BM       | 2/8/05 | 2           | 1-5         |             |
| 387659          | 7611318          |          |        | +           | 6-20        |             |
| 387663          | 7606883          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387665          | 7607508          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387687          | 7602232          | MM       | 2/8/05 | 1           | 1-5         |             |
| 387687          | 7602682          | BM       | 2/8/05 | 5           | 1-5         |             |
| 387694          | 7607889          | BM       | 8/4/05 | 24          | 21-99       |             |
| 387695          | 7602456          | RO       | 2/8/05 | 1           | 1-5         |             |
| 387721          | 7607426          | BM       | 9/4/05 | 5           | 1-5         |             |
| 387740          | 7607966          | RO       | 7/4/05 | 80          | 21-99       |             |
| 387764          | 7607503          | BM       | 9/4/05 | 10          | 6-20        |             |
| 387829          | 7602321          | MM       | 2/8/05 | 5           | 1-5         |             |
| 387837          | 7608083          | RO       | 7/4/05 | 5           | 1-5         |             |
| 387840          | 7602378          | BM       | 2/8/05 | 2           | 1-5         |             |
| 388071          | 7607719          | RO       | 7/4/05 | 70          | 21-99       |             |
| 388134          | 7607834          | RO       | 7/4/05 | 40          | 21-99       |             |
| 388241          | 7602799          | MM       | 2/8/05 | 1           | 1-5         |             |
| 388263          | 7608476          |          |        | +           | 6-20        |             |
| 388278          | 7608315          | RO       | 7/4/05 | 6           | 6-20        |             |
| 388357          | 7608475          | RO       | 6/4/05 | 25          | 21-99       |             |
| 388404          | 7607669          | RO       | 7/4/05 | 4           | 1-5         |             |
| 388468          | 7608293          | RO       | 7/4/05 | 10          | 6-20        |             |
| 388476          | 7609361          | RO       | 7/4/05 | 10          | 6-20        |             |
| 388525          | 7610153          | RO       | 6/4/05 | 10          | 6-20        |             |
| 388869          | 7603012          | BM       | 3/8/05 | 1           | 1-5         |             |
| 388907          | 7603160          | BM       | 3/8/05 | 15          | 6-20        |             |
| 388907          | 7609951          |          |        | +           | 6-20        |             |
| 388909          | 7603435          | MM       | 2/8/05 | 20          | 6-20        |             |
| 388971          | 7603174          | BM       | 3/8/05 | 5           | 1-5         |             |
| 388981          | 7603011          | BM       | 3/8/05 | 1           | 1-5         |             |
| 389022          | 7603090          | MM       | 2/8/05 | 10          | 6-20        |             |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE   | NO. OF INDS | POP_N_SIZE_ | COMMENTS        |
|------------------|-------------------|----------|--------|-------------|-------------|-----------------|
| 389041           | 7603619           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389042           | 7603092           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389043           | 7602974           | RO       | 3/8/05 | scattered   | 6-20        |                 |
| 389051           | 7603684           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389064           | 7603656           | BM       | 2/8/05 | 9           | 6-20        |                 |
| 389064           | 7603680           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389070           | 7603606           | MM       | 2/8/05 | 20          | 6-20        |                 |
| 389073           | 7603104           | MM       | 2/8/05 | 3           | 1-5         |                 |
| 389078           | 7603041           | BM       | 3/8/05 | 10          | 6-20        |                 |
| 389084           | 7603640           | BM       | 2/8/05 | 5           | 1-5         |                 |
| 389089           | 7603107           | MM       | 2/8/05 | 2           | 1-5         |                 |
| 389095           | 7603290           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389104           | 7603111           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389114           | 7603621           | BM       | 2/8/05 | 8           | 6-20        |                 |
| 389120           | 7603110           | MM       | 2/8/05 | 4           | 1-5         |                 |
| 389124           | 7603551           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389132           | 7603322           | MM       | 2/8/05 | 40          | 21-99       |                 |
| 389134           | 7603274           | MM       | 2/8/05 | 10          | 6-20        |                 |
| 389151           | 7603545           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389153           | 7603245           | MM       | 2/8/05 | 15          | 6-20        |                 |
| 389158           | 7602961           | RO       | 3/8/05 | scattered   | 6-20        |                 |
| 389160           | 7603051           | BM       | 3/8/05 | 20          | 6-20        |                 |
| 389161           | 7603273           | MM       | 2/8/05 | 3           | 1-5         |                 |
| 389168           | 7603249           | MM       | 2/8/05 | 10          | 6-20        |                 |
| 389172           | 7603344           | MM       | 2/8/05 | 100         | >100        |                 |
| 389184           | 7603331           | BM       | 2/8/05 | 50          | 21-99       |                 |
| 389209           | 7603516           | MM       | 2/8/05 | 20          | 6-20        |                 |
| 389212           | 7603204           | BM       | 3/8/05 | 10          | 6-20        |                 |
| 389223           | 7603649           | MM       | 2/8/05 | 1           | 1-5         |                 |
| 389230           | 7603110           | MM       | 2/8/05 | 1           | 1-5         |                 |
| 389231           | 7603509           | MM       | 2/8/05 | 20          | 6-20        | in 5 x 5 m area |
| 389235           | 7603547           | BM       | 2/8/05 | 3           | 1-5         |                 |
| 389243           | 7603510           | MM       | 2/8/05 | 6           | 6-20        | seedlings       |
| 389246           | 7603116           | MM       | 2/8/05 | 3           | 1-5         |                 |
| 389251           | 7603385           | MM       | 2/8/05 | 5           | 1-5         |                 |
| 389255           | 7603259           | MM       | 2/8/05 | 20          | 6-20        |                 |
| 389265           | 7603601           | BM       | 2/8/05 | 1           | 1-5         |                 |
| 389266           | 7602975           | RO       | 3/8/05 | scattered   | 6-20        |                 |
| 389268           | 7603403           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389269           | 7603286           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389271           | 7603526           | BM       | 2/8/05 | 8           | 6-20        |                 |
| 389284           | 7603124           | MM       | 2/8/05 | 4           | 1-5         |                 |
| 389286           | 7603256           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389293           | 7603438           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389294           | 7603061           | BM       | 3/8/05 | 5           | 1-5         |                 |
| 389304           | 7603373           | BM       | 2/8/05 | 30          | 21-99       |                 |
| 389314           | 7603294           | MM       | 2/8/05 | 30          | 21-99       |                 |
| 389319           | 7603483           |          |        | 1           | 21-99       |                 |
| 389320           | 7603216           | BM       | 3/8/05 | 10          | 6-20        |                 |
| 389322           | 7603447           | MM       | 2/8/05 | 100         | >100        |                 |
| 389326           | 7603136           | MM       | 2/8/05 | 3           | 1-5         |                 |
| 389327           | 7602991           | RO       | 3/8/05 | scattered   | 6-20        |                 |
| 389342           | 7603334           | BM       | 2/8/05 | 50          | 21-99       |                 |
| 389343           | 7603294           | MM       | 2/8/05 | 25          | 21-99       |                 |
| 389363           | 7603449           | MM       | 2/8/05 | 50          | 21-99       |                 |
| 389365           | 7603292           | MM       | 2/8/05 | 15          | 6-20        |                 |
| 389368           | 7603491           | MM       | 2/8/05 | 6           | 6-20        |                 |
| 389375           | 7603256           | MM       | 2/8/05 | 25          | 21-99       |                 |
| 389376           | 7602853           | BM       | 3/8/05 | 3           | 1-5         |                 |
| 389377           | 7602786           | MM       | 2/8/05 | 6           | 6-20        |                 |
| 389381           | 7603448           | MM       | 2/8/05 | 50          | 21-99       |                 |
| 389383           | 7603128           | MM       | 2/8/05 | 2           | 1-5         |                 |
| 389400           | 7603412           | BM       | 2/8/05 | 300         | >100        |                 |
| 389412           | 7603126           | MM       | 2/8/05 | 6           | 6-20        |                 |
| 389414           | 7603454           | MM       | 2/8/05 | 50          | 21-99       |                 |
| 389426           | 7602792           | MM       | 2/8/05 | 1           | 1-5         |                 |
| 389426           | 7603300           | MM       | 2/8/05 | 100         | >100        |                 |
| 389441           | 7603119           | MM       | 2/8/05 | 4           | 1-5         |                 |
| 389444           | 7603209           | BM       | 3/8/05 | 10          | 6-20        |                 |
| 389457           | 7603262           | MM       | 2/8/05 | 20          | 6-20        |                 |
| 389473           | 7603127           | MM       | 2/8/05 | 5           | 1-5         |                 |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| <b>EASTING_ (WGS84)</b> | <b>NORTHING_ (WGS84)</b> | <b>RECORDER</b> | <b>DATE</b> | <b>NO. OF INDS</b> | <b>POPN. SIZE_</b> |
|-------------------------|--------------------------|-----------------|-------------|--------------------|--------------------|
| 389475                  | 7602992                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389481                  | 7603267                  | MM              | 2/8/05      | 20                 | 6-20               |
| 389483                  | 7603391                  | BM              | 2/8/05      | 150                | >100               |
| 389490                  | 7603336                  | MM              | 2/8/05      | 180                | >100               |
| 389497                  | 7603262                  | MM              | 2/8/05      | 10                 | 6-20               |
| 389506                  | 7603226                  | BM              | 3/8/05      | 10                 | 6-20               |
| 389513                  | 7603070                  | BM              | 3/8/05      | 10                 | 6-20               |
| 389548                  | 7603365                  | MM              | 2/8/05      | 100                | >100               |
| 389550                  | 7603260                  | MM              | 2/8/05      | 30                 | 21-99              |
| 389556                  | 7603136                  | MM              | 2/8/05      | 20                 | 6-20               |
| 389567                  | 7603270                  | MM              | 2/8/05      | 40                 | 21-99              |
| 389570                  | 7602982                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389582                  | 7603431                  | BM              | 2/8/05      | 250                | >100               |
| 389593                  | 7603389                  | MM              | 2/8/05      | 50                 | 21-99              |
| 389605                  | 7602908                  | BM              | 3/8/05      | 10                 | 6-20               |
| 389606                  | 7603086                  | BM              | 3/8/05      | 8                  | 6-20               |
| 389621                  | 7603529                  | BM              | 2/8/05      | 1                  | 1-5                |
| 389626                  | 7603148                  | MM              | 2/8/05      | 20                 | 6-20               |
| 389636                  | 7603006                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389637                  | 7603270                  | MM              | 2/8/05      | 20                 | 6-20               |
| 389638                  | 7603467                  | BM              | 2/8/05      | 50                 | 21-99              |
| 389640                  | 7603423                  | MM              | 2/8/05      | 500                | >100               |
| 389656                  | 7603221                  | BM              | 3/8/05      | 50                 | 21-99              |
| 389660                  | 7602803                  | MM              | 2/8/05      | 20                 | 6-20               |
| 389664                  | 7603507                  | BM              | 2/8/05      | 10                 | 6-20               |
| 389684                  | 7603146                  | MM              | 2/8/05      | 15                 | 6-20               |
| 389694                  | 7602818                  | MM              | 2/8/05      | 1                  | 1-5                |
| 389695                  | 7603460                  | MM              | 2/8/05      | 300                | >100               |
| 389705                  | 7602976                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389707                  | 7603471                  | MM              | 2/8/05      | 6                  | 6-20               |
| 389709                  | 7602888                  | BM              | 3/8/05      | 10                 | 6-20               |
| 389734                  | 7603480                  | MM              | 2/8/05      | 4                  | 1-5                |
| 389738                  | 7603286                  | MM              | 2/8/05      | 30                 | 21-99              |
| 389739                  | 7603093                  | BM              | 3/8/05      | 20                 | 6-20               |
| 389758                  | 7603281                  | MM              | 2/8/05      | 30                 | 21-99              |
| 389767                  | 7603226                  | BM              | 3/8/05      | 40                 | 21-99              |
| 389778                  | 7602898                  | BM              | 3/8/05      | 1                  | 1-5                |
| 389786                  | 7603513                  | MM              | 2/8/05      | 5                  | 1-5                |
| 389815                  | 7603097                  | BM              | 3/8/05      | 20                 | 6-20               |
| 389816                  | 7603286                  | MM              | 2/8/05      | 30                 | 21-99              |
| 389825                  | 7603931                  | MM              | 2/8/05      | 1                  | 1-5                |
| 389828                  | 7603152                  | MM              | 2/8/05      | 4                  | 1-5                |
| 389846                  | 7603768                  | MM              | 2/8/05      | 1                  | 1-5                |
| 389848                  | 7603808                  | MM              | 2/8/05      | 6                  | 6-20               |
| 389849                  | 7603288                  | MM              | 2/8/05      | 15                 | 6-20               |
| 389861                  | 7603243                  | BM              | 3/8/05      | 30                 | 21-99              |
| 389876                  | 7602829                  | MM              | 2/8/05      | 3                  | 1-5                |
| 389876                  | 7603293                  | MM              | 2/8/05      | 30                 | 21-99              |
| 389886                  | 7603103                  | BM              | 3/8/05      | 15                 | 6-20               |
| 389893                  | 7603038                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389899                  | 7603790                  | RO              | 2/8/05      | 20                 | 6-20               |
| 389929                  | 7603302                  | MM              | 2/8/05      | 15                 | 6-20               |
| 389937                  | 7603252                  | BM              | 3/8/05      | 5                  | 1-5                |
| 389938                  | 7602835                  | MM              | 2/8/05      | 10                 | 6-20               |
| 389946                  | 7602987                  | RO              | 3/8/05      | scattered          | 6-20               |
| 389967                  | 7603296                  | MM              | 2/8/05      | 15                 | 6-20               |
| 389994                  | 7603160                  | MM              | 2/8/05      | 3                  | 1-5                |
| 389998                  | 7602903                  | BM              | 3/8/05      | 10                 | 6-20               |
| 389999                  | 7602830                  | MM              | 2/8/05      | 5                  | 1-5                |
| 390024                  | 7603674                  | RO              | 2/8/05      | 20                 | 6-20               |
| 390030                  | 7602837                  | MM              | 2/8/05      | 10                 | 6-20               |
| 390055                  | 7602847                  | MM              | 2/8/05      | 15                 | 6-20               |
| 390056                  | 7603629                  | MM              | 2/8/05      | 1                  | 1-5                |
| 390057                  | 7603003                  | RO              | 3/8/05      | scattered          | 6-20               |
| 390066                  | 7603119                  | BM              | 3/8/05      | 15                 | 6-20               |
| 390085                  | 7603258                  | BM              | 3/8/05      | 20                 | 6-20               |
| 390091                  | 7603315                  | MM              | 2/8/05      | 40                 | 21-99              |
| 390100                  | 7602862                  | MM              | 2/8/05      | 7                  | 6-20               |
| 390109                  | 7602928                  | BM              | 3/8/05      | 20                 | 6-20               |
| 390110                  | 7603806                  | RO              | 2/8/05      | 1                  | 1-5                |
| 390129                  | 7603058                  | RO              | 3/8/05      | scattered          | 6-20               |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE   | NO_ OF INDS | POPN_ SIZE_ |
|------------------|-------------------|----------|--------|-------------|-------------|
| 390156           | 7603678           | MM       | 2/8/05 | 1           | 1-5         |
| 390184           | 7603136           | BM       | 3/8/05 | 10          | 6-20        |
| 390185           | 7603174           | MM       | 2/8/05 | 15          | 6-20        |
| 390186           | 7603268           | BM       | 3/8/05 | 30          | 21-99       |
| 390197           | 7602865           | MM       | 2/8/05 | 10          | 6-20        |
| 390201           | 7603314           | MM       | 2/8/05 | 10          | 6-20        |
| 390233           | 7603313           | MM       | 2/8/05 | 20          | 6-20        |
| 390234           | 7603017           | RO       | 3/8/05 | scattered   | 6-20        |
| 390255           | 7602864           | MM       | 2/8/05 | 20          | 6-20        |
| 390263           | 7603315           | MM       | 2/8/05 | 25          | 21-99       |
| 390273           | 7603148           | BM       | 3/8/05 | 8           | 6-20        |
| 390275           | 7602918           | BM       | 3/8/05 | 100         | >100        |
| 390287           | 7603268           | BM       | 3/8/05 | 5           | 1-5         |
| 390291           | 7603311           | MM       | 2/8/05 | 5           | 1-5         |
| 390307           | 7602865           | MM       | 2/8/05 | 10          | 6-20        |
| 390313           | 7603213           | MM       | 2/8/05 | 10          | 6-20        |
| 390324           | 7603095           | RO       | 3/8/05 | scattered   | 6-20        |
| 390375           | 7602865           | MM       | 2/8/05 | 100         | >100        |
| 390412           | 7602934           | BM       | 3/8/05 | 30          | 21-99       |
| 390426           | 7603170           | BM       | 3/8/05 | 10          | 6-20        |
| 390436           | 7603014           | RO       | 3/8/05 | scattered   | 6-20        |
| 390449           | 7602867           | MM       | 2/8/05 | 80          | 21-99       |
| 390455           | 7602938           | BM       | 3/8/05 | 7           | 6-20        |
| 390512           | 7603129           | RO       | 3/8/05 | scattered   | 6-20        |
| 390517           | 7602896           | MM       | 2/8/05 | 15          | 6-20        |
| 390544           | 7602942           | BM       | 3/8/05 | 30          | 21-99       |
| 390566           | 7602881           | MM       | 2/8/05 | 80          | 21-99       |
| 390583           | 7603035           | RO       | 3/8/05 | scattered   | 6-20        |
| 390590           | 7602889           | MM       | 2/8/05 | 3           | 1-5         |
| 390614           | 7603168           | BM       | 3/8/05 | 20          | 6-20        |
| 390617           | 7602889           | MM       | 2/8/05 | 20          | 6-20        |
| 390637           | 7602949           | BM       | 3/8/05 | 9           | 6-20        |
| 390642           | 7604028           |          |        | +           | 6-20        |
| 390644           | 7603220           | MM       | 2/8/05 | 1           | 1-5         |
| 390667           | 7602909           | MM       | 2/8/05 | 20          | 6-20        |
| 390686           | 7603023           | RO       | 3/8/05 | scattered   | 6-20        |
| 390707           | 7603232           | MM       | 2/8/05 | 8           | 6-20        |
| 390749           | 7603132           | RO       | 3/8/05 | scattered   | 6-20        |
| 390758           | 7602968           | BM       | 3/8/05 | 100         | >100        |
| 390789           | 7603246           | MM       | 2/8/05 | 10          | 6-20        |
| 390792           | 7603009           | RO       | 3/8/05 | 100+        | >100        |
| 390807           | 7603095           | MM       | 2/8/05 | 20          | 6-20        |
| 390807           | 7603184           | MM       | 2/8/05 | 2           | 1-5         |
| 390809           | 7603039           | MM       | 2/8/05 | 20          | 6-20        |
| 390810           | 7603011           | MM       | 2/8/05 | 200         | >100        |
| 390812           | 7603319           |          |        | +           | 6-20        |
| 390814           | 7602986           | BM       | 3/8/05 | 50          | 21-99       |
| 390816           | 7603255           | MM       | 2/8/05 | 2           | 1-5         |
| 390818           | 7602959           | MM       | 2/8/05 | 50          | 21-99       |
| 390821           | 7602919           | MM       | 2/8/05 | 50          | 21-99       |
| 390846           | 7603105           | RO       | 4/8/05 | scattered   | 6-20        |
| 390867           | 7603047           | MM       | 4/8/05 | 60          | 21-99       |
| 390874           | 7603193           | MM       | 4/8/05 | 2           | 1-5         |
| 390884           | 7603106           | MM       | 4/8/05 | 30          | 21-99       |
| 390884           | 7603168           | MM       | 4/8/05 | 1           | 1-5         |
| 390885           | 7603135           | MM       | 4/8/05 | 10          | 6-20        |
| 390897           | 7602934           | MM       | 4/8/05 | 10          | 6-20        |
| 390904           | 7602918           | MM       | 4/8/05 | 6           | 6-20        |
| 390916           | 7603048           | BM       | 4/8/05 | 30          | 21-99       |
| 390935           | 7602919           | MM       | 4/8/05 | 10          | 6-20        |
| 390940           | 7603829           | MM       | 4/8/05 | 1           | 1-5         |
| 390947           | 7603851           | MM       | 4/8/05 | 1           | 1-5         |
| 390952           | 7603809           | MM       | 4/8/05 | 20          | 6-20        |
| 390972           | 7603805           | MM       | 4/8/05 | 30          | 21-99       |
| 390974           | 7602910           | MM       | 4/8/05 | 4           | 1-5         |
| 391011           | 7602917           | MM       | 4/8/05 | 70          | 21-99       |
| 391011           | 7603238           | BM       | 4/8/05 | 20          | 6-20        |
| 391013           | 7603782           | MM       | 4/8/05 | 6           | 6-20        |
| 391028           | 7603772           | MM       | 4/8/05 | 100         | >100        |
| 391038           | 7603196           | RO       | 4/8/05 | scattered   | 6-20        |
| 391048           | 7602925           | MM       | 4/8/05 | 6           | 6-20        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE   | NO_ OF INDS | POPN_ SIZE_ |
|------------------|-------------------|----------|--------|-------------|-------------|
| 391058           | 7603048           | BM       | 4/8/05 | 15          | 6-20        |
| 391069           | 7602925           | MM       | 4/8/05 | 50          | 21-99       |
| 391083           | 7603130           | RO       | 4/8/05 | scattered   | 6-20        |
| 391105           | 7602922           | MM       | 4/8/05 | 40          | 21-99       |
| 391116           | 7602926           | MM       | 4/8/05 | 20          | 6-20        |
| 391134           | 7603383           | MM       | 4/8/05 | 2           | 1-5         |
| 391140           | 7602919           | MM       | 4/8/05 | 20          | 6-20        |
| 391167           | 7603073           | BM       | 4/8/05 | 20          | 6-20        |
| 391183           | 7602933           | MM       | 4/8/05 | 30          | 21-99       |
| 391222           | 7603230           | BM       | 4/8/05 | 40          | 21-99       |
| 391261           | 7602934           | MM       | 4/8/05 | 30          | 21-99       |
| 391261           | 7603729           | MM       | 4/8/05 | 15          | 6-20        |
| 391276           | 7603382           | MM       | 4/8/05 | 2           | 1-5         |
| 391291           | 7603781           | RO       | 4/8/05 | 6           | 6-20        |
| 391307           | 7603140           | RO       | 4/8/05 | scattered   | 6-20        |
| 391317           | 7603268           | BM       | 4/8/05 | 15          | 6-20        |
| 391327           | 7602936           | MM       | 4/8/05 | 20          | 6-20        |
| 391328           | 7603701           | MM       | 4/8/05 | 3           | 1-5         |
| 391363           | 7603071           | BM       | 4/8/05 | 25          | 21-99       |
| 391370           | 7602940           | MM       | 4/8/05 | 20          | 6-20        |
| 391384           | 7603844           | MM       | 4/8/05 | 20          | 6-20        |
| 391396           | 7603741           | RO       | 4/8/05 | 8           | 6-20        |
| 391405           | 7603677           | MM       | 4/8/05 | 25          | 21-99       |
| 391407           | 7603794           | RO       | 4/8/05 | 50          | 21-99       |
| 391419           | 7602940           | MM       | 4/8/05 | 50          | 21-99       |
| 391429           | 7603260           | BM       | 4/8/05 | 35          | 21-99       |
| 391432           | 7603196           | RO       | 4/8/05 | scattered   | 6-20        |
| 391435           | 7603080           | BM       | 4/8/05 | 100         | >100        |
| 391444           | 7602952           | MM       | 4/8/05 | 100         | >100        |
| 391454           | 7603392           | MM       | 4/8/05 | 1           | 1-5         |
| 391463           | 7603142           | RO       | 4/8/05 | scattered   | 6-20        |
| 391469           | 7603775           | RO       | 4/8/05 | 40          | 21-99       |
| 391481           | 7602946           | MM       | 4/8/05 | 80          | 21-99       |
| 391493           | 7603277           | BM       | 4/8/05 | 20          | 6-20        |
| 391513           | 7603651           | MM       | 4/8/05 | 15          | 6-20        |
| 391517           | 7602948           | MM       | 4/8/05 | 40          | 21-99       |
| 391552           | 7603073           | BM       | 4/8/05 | 30          | 21-99       |
| 391577           | 7603640           | MM       | 4/8/05 | 10          | 6-20        |
| 391583           | 7603276           | BM       | 4/8/05 | 20          | 6-20        |
| 391602           | 7602953           | MM       | 4/8/05 | 30          | 21-99       |
| 391609           | 7603681           | RO       | 4/8/05 | 10          | 6-20        |
| 391611           | 7603630           | MM       | 4/8/05 | 60          | 21-99       |
| 391627           | 7603611           | MM       | 4/8/05 | 5           | 1-5         |
| 391630           | 7602963           | MM       | 4/8/05 | 25          | 21-99       |
| 391641           | 7603205           | RO       | 4/8/05 | scattered   | 6-20        |
| 391662           | 7602955           | MM       | 4/8/05 | 10          | 6-20        |
| 391666           | 7603603           | MM       | 4/8/05 | 10          | 6-20        |
| 391692           | 7602956           | MM       | 4/8/05 | 40          | 21-99       |
| 391730           | 7603230           | RO       | 4/8/05 | scattered   | 6-20        |
| 391760           | 7603118           | BM       | 4/8/05 | 30          | 21-99       |
| 391771           | 7603296           | BM       | 4/8/05 | 5           | 1-5         |
| 391773           | 7603638           | RO       | 4/8/05 | 10          | 6-20        |
| 391790           | 7603204           | RO       | 4/8/05 | scattered   | 6-20        |
| 391792           | 7602974           | MM       | 4/8/05 | 10          | 6-20        |
| 391809           | 7603618           | RO       | 4/8/05 | 40          | 21-99       |
| 391836           | 7602970           | MM       | 4/8/05 | 8           | 6-20        |
| 391870           | 7603706           | RO       | 4/8/05 | 2           | 1-5         |
| 391871           | 7603601           | RO       | 4/8/05 | 100         | >100        |
| 391872           | 7603198           | RO       | 4/8/05 | scattered   | 6-20        |
| 391877           | 7603546           | MM       | 4/8/05 | 1           | 1-5         |
| 391881           | 7603114           | BM       | 4/8/05 | 100         | >100        |
| 391883           | 7603701           | RO       | 4/8/05 | 1           | 1-5         |
| 391898           | 7603315           | BM       | 4/8/05 | 30          | 21-99       |
| 391919           | 7603591           | RO       | 4/8/05 | 100         | >100        |
| 391943           | 7603442           | MM       | 4/8/05 | 10          | 6-20        |
| 391952           | 7603530           | MM       | 4/8/05 | 2           | 1-5         |
| 391964           | 7603266           | RO       | 4/8/05 | scattered   | 6-20        |
| 391966           | 7602989           | MM       | 4/8/05 | 8           | 6-20        |
| 391985           | 7603520           | MM       | 4/8/05 | 3           | 1-5         |
| 391992           | 7603333           | BM       | 4/8/05 | 40          | 21-99       |
| 392050           | 7602997           | MM       | 4/8/05 | 6           | 6-20        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 392054          | 7603453          | MM       | 4/8/05  | 10          | 6-20       |
| 392067          | 7603578          | RO       | 4/8/05  | 4           | 1-5        |
| 392074          | 7603130          | BM       | 4/8/05  | 15          | 6-20       |
| 392093          | 7603455          | MM       | 4/8/05  | 3           | 1-5        |
| 392101          | 7603340          | BM       | 4/8/05  | 10          | 6-20       |
| 392123          | 7603208          | RO       | 4/8/05  | scattered   | 6-20       |
| 392145          | 7603136          | BM       | 4/8/05  | 40          | 21-99      |
| 392208          | 7603334          | BM       | 4/8/05  | 1           | 1-5        |
| 392215          | 7603511          | RO       | 4/8/05  | 8           | 6-20       |
| 392227          | 7603478          | MM       | 4/8/05  | 15          | 6-20       |
| 392243          | 7603480          | MM       | 4/8/05  | 10          | 6-20       |
| 392270          | 7603005          | MM       | 4/8/05  | 4           | 1-5        |
| 392280          | 7603279          | RO       | 4/8/05  | scattered   | 6-20       |
| 392295          | 7603012          | MM       | 4/8/05  | 3           | 1-5        |
| 392295          | 7603462          | MM       | 4/8/05  | 20          | 6-20       |
| 392307          | 7603491          | MM       | 4/8/05  | 20          | 6-20       |
| 392326          | 7603530          | RO       | 4/8/05  | 50+         | 21-99      |
| 392338          | 7603458          | MM       | 4/8/05  | 50          | 21-99      |
| 392348          | 7603500          | MM       | 4/8/05  | 5           | 1-5        |
| 392359          | 7603464          | MM       | 4/8/05  | 10          | 6-20       |
| 392361          | 7603344          | BM       | 4/8/05  | 10          | 6-20       |
| 392378          | 7603465          | MM       | 4/8/05  | 2           | 1-5        |
| 392396          | 7603356          | BM       | 4/8/05  | 7           | 6-20       |
| 392409          | 7603512          | MM       | 4/8/05  | 1           | 1-5        |
| 392432          | 7603516          | MM       | 4/8/05  | 10          | 6-20       |
| 392443          | 7603307          | RO       | 4/8/05  | scattered   | 6-20       |
| 392463          | 7603360          | BM       | 4/8/05  | 10          | 6-20       |
| 392513          | 7603200          | BM       | 4/8/05  | 1           | 1-5        |
| 392513          | 7603367          | BM       | 4/8/05  | 20          | 6-20       |
| 392575          | 7603518          | MM       | 4/8/05  | 1           | 1-5        |
| 392634          | 7603209          |          |         | +           | 6-20       |
| 393300          | 7603889          | MM       | 11/9/05 | 5           | 1-5        |
| 393375          | 7603774          | BM       | 11/9/05 | 4           | 1-5        |
| 393406          | 7603663          | MM       | 4/8/05  | 40          | 21-99      |
| 393413          | 7603893          | MM       | 11/9/05 | 1           | 1-5        |
| 393423          | 7603613          | MM       | 11/9/05 | 20          | 6-20       |
| 393466          | 7603842          | BM       | 11/9/05 | 20          | 6-20       |
| 393475          | 7603905          | MM       | 11/9/05 | 1           | 1-5        |
| 393490          | 7603761          | BM       | 11/9/05 | 30          | 21-99      |
| 393500          | 7603917          | MM       | 11/9/05 | 2           | 1-5        |
| 393523          | 7603189          | MM       | 5/8/05  | 3           | 1-5        |
| 393562          | 7603673          | MM       | 4/8/05  | 2           | 1-5        |
| 393579          | 7603135          | MM       | 5/8/05  | 20          | 6-20       |
| 393591          | 7603185          | MM       | 5/8/05  | 2           | 1-5        |
| 393593          | 7603425          | RO       | 4/8/05  | 1           | 1-5        |
| 393607          | 7603665          | MM       | 4/8/05  | 20          | 6-20       |
| 393610          | 7603608          | MM       | 11/9/05 | 2           | 1-5        |
| 393612          | 7603492          | RO       | 4/8/05  | 2           | 1-5        |
| 393616          | 7603122          | MM       | 5/8/05  | 5           | 1-5        |
| 393638          | 7603549          | BM       | 4/8/05  | 40          | 21-99      |
| 393655          | 7603663          | MM       | 4/8/05  | 60          | 21-99      |
| 393657          | 7603242          | MM       | 4/8/05  | 2           | 1-5        |
| 393660          | 7603013          | BM       | 5/8/05  | 7           | 6-20       |
| 393661          | 7603128          | MM       | 5/8/05  | 3           | 1-5        |
| 393676          | 7603248          | MM       | 4/8/05  | 3           | 1-5        |
| 393677          | 7603128          | MM       | 5/8/05  | 10          | 6-20       |
| 393678          | 7603190          | MM       | 5/8/05  | 2           | 1-5        |
| 393679          | 7603597          | MM       | 11/9/05 | 3           | 1-5        |
| 393686          | 7602957          | RO       | 5/8/05  | 15          | 6-20       |
| 393690          | 7603549          | BM       | 4/8/05  | 10          | 6-20       |
| 393694          | 7602896          | RO       | 5/8/05  | 80          | 21-99      |
| 393699          | 7603592          | MM       | 11/9/05 | 15          | 6-20       |
| 393708          | 7602948          | RO       | 5/8/05  | 20          | 6-20       |
| 393714          | 7602770          | BM       | 5/8/05  | 6           | 6-20       |
| 393731          | 7603426          | RO       | 4/8/05  | 2           | 1-5        |
| 393751          | 7603481          | RO       | 4/8/05  | 20          | 6-20       |
| 393756          | 7602948          | RO       | 5/8/05  | 15          | 6-20       |
| 393759          | 7603546          | BM       | 4/8/05  | 20          | 6-20       |
| 393771          | 7603487          | RO       | 4/8/05  | 5           | 1-5        |
| 393773          | 7603122          | MM       | 5/8/05  | 30          | 21-99      |
| 393777          | 7602772          | BM       | 5/8/05  | 40          | 21-99      |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| <b>EASTING_ (WGS84)</b> | <b>NORTHING_ (WGS84)</b> | <b>RECORDER</b> | <b>DATE</b> | <b>NO_ OF INDS</b> | <b>POPN_ SIZE_</b> |
|-------------------------|--------------------------|-----------------|-------------|--------------------|--------------------|
| 393777                  | 7603430                  | RO              | 4/8/05      | 100+               | >100               |
| 393794                  | 7603121                  | MM              | 5/8/05      | 10                 | 6-20               |
| 393798                  | 7603197                  | MM              | 5/8/05      | 1                  | 1-5                |
| 393802                  | 7603369                  | BM              | 4/8/05      | 40                 | 21-99              |
| 393811                  | 7602713                  | MM              | 5/8/05      | 7                  | 6-20               |
| 393823                  | 7603264                  | MM              | 4/8/05      | 1                  | 1-5                |
| 393824                  | 7602949                  | RO              | 5/8/05      | 5                  | 1-5                |
| 393831                  | 7603008                  | BM              | 5/8/05      | 6                  | 6-20               |
| 393840                  | 7603120                  | MM              | 5/8/05      | 15                 | 6-20               |
| 393852                  | 7603242                  | MM              | 4/8/05      | 1                  | 1-5                |
| 393856                  | 7603181                  | MM              | 5/8/05      | 3                  | 1-5                |
| 393857                  | 7602710                  | MM              | 5/8/05      | 50                 | 21-99              |
| 393866                  | 7602467                  | BM              | 5/8/05      | 1                  | 1-5                |
| 393866                  | 7602770                  | BM              | 5/8/05      | 80                 | 21-99              |
| 393871                  | 7603242                  | MM              | 4/8/05      | 20                 | 6-20               |
| 393884                  | 7603119                  | MM              | 5/8/05      | 15                 | 6-20               |
| 393891                  | 7602650                  | MM              | 5/8/05      | 15                 | 6-20               |
| 393894                  | 7603001                  | BM              | 5/8/05      | 30                 | 21-99              |
| 393896                  | 7602896                  | RO              | 5/8/05      | 25                 | 21-99              |
| 393896                  | 7603247                  | MM              | 4/8/05      | 15                 | 6-20               |
| 393897                  | 7602350                  | MM              | 5/8/05      | 1                  | 1-5                |
| 393899                  | 7603190                  | MM              | 5/8/05      | 40                 | 21-99              |
| 393902                  | 7602953                  | RO              | 5/8/05      | 20+                | 21-99              |
| 393910                  | 7602698                  | MM              | 5/8/05      | 100                | >100               |
| 393919                  | 7603126                  | MM              | 5/8/05      | 30                 | 21-99              |
| 393924                  | 7602768                  | BM              | 5/8/05      | 20                 | 6-20               |
| 393929                  | 7603011                  | BM              | 5/8/05      | 10                 | 6-20               |
| 393935                  | 7602647                  | MM              | 5/8/05      | 100                | >100               |
| 393939                  | 7602892                  | RO              | 5/8/05      | 30                 | 21-99              |
| 393941                  | 7602370                  | MM              | 5/8/05      | 2                  | 1-5                |
| 393943                  | 7602945                  | RO              | 5/8/05      | 5                  | 1-5                |
| 393945                  | 7603120                  | MM              | 5/8/05      | 3                  | 1-5                |
| 393955                  | 7603262                  | MM              | 4/8/05      | 3                  | 1-5                |
| 393963                  | 7602367                  | MM              | 5/8/05      | 5                  | 1-5                |
| 393966                  | 7603007                  | BM              | 5/8/05      | 20                 | 6-20               |
| 393978                  | 7602476                  | BM              | 5/8/05      | 100                | >100               |
| 393982                  | 7602643                  | MM              | 5/8/05      | 100                | >100               |
| 393994                  | 7603162                  | MM              | 5/8/05      | 1                  | 1-5                |
| 393995                  | 7602292                  | MM              | 6/8/05      | 6                  | 6-20               |
| 393995                  | 7602951                  | RO              | 5/8/05      | 50+                | 21-99              |
| 393996                  | 7602533                  | BM              | 5/8/05      | 100                | >100               |
| 393996                  | 7602707                  | MM              | 5/8/05      | 40                 | 21-99              |
| 393997                  | 7602763                  | BM              | 5/8/05      | 100                | >100               |
| 394011                  | 7602359                  | MM              | 5/8/05      | 8                  | 6-20               |
| 394014                  | 7602641                  | MM              | 5/8/05      | 20                 | 6-20               |
| 394020                  | 7602180                  | BM              | 6/8/05      | 80                 | 21-99              |
| 394022                  | 7602892                  | RO              | 5/8/05      | scattered          | 6-20               |
| 394023                  | 7602467                  | BM              | 5/8/05      | 100                | >100               |
| 394030                  | 7602948                  | RO              | 5/8/05      | 10                 | 6-20               |
| 394038                  | 7602291                  | MM              | 6/8/05      | 35                 | 21-99              |
| 394039                  | 7603083                  | BM              | 5/8/05      | 4                  | 1-5                |
| 394040                  | 7602357                  | MM              | 5/8/05      | 150                | >100               |
| 394042                  | 7602047                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394048                  | 7603010                  | BM              | 5/8/05      | 30                 | 21-99              |
| 394052                  | 7602704                  | MM              | 5/8/05      | 5                  | 1-5                |
| 394056                  | 7602644                  | MM              | 5/8/05      | 7                  | 6-20               |
| 394079                  | 7602355                  | MM              | 5/8/05      | 100                | >100               |
| 394082                  | 7602530                  | BM              | 5/8/05      | 200                | >100               |
| 394083                  | 7602111                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394084                  | 7602705                  | MM              | 5/8/05      | 1                  | 1-5                |
| 394084                  | 7602945                  | RO              | 5/8/05      | 15                 | 6-20               |
| 394101                  | 7601992                  | BM              | 6/8/05      | 1                  | 1-5                |
| 394104                  | 7603190                  | MM              | 6/8/05      | 6                  | 6-20               |
| 394106                  | 7602467                  | BM              | 5/8/05      | 200                | >100               |
| 394106                  | 7602647                  | MM              | 5/8/05      | 10                 | 6-20               |
| 394106                  | 7602951                  | RO              | 5/8/05      | 2                  | 1-5                |
| 394109                  | 7602300                  | MM              | 6/8/05      | 25                 | 21-99              |
| 394127                  | 7602352                  | MM              | 5/8/05      | 50                 | 21-99              |
| 394138                  | 7602051                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394147                  | 7602714                  | MM              | 5/8/05      | 200                | >100               |
| 394148                  | 7602293                  | MM              | 6/8/05      | 50                 | 21-99              |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| <b>EASTING_ (WGS84)</b> | <b>NORTHING_ (WGS84)</b> | <b>RECORDER</b> | <b>DATE</b> | <b>NO. OF INDS</b> | <b>POPN. SIZE_</b> |
|-------------------------|--------------------------|-----------------|-------------|--------------------|--------------------|
| 394149                  | 7602177                  | BM              | 6/8/05      | 50                 | 21-99              |
| 394162                  | 7602896                  | RO              | 5/8/05      | 15                 | 6-20               |
| 394163                  | 7602641                  | MM              | 5/8/05      | 60                 | 21-99              |
| 394174                  | 7602773                  | BM              | 5/8/05      | 250                | >100               |
| 394181                  | 7603258                  | MM              | 4/8/05      | 1                  | 1-5                |
| 394182                  | 7602342                  | MM              | 5/8/05      | 15                 | 6-20               |
| 394184                  | 7602899                  | RO              | 6/8/05      | 5                  | 1-5                |
| 394193                  | 7602288                  | MM              | 6/8/05      | 50                 | 21-99              |
| 394204                  | 7601994                  | BM              | 6/8/05      | 40                 | 21-99              |
| 394205                  | 7602642                  | MM              | 5/8/05      | 200                | >100               |
| 394208                  | 7602179                  | BM              | 6/8/05      | 100                | >100               |
| 394213                  | 7602535                  | BM              | 5/8/05      | 250                | >100               |
| 394214                  | 7602352                  | MM              | 5/8/05      | 80                 | 21-99              |
| 394225                  | 7601867                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394238                  | 7602292                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394249                  | 7602111                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394259                  | 7602183                  | BM              | 6/8/05      | 20                 | 6-20               |
| 394269                  | 7602959                  | BM              | 6/8/05      | 7                  | 6-20               |
| 394271                  | 7602352                  | MM              | 5/8/05      | 60                 | 21-99              |
| 394272                  | 7602048                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394273                  | 7603256                  | MM              | 4/8/05      | 1                  | 1-5                |
| 394279                  | 7603491                  | RO              | 4/8/05      | 1                  | 1-5                |
| 394280                  | 7601869                  | MM              | 6/8/05      | 20                 | 6-20               |
| 394280                  | 7602712                  | MM              | 6/8/05      | 40                 | 21-99              |
| 394291                  | 7602469                  | BM              | 5/8/05      | 200                | >100               |
| 394293                  | 7603545                  | BM              | 4/8/05      | 5                  | 1-5                |
| 394295                  | 7603372                  | BM              | 4/8/05      | 40                 | 21-99              |
| 394297                  | 7602295                  | MM              | 6/8/05      | 30                 | 21-99              |
| 394297                  | 7603004                  | BM              | 6/8/05      | 1                  | 1-5                |
| 394317                  | 7603069                  | RO              | 6/8/05      | 4                  | 1-5                |
| 394324                  | 7602358                  | MM              | 5/8/05      | 50                 | 21-99              |
| 394334                  | 7603493                  | RO              | 4/8/05      | 1                  | 1-5                |
| 394336                  | 7601999                  | BM              | 6/8/05      | 50                 | 21-99              |
| 394336                  | 7603247                  | MM              | 4/8/05      | 1                  | 1-5                |
| 394338                  | 7601857                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394345                  | 7602107                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394346                  | 7602884                  | RO              | 6/8/05      | 1                  | 1-5                |
| 394352                  | 7602301                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394357                  | 7602530                  | BM              | 5/8/05      | 250                | >100               |
| 394360                  | 7603200                  | MM              | 6/8/05      | 2                  | 1-5                |
| 394371                  | 7603248                  | MM              | 4/8/05      | 8                  | 6-20               |
| 394372                  | 7602478                  | BM              | 5/8/05      | 200                | >100               |
| 394381                  | 7602167                  | BM              | 6/8/05      | 100                | >100               |
| 394382                  | 7602294                  | MM              | 6/8/05      | 20                 | 6-20               |
| 394385                  | 7603434                  | RO              | 4/8/05      | 3                  | 1-5                |
| 394406                  | 7602057                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394409                  | 7602892                  | RO              | 6/8/05      | 25+                | 21-99              |
| 394413                  | 7602302                  | MM              | 6/8/05      | 3                  | 1-5                |
| 394432                  | 7603362                  | BM              | 4/8/05      | 10                 | 6-20               |
| 394435                  | 7601856                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394437                  | 7602949                  | BM              | 6/8/05      | 10                 | 6-20               |
| 394450                  | 7602351                  | MM              | 5/8/05      | 30                 | 21-99              |
| 394459                  | 7603192                  | MM              | 6/8/05      | 3                  | 1-5                |
| 394466                  | 7602714                  | MM              | 6/8/05      | 6                  | 6-20               |
| 394468                  | 7602110                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394468                  | 7603254                  | MM              | 4/8/05      | 2                  | 1-5                |
| 394479                  | 7603013                  | BM              | 6/8/05      | 5                  | 1-5                |
| 394480                  | 7602157                  | BM              | 6/8/05      | 50                 | 21-99              |
| 394489                  | 7602677                  | BM              | 6/8/05      | 20                 | 6-20               |
| 394491                  | 7601855                  | MM              | 6/8/05      | 15                 | 6-20               |
| 394504                  | 7602944                  | BM              | 6/8/05      | 20                 | 6-20               |
| 394514                  | 7602167                  | BM              | 6/8/05      | 30                 | 21-99              |
| 394522                  | 7601982                  | BM              | 6/8/05      | 150                | >100               |
| 394522                  | 7602710                  | BM              | 6/8/05      | 50                 | 21-99              |
| 394523                  | 7602287                  | MM              | 6/8/05      | 25                 | 21-99              |
| 394524                  | 7602054                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394524                  | 7602892                  | RO              | 6/8/05      | 50                 | 21-99              |
| 394528                  | 7602105                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394535                  | 7602721                  | MM              | 6/8/05      | 50                 | 21-99              |
| 394547                  | 7602509                  | RO              | 6/8/05      | 1000+              | >100               |
| 394549                  | 7603258                  | MM              | 4/8/05      | 50                 | 21-99              |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| <b>EASTING_ (WGS84)</b> | <b>NORTHING_ (WGS84)</b> | <b>RECORDER</b> | <b>DATE</b> | <b>NO. OF INDS</b> | <b>POPN. SIZE_</b> |
|-------------------------|--------------------------|-----------------|-------------|--------------------|--------------------|
| 394558                  | 7603191                  | MM              | 6/8/05      | 25                 | 21-99              |
| 394561                  | 7602946                  | BM              | 6/8/05      | 400                | >100               |
| 394568                  | 7602888                  | RO              | 6/8/05      | 100+               | >100               |
| 394569                  | 7603326                  | MM              | 4/8/05      | 60                 | 21-99              |
| 394570                  | 7602718                  | MM              | 6/8/05      | 60                 | 21-99              |
| 394572                  | 7601865                  | MM              | 6/8/05      | 15                 | 6-20               |
| 394577                  | 7602556                  | BM              | 6/8/05      | 200                | >100               |
| 394584                  | 7603074                  | RO              | 6/8/05      | 150+               | >100               |
| 394585                  | 7603254                  | MM              | 4/8/05      | 15                 | 6-20               |
| 394586                  | 7602169                  | BM              | 6/8/05      | 40                 | 21-99              |
| 394587                  | 7603011                  | BM              | 6/8/05      | 250                | >100               |
| 394597                  | 7603301                  | MM              | 4/8/05      | 80                 | 21-99              |
| 394600                  | 7603193                  | MM              | 6/8/05      | 150                | >100               |
| 394603                  | 7602105                  | RO              | 6/8/05      | 100+               | >100               |
| 394610                  | 7602517                  | RO              | 6/8/05      | 200                | >100               |
| 394614                  | 7603259                  | MM              | 4/8/05      | 60                 | 21-99              |
| 394618                  | 7602050                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394620                  | 7601987                  | BM              | 6/8/05      | 20                 | 6-20               |
| 394622                  | 7601862                  | MM              | 6/8/05      | 20                 | 6-20               |
| 394626                  | 7602724                  | MM              | 6/8/05      | 25                 | 21-99              |
| 394630                  | 7602300                  | MM              | 6/8/05      | 50                 | 21-99              |
| 394631                  | 7603194                  | MM              | 6/8/05      | 30                 | 21-99              |
| 394641                  | 7602351                  | MM              | 6/8/05      | 100                | >100               |
| 394642                  | 7602605                  | RO              | 6/8/05      | 200                | >100               |
| 394645                  | 7602732                  | RO              | 6/8/05      | 200                | >100               |
| 394650                  | 7602718                  | BM              | 6/8/05      | 500                | >100               |
| 394659                  | 7602292                  | MM              | 6/8/05      | 100                | >100               |
| 394662                  | 7603191                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394671                  | 7603070                  | RO              | 6/8/05      | 150+               | >100               |
| 394675                  | 7602724                  | MM              | 6/8/05      | 50                 | 21-99              |
| 394682                  | 7602974                  | BM              | 6/8/05      | 500                | >100               |
| 394685                  | 7602296                  | MM              | 6/8/05      | 50                 | 21-99              |
| 394685                  | 7602355                  | MM              | 6/8/05      | 10                 | 6-20               |
| 394706                  | 7601871                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394710                  | 7602730                  | MM              | 6/8/05      | 300                | >100               |
| 394712                  | 7602175                  | BM              | 6/8/05      | 100                | >100               |
| 394721                  | 7602291                  | MM              | 6/8/05      | 10                 | 6-20               |
| 394722                  | 7603058                  | RO              | 6/8/05      | 150+               | >100               |
| 394743                  | 7602925                  | BM              | 6/8/05      | 4                  | 1-5                |
| 394758                  | 7601990                  | BM              | 6/8/05      | 10                 | 6-20               |
| 394766                  | 7602292                  | MM              | 6/8/05      | 6                  | 6-20               |
| 394781                  | 7602177                  | BM              | 6/8/05      | 20                 | 6-20               |
| 394788                  | 7602114                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394791                  | 7601857                  | MM              | 6/8/05      | 25                 | 21-99              |
| 394806                  | 7602657                  | MM              | 6/8/05      | 2                  | 1-5                |
| 394823                  | 7602175                  | BM              | 6/8/05      | 5                  | 1-5                |
| 394824                  | 7601862                  | MM              | 6/8/05      | 20                 | 6-20               |
| 394831                  | 7602291                  | MM              | 6/8/05      | 5                  | 1-5                |
| 394840                  | 7602108                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394848                  | 7602489                  | MM              | 6/8/05      | 1                  | 1-5                |
| 394862                  | 7602777                  | BM              | 6/8/05      | 5                  | 1-5                |
| 394866                  | 7601996                  | BM              | 6/8/05      | 10                 | 6-20               |
| 394889                  | 7602096                  | RO              | 6/8/05      | scattered          | 6-20               |
| 394894                  | 7602287                  | MM              | 6/8/05      | 15                 | 6-20               |
| 394897                  | 7602168                  | BM              | 6/8/05      | 2                  | 1-5                |
| 394906                  | 7602845                  | RO              | 6/8/05      | 2                  | 1-5                |
| 394911                  | 7602923                  | MM              | 6/8/05      | 3                  | 1-5                |
| 394929                  | 7602813                  | RO              | 6/8/05      | 4                  | 1-5                |
| 394953                  | 7602788                  | RO              | 6/8/05      | 1                  | 1-5                |
| 394960                  | 7602662                  | BM              | 6/8/05      | 10                 | 6-20               |
| 394970                  | 7602168                  | BM              | 6/8/05      | 1                  | 1-5                |
| 394999                  | 7601866                  | MM              | 6/8/05      | 5                  | 1-5                |
| 395033                  | 7602096                  | RO              | 6/8/05      | 1                  | 1-5                |
| 395132                  | 7602431                  | RO              | 6/8/05      | 1                  | 1-5                |
| 395288                  | 7602526                  | MM              | 6/8/05      | 1                  | 1-5                |
| 395310                  | 7602497                  | MM              | 6/8/05      | 1                  | 1-5                |
| 395340                  | 7602676                  | MM              | 7/8/05      | 1                  | 1-5                |
| 395347                  | 7602797                  | BM              | 7/8/05      | 5                  | 1-5                |
| 395356                  | 7602703                  | BM              | 7/8/05      | 10                 | 6-20               |
| 395406                  | 7602628                  | BM              | 7/8/05      | 10                 | 6-20               |
| 395524                  | 7602254                  | MM              | 6/8/05      | 2                  | 1-5                |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 395639          | 7601902          | BM       | 14/9/05 | 20          | 6-20       |
| 395669          | 7602086          |          |         | <2          | 21-99      |
| 395692          | 7602541          | RO       | 7/8/05  | 15          | 6-20       |
| 395714          | 7602650          | BM       | 7/8/05  | 50          | 21-99      |
| 395752          | 7602720          | MM       | 7/8/05  | 20          | 6-20       |
| 395782          | 7602715          | MM       | 7/8/05  | 10          | 6-20       |
| 395783          | 7602660          | BM       | 7/8/05  | 200         | >100       |
| 395852          | 7602690          | MM       | 7/8/05  | 100         | >100       |
| 395864          | 7602590          | BM       | 7/8/05  | 200         | >100       |
| 395872          | 7602443          | RO       | 7/8/05  | 100+        | >100       |
| 395877          | 7602267          | BM       | 7/8/05  | 20          | 6-20       |
| 395877          | 7602414          | RO       | 7/8/05  | 80          | 21-99      |
| 395896          | 7602666          | MM       | 7/8/05  | 100         | >100       |
| 395929          | 7602647          | MM       | 7/8/05  | 30          | 21-99      |
| 395949          | 7601823          | MyM      | 13/9/05 | 2           | 1-5        |
| 395950          | 7602452          | RO       | 7/8/05  | 100+        | >100       |
| 395957          | 7602240          | BM       | 7/8/05  | 30          | 21-99      |
| 395969          | 7602383          | RO       | 7/8/05  | 70          | 21-99      |
| 395981          | 7602567          | BM       | 7/8/05  | 100         | >100       |
| 396025          | 7602603          | MM       | 7/8/05  | 30          | 21-99      |
| 396065          | 7602586          | MM       | 7/8/05  | 20          | 6-20       |
| 396070          | 7602131          | MM       | 7/8/05  | 4           | 1-5        |
| 396097          | 7602577          | MM       | 7/8/05  | 50          | 21-99      |
| 396105          | 7602192          | BM       | 7/8/05  | 30          | 21-99      |
| 396127          | 7602574          | MM       | 7/8/05  | 40          | 21-99      |
| 396150          | 7602575          | MM       | 7/8/05  | 60          | 21-99      |
| 396193          | 7602489          | BM       | 7/8/05  | 100         | >100       |
| 396209          | 7602546          | MM       | 7/8/05  | 100         | >100       |
| 396266          | 7602535          | MM       | 7/8/05  | 5           | 1-5        |
| 396451          | 7602234          | RO       | 7/8/05  | 10          | 6-20       |
| 397649          | 7597939          | MM       | 7/8/05  | 1           | 1-5        |
| 397676          | 7597968          | MM       | 7/8/05  | 10          | 6-20       |
| 397746          | 7598027          | MM       | 7/8/05  | 40          | 21-99      |
| 397749          | 7597745          | RO       | 7/8/05  | 10          | 6-20       |
| 397766          | 7597901          | BM       | 7/8/05  | 50          | 21-99      |
| 397782          | 7597780          | RO       | 7/8/05  | scattered   | 6-20       |
| 397784          | 7598065          | MM       | 7/8/05  | 100         | >100       |
| 397788          | 7601812          | BM       | 11/9/05 | 5           | 1-5        |
| 397803          | 7598099          | MM       | 7/8/05  | 200         | >100       |
| 397806          | 7601936          | MM       | 11/9/05 | 5           | 1-5        |
| 397807          | 7601865          | BM       | 11/9/05 | 6           | 6-20       |
| 397819          | 7597999          | BM       | 7/8/05  | 20          | 6-20       |
| 397824          | 7598124          | MM       | 7/8/05  | 200         | >100       |
| 397829          | 7601861          | BM       | 11/9/05 | 50          | 21-99      |
| 397832          | 7601706          | MM       | 11/9/05 | 5           | 1-5        |
| 397844          | 7601775          | BM       | 11/9/05 | 50          | 21-99      |
| 397850          | 7601919          | MM       | 11/9/05 | 40          | 21-99      |
| 397855          | 7598155          | MM       | 7/8/05  | 10          | 6-20       |
| 397863          | 7598034          | BM       | 7/8/05  | 5           | 1-5        |
| 397868          | 7597708          | RO       | 7/8/05  | 8           | 6-20       |
| 397869          | 7601907          | MM       | 11/9/05 | 30          | 21-99      |
| 397872          | 7598173          | MM       | 7/8/05  | 20          | 6-20       |
| 397897          | 7601760          | BM       | 11/9/05 | 20          | 6-20       |
| 397898          | 7598204          | MM       | 7/8/05  | 50          | 21-99      |
| 397899          | 7601897          | MM       | 11/9/05 | 150         | >100       |
| 397913          | 7601829          | BM       | 11/9/05 | 200         | >100       |
| 397923          | 7601406          | MM       | 12/9/05 | 2           | 1-5        |
| 397927          | 7598241          | MM       | 7/8/05  | 50          | 21-99      |
| 397930          | 7598125          | BM       | 7/8/05  | 1000        | >100       |
| 397937          | 7597777          | RO       | 7/8/05  | 10          | 6-20       |
| 397949          | 7601880          | MM       | 11/9/05 | 100         | >100       |
| 397955          | 7598259          | MM       | 7/8/05  | 50          | 21-99      |
| 397956          | 7601465          | BM       | 12/9/05 | 1           | 1-5        |
| 397986          | 7601460          | BM       | 12/9/05 | 1           | 1-5        |
| 397987          | 7598009          | RO       | 7/8/05  | 50+         | 21-99      |
| 397997          | 7601729          | BM       | 11/9/05 | 30          | 21-99      |
| 398001          | 7598300          | MM       | 7/8/05  | 20          | 6-20       |
| 398002          | 7601863          | MM       | 11/9/05 | 200         | >100       |
| 398006          | 7601637          | MM       | 11/9/05 | 5           | 1-5        |
| 398020          | 7601369          | MM       | 12/9/05 | 1           | 1-5        |
| 398023          | 7601793          | BM       | 11/9/05 | 100         | >100       |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 398033          | 7601526          | BM       | 12/9/05 | 1           | 1-5        |
| 398035          | 7598323          | MM       | 7/8/05  | 50          | 21-99      |
| 398041          | 7601454          | BM       | 12/9/05 | 15          | 6-20       |
| 398043          | 7598242          | BM       | 7/8/05  | 50          | 21-99      |
| 398048          | 7601853          | MM       | 11/9/05 | 15          | 6-20       |
| 398054          | 7601565          | MM       | 12/9/05 | 2           | 1-5        |
| 398060          | 7601358          | MM       | 12/9/05 | 2           | 1-5        |
| 398062          | 7601849          | MM       | 11/9/05 | 30          | 21-99      |
| 398077          | 7597627          | MM       | 7/8/05  | 10          | 6-20       |
| 398080          | 7601840          | MM       | 11/9/05 | 300         | >100       |
| 398085          | 7598092          | RO       | 7/8/05  | 30          | 21-99      |
| 398089          | 7597673          | MM       | 7/8/05  | 5           | 1-5        |
| 398093          | 7597953          | RO       | 7/8/05  | 200+        | >100       |
| 398102          | 7601360          | MM       | 12/9/05 | 1           | 1-5        |
| 398107          | 7601821          | MM       | 11/9/05 | 20          | 6-20       |
| 398115          | 7597692          | MM       | 7/8/05  | 20          | 6-20       |
| 398118          | 7601337          | MM       | 12/9/05 | 2           | 1-5        |
| 398134          | 7597706          | MM       | 7/8/05  | 10          | 6-20       |
| 398139          | 7598138          | RO       | 7/8/05  | scattered   | 6-20       |
| 398140          | 7598026          | RO       | 7/8/05  | scattered   | 6-20       |
| 398150          | 7598442          | MM       | 7/8/05  | 10          | 6-20       |
| 398158          | 7597805          | BM       | 7/8/05  | 30          | 21-99      |
| 398164          | 7598056          | RO       | 7/8/05  | 50          | 21-99      |
| 398165          | 7601391          | BM       | 12/9/05 | 5           | 1-5        |
| 398165          | 7601531          | MM       | 12/9/05 | 1           | 1-5        |
| 398167          | 7597727          | MM       | 7/8/05  | 10          | 6-20       |
| 398169          | 7601311          | MM       | 12/9/05 | 1           | 1-5        |
| 398169          | 7601807          | MM       | 11/9/05 | 20          | 6-20       |
| 398175          | 7601578          | MM       | 11/9/05 | 2           | 1-5        |
| 398176          | 7598374          | BM       | 7/8/05  | 5           | 1-5        |
| 398178          | 7598068          | RO       | 7/8/05  | 4           | 1-5        |
| 398189          | 7601303          | MM       | 12/9/05 | 1           | 1-5        |
| 398204          | 7598077          | RO       | 7/8/05  | 5           | 1-5        |
| 398207          | 7598179          | RO       | 7/8/05  | scattered   | 6-20       |
| 398231          | 7601368          | BM       | 12/9/05 | 3           | 1-5        |
| 398232          | 7601720          | BM       | 11/9/05 | 5           | 1-5        |
| 398243          | 7601439          | BM       | 12/9/05 | 1           | 1-5        |
| 398247          | 7601557          | MM       | 11/9/05 | 1           | 1-5        |
| 398268          | 7597936          | BM       | 7/8/05  | 50          | 21-99      |
| 398274          | 7597843          | MM       | 7/8/05  | 1           | 1-5        |
| 398280          | 7598133          | RO       | 7/8/05  | 30          | 21-99      |
| 398280          | 7601764          | MM       | 11/9/05 | 3           | 1-5        |
| 398284          | 7601286          | MM       | 12/9/05 | 10          | 6-20       |
| 398286          | 7601443          | BM       | 12/9/05 | 5           | 1-5        |
| 398290          | 7597862          | MM       | 7/8/05  | 1           | 1-5        |
| 398296          | 7601700          | BM       | 11/9/05 | 2           | 1-5        |
| 398298          | 7597964          | BM       | 7/8/05  | 2           | 1-5        |
| 398301          | 7601755          | MM       | 11/9/05 | 1           | 1-5        |
| 398302          | 7597884          | MM       | 7/8/05  | 1           | 1-5        |
| 398325          | 7601599          | BM       | 11/9/05 | 50          | 21-99      |
| 398326          | 7597890          | MM       | 7/8/05  | 2           | 1-5        |
| 398329          | 7601521          | MM       | 11/9/05 | 3           | 1-5        |
| 398332          | 7601465          | MM       | 12/9/05 | 1           | 1-5        |
| 398333          | 7601332          | BM       | 12/9/05 | 5           | 1-5        |
| 398334          | 7601255          | MM       | 12/9/05 | 3           | 1-5        |
| 398335          | 7601262          | MM       | 12/9/05 | 2           | 1-5        |
| 398345          | 7601347          | MM       | 12/8/05 | 2           | 1-5        |
| 398350          | 7601517          | MM       | 11/9/05 | 5           | 1-5        |
| 398363          | 7601386          | BM       | 12/8/05 | 5           | 1-5        |
| 398364          | 7601399          | BM       | 12/9/05 | 8           | 6-20       |
| 398373          | 7601456          | MM       | 12/9/05 | 1           | 1-5        |
| 398379          | 7601235          | MM       | 12/9/05 | 1           | 1-5        |
| 398382          | 7598234          | RO       | 7/8/05  | 1           | 1-5        |
| 398386          | 7601383          | BM       | 12/9/05 | 1           | 1-5        |
| 398389          | 7601574          | BM       | 11/9/05 | 20          | 6-20       |
| 398393          | 7601437          | RO       | 12/8/05 | 3           | 1-5        |
| 398398          | 7601434          | MM       | 12/9/05 | 1           | 1-5        |
| 398403          | 7601509          | RO       | 12/8/05 | 1           | 1-5        |
| 398405          | 7601568          | BM       | 11/9/05 | 10          | 6-20       |
| 398409          | 7601707          | MM       | 11/9/05 | 1           | 1-5        |
| 398411          | 7601300          | BM       | 12/9/05 | 1           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 398412          | 7601344          | BM       | 12/8/05 | 2           | 1-5        |
| 398430          | 7601586          | MM       | 12/8/05 | 1           | 1-5        |
| 398460          | 7598129          | BM       | 7/8/05  | 2           | 1-5        |
| 398477          | 7601338          | MM       | 12/9/05 | 1           | 1-5        |
| 398499          | 7601566          | BM       | 12/8/05 | 2           | 1-5        |
| 398511          | 7601603          | BM       | 11/9/05 | 2           | 1-5        |
| 398513          | 7598099          | MM       | 7/8/05  | 1           | 1-5        |
| 398561          | 7598260          | BM       | 15/9/05 | 4           | 1-5        |
| 398652          | 7601622          | MM       | 12/8/05 | 1           | 1-5        |
| 399347          | 7601366          | MM       | 12/8/05 | 1           | 1-5        |
| 399350          | 7601110          | RO       | 12/8/05 | scattered   | 6-20       |
| 399438          | 7600844          | MM       | 12/8/05 | 1           | 1-5        |
| 399439          | 7601112          | RO       | 12/8/05 | 10          | 6-20       |
| 399455          | 7601198          | BM       | 12/8/05 | 10          | 6-20       |
| 399461          | 7601328          | MM       | 12/8/05 | 2           | 1-5        |
| 399484          | 7601320          | MM       | 12/8/05 | 2           | 1-5        |
| 399518          | 7600948          | BM       | 12/8/05 | 5           | 1-5        |
| 399545          | 7601162          | BM       | 12/8/05 | 1           | 1-5        |
| 399648          | 7600996          | RO       | 12/8/05 | 1           | 1-5        |
| 399696          | 7601245          | MM       | 12/8/05 | 1           | 1-5        |
| 399839          | 7601194          | MM       | 12/8/05 | 1           | 1-5        |
| 399865          | 7601175          | MM       | 12/8/05 | 1           | 1-5        |
| 400211          | 7599409          | MyM      | 15/9/05 | 1           | 1-5        |
| 400326          | 7599044          | BM       | 15/9/05 | 1           | 1-5        |
| 400328          | 7599109          | BM       | 15/9/05 | 1           | 1-5        |
| 400347          | 7598955          | MM       | 15/9/05 | 1           | 1-5        |
| 400444          | 7599250          | MyM      | 15/9/05 | 2           | 1-5        |
| 400452          | 7598966          | BM       | 15/9/05 | 3           | 1-5        |
| 400473          | 7599229          | MyM      | 15/9/05 | 1           | 1-5        |
| 400524          | 7599017          | BM       | 15/9/05 | 1           | 1-5        |
| 400541          | 7599281          | MM       | 15/9/05 | 1           | 1-5        |
| 400552          | 7599130          | MyM      | 15/9/05 | 2           | 1-5        |
| 400561          | 7599060          | MM       | 15/9/05 | 1           | 1-5        |
| 400576          | 7598970          | BM       | 15/9/05 | 1           | 1-5        |
| 400576          | 7599051          | MM       | 15/9/05 | 5           | 1-5        |
| 400598          | 7599250          | MM       | 15/9/05 | 1           | 1-5        |
| 400620          | 7599069          | MyM      | 15/9/05 | 7           | 6-20       |
| 400637          | 7599152          | MyM      | 15/9/05 | 1           | 1-5        |
| 400696          | 7599093          | MyM      | 15/9/05 | 1           | 1-5        |
| 400713          | 7599250          | BM       | 15/9/05 | 1           | 1-5        |
| 400736          | 7599160          | MM       | 15/9/05 | 1           | 1-5        |
| 400778          | 7599134          | MM       | 15/9/05 | 3           | 1-5        |
| 400812          | 7600636          | BM       | 12/8/05 | 5           | 1-5        |
| 400822          | 7599160          | BM       | 15/9/05 | 5           | 1-5        |
| 400827          | 7599110          | MM       | 15/9/05 | 5           | 1-5        |
| 400854          | 7599096          | MM       | 15/9/05 | 3           | 1-5        |
| 400883          | 7599088          | MM       | 15/9/05 | 7           | 6-20       |
| 400941          | 7599103          | BM       | 15/9/05 | 1           | 1-5        |
| 401018          | 7600440          | RO       | 12/8/05 | 1           | 1-5        |
| 401405          | 7598524          | MM       | 15/9/05 | 1           | 1-5        |
| 401669          | 7600049          | BM       | 12/8/05 | 10          | 6-20       |
| 401674          | 7600211          | RO       | 12/8/05 | 1           | 1-5        |
| 401747          | 7600030          | BM       | 12/8/05 | 20          | 6-20       |
| 401805          | 7599860          | MM       | 12/8/05 | 5           | 1-5        |
| 401810          | 7600011          | BM       | 11/9/05 | 20          | 6-20       |
| 401811          | 7600118          | MM       | 11/9/05 | 10          | 6-20       |
| 401817          | 7600057          | MM       | 11/9/05 | 3           | 1-5        |
| 401847          | 7600048          | MM       | 11/9/05 | 10          | 6-20       |
| 401871          | 7600096          | MM       | 11/9/05 | 30          | 21-99      |
| 401885          | 7600036          | MM       | 11/9/05 | 10          | 6-20       |
| 401897          | 7600086          | MM       | 11/9/05 | 5           | 1-5        |
| 401899          | 7600169          | BM       | 11/9/05 | 1           | 1-5        |
| 401904          | 7599911          | BM       | 11/9/05 | 5           | 1-5        |
| 401958          | 7600065          | MM       | 11/9/05 | 5           | 1-5        |
| 401966          | 7599992          | MM       | 11/9/05 | 2           | 1-5        |
| 402037          | 7599974          | MM       | 11/9/05 | 1           | 1-5        |
| 402061          | 7598338          | MyM      | 15/9/05 | 3           | 1-5        |
| 402071          | 7599902          | BM       | 11/9/05 | 1           | 1-5        |
| 402093          | 7599735          | MM       | 11/9/05 | 5           | 1-5        |
| 402102          | 7599818          | BM       | 11/9/05 | 10          | 6-20       |
| 402102          | 7600006          | MM       | 11/9/05 | 1           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 402102          | 7599818          | BM       | 11/9/05 | 10          | 6-20       |
| 402102          | 7600006          | MM       | 11/9/05 | 1           | 1-5        |
| 402113          | 7599731          | MM       | 11/9/05 | 5           | 1-5        |
| 402139          | 7599873          | BM       | 11/9/05 | 1           | 1-5        |
| 402178          | 7599917          | MM       | 11/9/05 | 2           | 1-5        |
| 402180          | 7599714          | MM       | 11/9/05 | 3           | 1-5        |
| 402214          | 7599778          | BM       | 11/9/05 | 25          | 21-99      |
| 402231          | 7599896          | MM       | 11/9/05 | 1           | 1-5        |
| 402237          | 7599839          | BM       | 11/9/05 | 10          | 6-20       |
| 402238          | 7599682          | MM       | 11/9/05 | 5           | 1-5        |
| 402300          | 7599931          | MM       | 11/9/05 | 5           | 1-5        |
| 402313          | 7599861          | MM       | 11/9/05 | 1           | 1-5        |
| 402324          | 7599913          | MM       | 11/9/05 | 5           | 1-5        |
| 402348          | 7599847          | MM       | 11/9/05 | 2           | 1-5        |
| 402365          | 7599781          | BM       | 11/9/05 | 5           | 1-5        |
| 402377          | 7599831          | MM       | 11/9/05 | 10          | 6-20       |
| 402412          | 7599622          | MM       | 11/9/05 | 5           | 1-5        |
| 402413          | 7599880          | MM       | 11/9/05 | 5           | 1-5        |
| 402414          | 7599825          | MM       | 11/9/05 | 20          | 6-20       |
| 402418          | 7599686          | BM       | 11/9/05 | 20          | 6-20       |
| 402447          | 7599810          | MM       | 11/9/05 | 5           | 1-5        |
| 402449          | 7599863          | MM       | 11/9/05 | 5           | 1-5        |
| 402457          | 7599802          | MM       | 11/9/05 | 20          | 6-20       |
| 402461          | 7599737          | BM       | 11/9/05 | 5           | 1-5        |
| 402496          | 7599793          | MM       | 11/9/05 | 15          | 6-20       |
| 402503          | 7599849          | MM       | 11/9/05 | 10          | 6-20       |
| 402523          | 7599595          | MM       | 11/9/05 | 2           | 1-5        |
| 402526          | 7600055          | MM       | 11/9/05 | 1           | 1-5        |
| 402540          | 7599850          | MM       | 11/9/05 | 2           | 1-5        |
| 402542          | 7599654          | BM       | 11/9/05 | 5           | 1-5        |
| 402558          | 7599908          | BM       | 11/9/05 | 5           | 1-5        |
| 402591          | 7599838          | MM       | 11/9/05 | 10          | 6-20       |
| 402615          | 7599778          | MM       | 11/9/05 | 5           | 1-5        |
| 402626          | 7599587          | MM       | 11/9/05 | 2           | 1-5        |
| 402658          | 7599579          | MM       | 11/9/05 | 1           | 1-5        |
| 402663          | 7599768          | MM       | 11/9/05 | 5           | 1-5        |
| 402673          | 7599829          | MM       | 11/9/05 | 15          | 6-20       |
| 402692          | 7599719          | BM       | 11/9/05 | 30          | 21-99      |
| 402692          | 7599763          | MM       | 11/9/05 | 20          | 6-20       |
| 402692          | 7599823          | MM       | 11/9/05 | 30          | 21-99      |
| 402706          | 7600037          | MM       | 11/9/05 | 5           | 1-5        |
| 402707          | 7599644          | BM       | 11/9/05 | 10          | 6-20       |
| 402718          | 7599893          | BM       | 11/9/05 | 30          | 21-99      |
| 402726          | 7600038          | MM       | 11/9/05 | 5           | 1-5        |
| 402761          | 7599754          | MM       | 11/9/05 | 3           | 1-5        |
| 402797          | 7599759          | MM       | 11/9/05 | 5           | 1-5        |
| 402810          | 7599702          | BM       | 11/9/05 | 35          | 21-99      |
| 402819          | 7599637          | BM       | 11/9/05 | 10          | 6-20       |
| 402844          | 7599757          | MM       | 11/9/05 | 15          | 6-20       |
| 402853          | 7599809          | MM       | 11/9/05 | 5           | 1-5        |
| 402906          | 7599808          | MM       | 11/9/05 | 30          | 21-99      |
| 402908          | 7599625          | BM       | 11/9/05 | 5           | 1-5        |
| 402937          | 7600024          | MM       | 11/9/05 | 1           | 1-5        |
| 402941          | 7599811          | MM       | 11/9/05 | 20          | 6-20       |
| 402953          | 7599751          | MM       | 11/9/05 | 10          | 6-20       |
| 402968          | 7599689          | BM       | 11/9/05 | 10          | 6-20       |
| 402993          | 7599802          | MM       | 11/9/05 | 40          | 21-99      |
| 403006          | 7599761          | MM       | 11/9/05 | 10          | 6-20       |
| 403013          | 7599809          | MM       | 11/9/05 | 30          | 21-99      |
| 403024          | 7599889          | BM       | 11/9/05 | 3           | 1-5        |
| 403047          | 7599759          | MM       | 11/9/05 | 40          | 21-99      |
| 403052          | 7599813          | MM       | 11/9/05 | 5           | 1-5        |
| 403057          | 7599698          | BM       | 11/9/05 | 5           | 1-5        |
| 403083          | 7599821          | MM       | 11/9/05 | 5           | 1-5        |
| 403114          | 7599639          | BM       | 11/9/05 | 20          | 6-20       |
| 403125          | 7599762          | MM       | 11/9/05 | 10          | 6-20       |
| 403132          | 7599713          | BM       | 11/9/05 | 20          | 6-20       |
| 403135          | 7599884          | BM       | 11/9/05 | 10          | 6-20       |
| 403137          | 7599764          | MM       | 11/9/05 | 30          | 21-99      |
| 403138          | 7599828          | MM       | 11/9/05 | 20          | 6-20       |
| 403165          | 7599762          | MM       | 11/9/05 | 10          | 6-20       |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 403209          | 7599828          | MM       | 11/9/05 | 5           | 1-5        |
| 403217          | 7599762          | MM       | 11/9/05 | 20          | 6-20       |
| 403226          | 7599904          | BM       | 11/9/05 | 5           | 1-5        |
| 403236          | 7599649          | BM       | 11/9/05 | 20          | 6-20       |
| 403273          | 7599834          | MM       | 11/9/05 | 15          | 6-20       |
| 403287          | 7599781          | MM       | 11/9/05 | 5           | 1-5        |
| 403310          | 7599656          | BM       | 11/9/05 | 15          | 6-20       |
| 403312          | 7599785          | MM       | 11/9/05 | 10          | 6-20       |
| 403317          | 7599841          | MM       | 11/9/05 | 20          | 6-20       |
| 403317          | 7599911          | BM       | 11/9/05 | 5           | 1-5        |
| 403320          | 7599724          | BM       | 11/9/05 | 10          | 6-20       |
| 403336          | 7599637          | MM       | 11/8/05 | 2           | 1-5        |
| 403337          | 7599603          | MM       | 11/9/05 | 10          | 6-20       |
| 403341          | 7599785          | MM       | 11/9/05 | 100         | >100       |
| 403342          | 7599842          | MM       | 11/9/05 | 30          | 21-99      |
| 403381          | 7599849          | MM       | 11/9/05 | 40          | 21-99      |
| 403390          | 7599598          | MM       | 11/9/05 | 3           | 1-5        |
| 403398          | 7599854          | MM       | 11/9/05 | 5           | 1-5        |
| 403405          | 7599789          | MM       | 11/9/05 | 50          | 21-99      |
| 403432          | 7599918          | BM       | 11/9/05 | 5           | 1-5        |
| 403437          | 7599730          | BM       | 11/9/05 | 20          | 6-20       |
| 403439          | 7599787          | MM       | 11/9/05 | 5           | 1-5        |
| 403454          | 7599670          | BM       | 11/9/05 | 5           | 1-5        |
| 403460          | 7598022          |          |         | +           | 6-20       |
| 403461          | 7599784          | MM       | 11/9/05 | 20          | 6-20       |
| 403461          | 7600080          | MM       | 11/9/05 | 1           | 1-5        |
| 403500          | 7599790          | MM       | 11/9/05 | 20          | 6-20       |
| 403524          | 7599794          | MM       | 11/9/05 | 100         | >100       |
| 403530          | 7599844          | MM       | 11/9/05 | 5           | 1-5        |
| 403552          | 7599791          | MM       | 11/9/05 | 60          | 21-99      |
| 403571          | 7599925          | BM       | 11/9/05 | 20          | 6-20       |
| 403581          | 7599858          | MM       | 11/9/05 | 300         | >100       |
| 403588          | 7599686          | BM       | 11/9/05 | 10          | 6-20       |
| 403590          | 7599797          | MM       | 11/9/05 | 30          | 21-99      |
| 403604          | 7598102          | BM       | 13/9/05 | 2           | 1-5        |
| 403615          | 7599604          | MM       | 11/9/05 | 3           | 1-5        |
| 403619          | 7599862          | MM       | 11/9/05 | 200         | >100       |
| 403640          | 7599703          | MM       | 11/9/05 | 10          | 6-20       |
| 403645          | 7599807          | MM       | 11/9/05 | 40          | 21-99      |
| 403659          | 7599861          | MM       | 11/9/05 | 300         | >100       |
| 403659          | 7599895          | MM       | 11/9/05 | 300         | >100       |
| 403660          | 7599948          | MM       | 11/9/05 | 10          | 6-20       |
| 403663          | 7599931          | MM       | 11/9/05 | 100         | >100       |
| 403668          | 7599941          | BM       | 11/9/05 | 200         | >100       |
| 403733          | 7599616          | MM       | 11/8/05 | scattered   | 6-20       |
| 403757          | 7599776          | MM       | 11/8/05 | scattered   | 6-20       |
| 403768          | 7600016          | MM       | 11/8/05 | 20          | 6-20       |
| 403785          | 7599882          | RO       | 11/8/05 | scattered   | 6-20       |
| 403805          | 7599805          | RO       | 11/8/05 | scattered   | 6-20       |
| 403818          | 7600083          | MM       | 11/8/05 | 200         | >100       |
| 403875          | 7600079          | MM       | 11/8/05 | 100         | >100       |
| 403876          | 7599866          | RO       | 11/8/05 | 200+        | >100       |
| 403900          | 7599928          | BM       | 11/8/05 | 5           | 1-5        |
| 403904          | 7597852          | MM       | 13/9/05 | 2           | 1-5        |
| 403908          | 7599869          | RO       | 11/8/05 | 20          | 6-20       |
| 403934          | 7599869          | RO       | 11/8/05 | 1           | 1-5        |
| 403935          | 7599935          | BM       | 11/8/05 | 1           | 1-5        |
| 403956          | 7600075          | MM       | 11/8/05 | 5           | 1-5        |
| 404013          | 7599884          | RO       | 11/8/05 | 5           | 1-5        |
| 404035          | 7594397          | BM       | 6/9/05  | 1           | 1-5        |
| 404040          | 7594359          | BM       | 6/9/05  | 2           | 1-5        |
| 404043          | 7594332          | BM       | 6/9/05  | 4           | 1-5        |
| 404049          | 7594481          | BM       | 6/9/05  | 4           | 1-5        |
| 404049          | 7599880          | RO       | 11/8/05 | 5           | 1-5        |
| 404054          | 7594347          | HE       | 6/9/05  | 1           | 1-5        |
| 404057          | 7599875          | RO       | 11/8/05 | 4           | 1-5        |
| 404063          | 7594265          | BM       | 6/9/05  | 80          | 21-99      |
| 404068          | 7594594          | BM       | 6/9/05  | 9           | 6-20       |
| 404072          | 7594306          | HE       | 6/9/05  | 2           | 1-5        |
| 404076          | 7594639          | BM       | 6/9/05  | 1           | 1-5        |
| 404077          | 7594587          | HE       | 6/9/05  | 7           | 6-20       |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_<br>(WGS84) | NORTHING_<br>(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS                         |
|---------------------|----------------------|----------|---------|-------------|------------|----------------------------------|
| 404090              | 7594253              | HE       | 6/9/05  | 5           | 1-5        |                                  |
| 404091              | 7594639              | HE       | 6/9/05  | 3           | 1-5        |                                  |
| 404097              | 7600033              | MM       | 11/8/05 | 2           | 1-5        |                                  |
| 404102              | 7594672              | BM       | 6/9/05  | 1           | 1-5        |                                  |
| 404109              | 7594666              | HE       | 6/9/05  | 1           | 1-5        |                                  |
| 404125              | 7594674              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404134              | 7594663              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404134              | 7594693              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404140              | 7599825              | RO       | 11/8/05 | 10          | 6-20       |                                  |
| 404152              | 7594175              | BM       | 6/9/05  | 5           | 1-5        |                                  |
| 404167              | 7594694              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404170              | 7594709              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404174              | 7594686              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404175              | 7600068              | MM       | 11/8/05 | 1           | 1-5        |                                  |
| 404176              | 7594718              | MM       | 6/9/05  | 8           | 6-20       |                                  |
| 404185              | 7594694              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404190              | 7594718              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404200              | 7594728              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404201              | 7594714              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404207              | 7594149              | BM       | 6/9/05  | 30          | 21-99      |                                  |
| 404212              | 7594701              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404213              | 7594712              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404223              | 7594164              | HE       | 6/9/05  | 20          | 6-20       |                                  |
| 404224              | 7594736              | MM       | 6/9/05  | 30          | 21-99      |                                  |
| 404226              | 7594726              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404237              | 7594740              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404241              | 7599738              | BM       | 11/8/05 | 20          | 6-20       |                                  |
| 404246              | 7594126              | BM       | 6/9/05  | 100         | >100       |                                  |
| 404246              | 7594740              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404259              | 7599768              | BM       | 11/8/05 | 20          | 6-20       |                                  |
| 404269              | 7594142              | HE       | 6/9/05  | 150         | >100       |                                  |
| 404271              | 7599865              | RO       | 11/8/05 | 5           | 1-5        |                                  |
| 404272              | 7594753              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404289              | 7594768              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404298              | 7594759              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404305              | 7594776              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404324              | 7594791              | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404340              | 7594794              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404349              | 7594092              | BM       | 6/9/05  | 10          | 6-20       |                                  |
| 404386              | 7594086              | BM       | 6/9/05  | 40          | 21-99      |                                  |
| 404399              | 7594809              | MM       | 6/9/05  | 7           | 6-20       |                                  |
| 404409              | 7594807              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404420              | 7594814              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404432              | 7594826              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404446              | 7594819              | MM       | 6/9/05  | 5           | 1-5        | abundant through this burnt area |
| 404458              | 7594067              | BM       | 6/9/05  | 50          | 21-99      |                                  |
| 404463              | 7594826              | MM       | 6/9/05  | 40          | 21-99      | abundant through this burnt area |
| 404487              | 7594832              | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404488              | 7594075              | HE       | 6/9/05  | scattered   | 6-20       |                                  |
| 404496              | 7594818              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404498              | 7594070              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404499              | 7594055              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404511              | 7594836              | MM       | 6/9/05  | 40          | 21-99      | abundant through this burnt area |
| 404517              | 7594051              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404520              | 7594852              | MM       | 6/9/05  | 50          | 21-99      | abundant through this burnt area |
| 404521              | 7594834              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404526              | 7594068              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404532              | 7594048              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404534              | 7594062              | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404540              | 7594844              | MM       | 6/9/05  | 10          | 6-20       | abundant through this burnt area |
| 404543              | 7594048              | MM       | 6/9/05  | 8           | 6-20       |                                  |
| 404552              | 7594059              | MM       | 6/9/05  | 7           | 6-20       |                                  |
| 404556              | 7594055              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404557              | 7594049              | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404561              | 7594849              | MM       | 6/9/05  | 20          | 6-20       | abundant through this burnt area |
| 404568              | 7594050              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404585              | 7594854              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404590              | 7594051              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404591              | 7594836              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404600              | 7594051              | MM       | 6/9/05  | 20          | 6-20       |                                  |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_<br>(WGS84) | NORTHING_<br>(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS                         |
|---------------------|----------------------|----------|---------|-------------|------------|----------------------------------|
| 404602              | 7594045              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404605              | 7594843              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404611              | 7594062              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404611              | 7594852              | MM       | 6/9/05  | 6           | 6-20       |                                  |
| 404620              | 7594862              | MM       | 6/9/05  | 3           | 1-5        | abundant through this burnt area |
| 404623              | 7594038              | MM       | 6/9/05  | 4           | 1-5        |                                  |
| 404627              | 7594034              | MM       | 6/9/05  | 2           | 1-5        |                                  |
| 404636              | 7594873              | MM       | 6/9/05  | 50          | 21-99      | abundant through this burnt area |
| 404644              | 7594863              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404646              | 7594051              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404653              | 7594865              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404658              | 7594880              | MM       | 6/9/05  | 40          | 21-99      | abundant through this burnt area |
| 404663              | 7594863              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404665              | 7594045              | MM       | 6/9/05  | 25          | 21-99      |                                  |
| 404675              | 7594019              | MM       | 6/9/05  | 100         | >100       |                                  |
| 404678              | 7594868              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404680              | 7594037              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404694              | 7594035              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404702              | 7594880              | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404712              | 7594897              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404717              | 7594874              | MM       | 6/9/05  | 6           | 6-20       |                                  |
| 404719              | 7594022              | MM       | 6/9/05  | 70          | 21-99      |                                  |
| 404720              | 7594044              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404720              | 7594883              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404731              | 7594888              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404733              | 7594035              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404733              | 7594898              | MM       | 6/9/05  | 30          | 21-99      | abundant through this burnt area |
| 404741              | 7594024              | MM       | 6/9/05  | 40          | 21-99      |                                  |
| 404748              | 7594023              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404758              | 7594030              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404762              | 7594895              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404769              | 7594019              | MM       | 6/9/05  | 30          | 21-99      |                                  |
| 404772              | 7594905              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404773              | 7594049              | MM       | 6/9/05  | 50          | 21-99      |                                  |
| 404775              | 7594041              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404776              | 7594029              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404787              | 7594016              | MM       | 6/9/05  | 3           | 1-5        |                                  |
| 404794              | 7594903              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404797              | 7594017              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404801              | 7594013              | MM       | 6/9/05  | 1           | 1-5        |                                  |
| 404805              | 7594022              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404806              | 7597648              | MM       | 13/9/05 | 1           | 1-5        |                                  |
| 404813              | 7593995              | MM       | 6/9/05  | 40          | 21-99      |                                  |
| 404818              | 7594012              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404819              | 7594020              | MM       | 6/9/05  | 30          | 21-99      |                                  |
| 404837              | 7593999              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404842              | 7594014              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404850              | 7593996              | MM       | 6/9/05  | 20          | 6-20       |                                  |
| 404851              | 7594926              | BM       | 6/9/05  | 5           | 1-5        |                                  |
| 404853              | 7594012              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404863              | 7593983              | MM       | 6/9/05  | 15          | 6-20       |                                  |
| 404866              | 7594016              | MM       | 6/9/05  | 5           | 1-5        |                                  |
| 404882              | 7594013              | MM       | 6/9/05  | 10          | 6-20       |                                  |
| 404893              | 7593982              | MM       | 6/9/05  | 25          | 21-99      |                                  |
| 404900              | 7593996              | MyM      | 13/9/05 | 7           | 6-20       |                                  |
| 404922              | 7593976              | MM       | 14/9/05 | 5           | 1-5        |                                  |
| 404954              | 7594017              | BM       | 14/9/05 | 1           | 1-5        |                                  |
| 404960              | 7597716              | MM       | 13/9/05 | 1           | 1-5        |                                  |
| 404973              | 7593952              | MM       | 14/9/05 | 1           | 1-5        |                                  |
| 405053              | 7593952              | MM       | 14/9/05 | 5           | 1-5        |                                  |
| 405063              | 7597753              | MM       | 13/9/05 | 1           | 1-5        |                                  |
| 405099              | 7593997              | MyM      | 13/9/05 | 1           | 1-5        |                                  |
| 405113              | 7599833              | BM       | 11/8/05 | 2           | 1-5        |                                  |
| 405175              | 7599787              | MM       | 11/8/05 | 1           | 1-5        |                                  |
| 405236              | 7599979              | RO       | 11/8/05 | 3           | 1-5        |                                  |
| 405402              | 7595198              | BM       | 6/9/05  | 1           | 1-5        |                                  |
| 405419              | 7594037              | BM       | 14/9/05 | 1           | 1-5        |                                  |
| 405453              | 7600158              | BM       | 11/8/05 | 2           | 1-5        |                                  |
| 405463              | 7593973              | MM       | 14/9/05 | 1           | 1-5        |                                  |
| 405473              | 7597996              | MyM      | 13/9/05 | 1           | 1-5        |                                  |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 405475          | 7597899          | MM       | 13/9/05 | 1           | 1-5        |
| 405491          | 7595249          | HE       | 6/9/05  | 1           | 1-5        |
| 405552          | 7597951          | MM       | 13/9/05 | 3           | 1-5        |
| 405563          | 7595334          | BM       | 6/9/05  | 1           | 1-5        |
| 405601          | 7598036          | BM       | 13/9/05 | 20          | 6-20       |
| 405605          | 7595375          | BM       | 6/9/05  | 6           | 6-20       |
| 405610          | 7595358          | HE       | 6/9/05  | 5           | 1-5        |
| 405620          | 7595395          | BM       | 6/9/05  | 1           | 1-5        |
| 405642          | 7597895          | MyM      | 13/9/05 | 1           | 1-5        |
| 405648          | 7600227          | BM       | 11/8/05 | 1           | 1-5        |
| 405663          | 7600081          | RO       | 11/8/05 | 20          | 6-20       |
| 405667          | 7595429          | MM       | 6/9/05  | 1           | 1-5        |
| 405667          | 7597998          | MM       | 13/9/05 | 2           | 1-5        |
| 405667          | 7600236          | BM       | 11/8/05 | 1           | 1-5        |
| 405674          | 7600261          | BM       | 11/8/05 | 2           | 1-5        |
| 405692          | 7595441          | MM       | 6/9/05  | 1           | 1-5        |
| 405703          | 7600088          | RO       | 11/8/05 | 12          | 6-20       |
| 405713          | 7600231          | BM       | 11/8/05 | 1           | 1-5        |
| 405724          | 7600276          | BM       | 11/8/05 | 2           | 1-5        |
| 405742          | 7598010          | MM       | 13/9/05 | 1           | 1-5        |
| 405787          | 7595580          | MM       | 6/9/05  | 1           | 1-5        |
| 405898          | 7595704          | MM       | 6/9/05  | 1           | 1-5        |
| 405937          | 7600077          | BM       | 11/8/05 | 5           | 1-5        |
| 405996          | 7600089          | BM       | 11/8/05 | 1           | 1-5        |
| 406033          | 7600104          | BM       | 11/8/05 | 2           | 1-5        |
| 406036          | 7595912          | MM       | 6/9/05  | 1           | 1-5        |
| 406036          | 7598141          | MM       | 13/9/05 | 3           | 1-5        |
| 406038          | 7598073          | MyM      | 13/9/05 | 20          | 6-20       |
| 406050          | 7598141          | MM       | 13/9/05 | 100         | >100       |
| 406063          | 7600159          | RO       | 11/8/05 | 15          | 6-20       |
| 406064          | 7598212          | BM       | 13/9/05 | 200+        | >100       |
| 406072          | 7598140          | MM       | 13/9/05 | 50          | 21-99      |
| 406082          | 7600170          | RO       | 11/8/05 | 1           | 1-5        |
| 406085          | 7598138          | MM       | 13/9/05 | 50          | 21-99      |
| 406098          | 7600216          | RO       | 11/8/05 | scattered   | 6-20       |
| 406146          | 7600117          | BM       | 11/8/05 | 1           | 1-5        |
| 406153          | 7596102          | BM       | 6/9/05  | 20          | 6-20       |
| 406162          | 7600198          | RO       | 11/8/05 | 4           | 1-5        |
| 406165          | 7596133          | BM       | 6/9/05  | 2           | 1-5        |
| 406220          | 7600463          | MM       | 11/8/05 | 1           | 1-5        |
| 406245          | 7600287          | RO       | 11/8/05 | 1           | 1-5        |
| 406258          | 7600420          | MM       | 11/8/05 | scattered   | 6-20       |
| 406261          | 7596339          | BM       | 6/9/05  | 5           | 1-5        |
| 406261          | 7600466          | MM       | 11/8/05 | 10          | 6-20       |
| 406265          | 7600358          | BM       | 11/8/05 | 1           | 1-5        |
| 406267          | 7596372          | BM       | 6/9/05  | 2           | 1-5        |
| 406270          | 7596336          | BM       | 6/9/05  | 3           | 1-5        |
| 406296          | 7596414          | BM       | 6/9/05  | 7           | 6-20       |
| 406313          | 7600478          | MM       | 11/8/05 | 1           | 1-5        |
| 406321          | 7600166          | BM       | 11/8/05 | 1           | 1-5        |
| 406349          | 7600170          | BM       | 11/8/05 | 5           | 1-5        |
| 406376          | 7600374          | BM       | 11/8/05 | 6           | 6-20       |
| 406394          | 7596538          | BM       | 6/9/05  | 1           | 1-5        |
| 406411          | 7600513          | MM       | 11/8/05 | 5           | 1-5        |
| 406417          | 7600185          | BM       | 11/8/05 | 5           | 1-5        |
| 406429          | 7600514          | MM       | 11/8/05 | 10          | 6-20       |
| 406462          | 7600512          | MM       | 11/8/05 | 20          | 6-20       |
| 406471          | 7600519          | MM       | 11/8/05 | 20          | 6-20       |
| 406492          | 7597970          | MM       | 9/8/05  | 5           | 1-5        |
| 406492          | 7598826          | BM       | 13/9/05 | 5           | 1-5        |
| 406493          | 7598084          | BM       | 9/8/05  | 1           | 1-5        |
| 406494          | 7597959          | MM       | 9/8/05  | 6           | 6-20       |
| 406495          | 7600204          | BM       | 11/8/05 | 100         | >100       |
| 406505          | 7600523          | MM       | 11/8/05 | 20          | 6-20       |
| 406519          | 7600528          | MM       | 11/8/05 | 50          | 21-99      |
| 406533          | 7600210          | BM       | 11/8/05 | 40          | 21-99      |
| 406547          | 7598146          | RO       | 9/8/05  | 1           | 1-5        |
| 406551          | 7596673          | BM       | 6/9/05  | 2           | 1-5        |
| 406560          | 7598828          | MM       | 13/9/05 | 1           | 1-5        |
| 406573          | 7598079          | RO       | 9/8/05  | 10          | 6-20       |
| 406578          | 7600419          | BM       | 11/8/05 | 2           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO_ OF_INDS | POPN_SIZE_ |
|------------------|-------------------|----------|---------|-------------|------------|
| 406583           | 7600289           | RO       | 11/8/05 | scattered   | 6-20       |
| 406591           | 7596712           | BM       | 6/9/05  | 1           | 1-5        |
| 406598           | 7596738           | BM       | 6/9/05  | 1           | 1-5        |
| 406614           | 7600428           | BM       | 11/8/05 | 30          | 21-99      |
| 406616           | 7600219           | BM       | 11/8/05 | 20          | 6-20       |
| 406629           | 7600343           | RO       | 11/8/05 | 50+         | 21-99      |
| 406634           | 7598172           | RO       | 9/8/05  | 1           | 1-5        |
| 406637           | 7598144           | RO       | 9/8/05  | 50          | 21-99      |
| 406645           | 7600552           | MM       | 11/8/05 | 2           | 1-5        |
| 406649           | 7600310           | RO       | 11/8/05 | scattered   | 6-20       |
| 406662           | 7600448           | BM       | 11/8/05 | 2           | 1-5        |
| 406668           | 7598201           | BM       | 9/8/05  | 5           | 1-5        |
| 406680           | 7598128           | BM       | 9/8/05  | 1           | 1-5        |
| 406682           | 7596606           | MM       | 9/8/05  | 1           | 1-5        |
| 406683           | 7596563           | MM       | 9/8/05  | 1           | 1-5        |
| 406683           | 7600368           | RO       | 11/8/05 | scattered   | 6-20       |
| 406687           | 7598257           | MM       | 9/8/05  | 5           | 1-5        |
| 406688           | 7597623           | RO       | 9/8/05  | 50+         | 21-99      |
| 406689           | 7597632           | RO       | 9/8/05  | 40+         | 21-99      |
| 406696           | 7600237           | BM       | 11/8/05 | 20          | 6-20       |
| 406698           | 7596796           | MM       | 9/8/05  | 2           | 1-5        |
| 406703           | 7597601           | RO       | 9/8/05  | 50+         | 21-99      |
| 406715           | 7600296           | BM       | 11/8/05 | 10          | 6-20       |
| 406716           | 7600321           | RO       | 11/8/05 | 150+        | >100       |
| 406721           | 7596980           | BM       | 9/8/05  | 4           | 1-5        |
| 406723           | 7598277           | MM       | 9/8/05  | 1           | 1-5        |
| 406728           | 7600274           | RO       | 8/8/05  | scattered   | 6-20       |
| 406729           | 7600391           | RO       | 11/8/05 | 10          | 6-20       |
| 406738           | 7600343           | RO       | 11/8/05 | 7           | 6-20       |
| 406741           | 7598191           | MM       | 9/8/05  | 15          | 6-20       |
| 406742           | 7598202           | MM       | 9/8/05  | 5           | 1-5        |
| 406743           | 7598222           | MM       | 9/8/05  | 20          | 6-20       |
| 406745           | 7596410           | RO       | 9/8/05  | 1           | 1-5        |
| 406750           | 7596946           |          |         | <2%         | 21-99      |
| 406758           | 7596537           | RO       | 9/8/05  | 2           | 1-5        |
| 406763           | 7597630           | BM       | 9/8/05  | 20          | 6-20       |
| 406771           | 7596903           | MM       | 9/8/05  | 1           | 1-5        |
| 406773           | 7600383           | BM       | 8/8/05  | 3           | 1-5        |
| 406781           | 7600559           | MM       | 8/8/05  | 15          | 6-20       |
| 406787           | 7600443           | BM       | 8/8/05  | 10          | 6-20       |
| 406795           | 7600472           | MM       | 8/8/05  | 15          | 6-20       |
| 406801           | 7597656           | MM       | 9/8/05  | 5           | 1-5        |
| 406810           | 7597639           | MM       | 9/8/05  | 3           | 1-5        |
| 406813           | 7596929           | BM       | 9/8/05  | 20          | 6-20       |
| 406813           | 7600241           | RO       | 8/8/05  | scattered   | 6-20       |
| 406823           | 7597597           | MM       | 9/8/05  | 10          | 6-20       |
| 406829           | 7600249           | RO       | 8/8/05  | 1           | 1-5        |
| 406836           | 7596980           | BM       | 9/8/05  | 20          | 6-20       |
| 406847           | 7596915           | BM       | 9/8/05  | 10          | 6-20       |
| 406863           | 7596729           | BM       | 9/8/05  | 30          | 21-99      |
| 406867           | 7596806           | BM       | 9/8/05  | 100         | >100       |
| 406872           | 7600301           | RO       | 8/8/05  | 1           | 1-5        |
| 406881           | 7597042           | RO       | 9/8/05  | 200+        | >100       |
| 406883           | 7596393           | BM       | 9/8/05  | 1           | 1-5        |
| 406883           | 7600149           | MM       | 8/8/05  | 1           | 1-5        |
| 406884           | 7598366           | MM       | 13/9/05 | 1           | 1-5        |
| 406894           | 7600226           | BM       | 8/8/05  | 2           | 1-5        |
| 406904           | 7596281           | BM       | 9/8/05  | 5           | 1-5        |
| 406909           | 7596581           | BM       | 9/8/05  | 40          | 21-99      |
| 406910           | 7596544           | BM       | 9/8/05  | 10          | 6-20       |
| 406919           | 7598595           | MM       | 13/9/05 | 1           | 1-5        |
| 406921           | 7596470           | BM       | 9/8/05  | 5           | 1-5        |
| 406940           | 7597024           | MM       | 9/8/05  | 1           | 1-5        |
| 406944           | 7596974           | MM       | 9/8/05  | 5           | 1-5        |
| 406945           | 7596353           | BM       | 9/8/05  | 40          | 21-99      |
| 406960           | 7596271           | BM       | 9/8/05  | 10          | 6-20       |
| 406964           | 7596493           | RO       | 9/8/05  | 1           | 1-5        |
| 406968           | 7600169           | MM       | 8/8/05  | 5           | 1-5        |
| 406969           | 7596480           | RO       | 9/8/05  | 1           | 1-5        |
| 406988           | 7600247           | BM       | 8/8/05  | 1           | 1-5        |
| 407037           | 7597265           | MM       | 6/9/05  | 1           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS  |
|-----------------|------------------|----------|---------|-------------|------------|-----------|
| 407043          | 7597271          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407056          | 7597283          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407059          | 7597293          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407069          | 7597297          | MM       | 6/9/05  | 3           | 1-5        |           |
| 407073          | 7597302          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407085          | 7600195          | MM       | 8/8/05  | 1           | 1-5        |           |
| 407105          | 7600362          | RO       | 8/8/05  | 10          | 6-20       |           |
| 407111          | 7597332          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407113          | 7597355          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407119          | 7598405          | MyM      | 13/9/05 | 3           | 1-5        |           |
| 407127          | 7597350          | MM       | 6/9/05  | 4           | 1-5        |           |
| 407130          | 7598498          | MyM      | 13/9/05 | 1           | 1-5        |           |
| 407135          | 7597360          | MM       | 6/9/05  | 5           | 1-5        |           |
| 407137          | 7597356          | MM       | 6/9/05  | 25          | 21-99      |           |
| 407160          | 7597382          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407163          | 7598373          | MyM      | 13/9/05 | 6           | 6-20       |           |
| 407166          | 7597386          | MM       | 6/9/05  | 10          | 6-20       | seedlings |
| 407169          | 7597371          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407173          | 7597393          | MM       | 6/9/05  | 10          | 6-20       | seedlings |
| 407177          | 7597370          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407182          | 7597401          | MM       | 6/9/05  | 10          | 6-20       | seedlings |
| 407190          | 7597411          | MM       | 6/9/05  | 5           | 1-5        | seedlings |
| 407190          | 7600413          | RO       | 8/8/05  | 2           | 1-5        |           |
| 407199          | 7598468          | BM       | 13/9/05 | 1           | 1-5        |           |
| 407212          | 7597434          | MM       | 6/9/05  | 5           | 1-5        | seedlings |
| 407226          | 7597422          | MM       | 6/9/05  | 1           | 1-5        |           |
| 407272          | 7597506          | MM       | 6/9/05  | 2           | 1-5        |           |
| 407296          | 7598336          | MyM      | 13/9/05 | 2           | 1-5        |           |
| 407325          | 7600418          | RO       | 8/8/05  | 4           | 1-5        |           |
| 407342          | 7597648          | BM       | 6/9/05  | 20          | 6-20       |           |
| 407403          | 7598373          | MyM      | 13/9/05 | 7           | 6-20       |           |
| 407406          | 7598432          | MM       | 13/9/05 | 1           | 1-5        |           |
| 407409          | 7597822          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407428          | 7597822          | BM       | 6/9/05  | 20          | 6-20       |           |
| 407428          | 7597822          | BM       | 6/9/05  | 25          | 21-99      |           |
| 407431          | 7597844          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407445          | 7598421          | MM       | 13/9/05 | 2           | 1-5        |           |
| 407451          | 7593922          | MyM      | 13/9/05 | 1           | 1-5        |           |
| 407478          | 7597912          | BM       | 6/9/05  | 17          | 6-20       |           |
| 407506          | 7598447          | MM       | 13/9/05 | 1           | 1-5        |           |
| 407508          | 7597931          | BM       | 6/9/05  | 25          | 21-99      |           |
| 407529          | 7600274          | MM       | 8/8/05  | 1           | 1-5        |           |
| 407560          | 7598384          | MyM      | 13/9/05 | 3           | 1-5        |           |
| 407562          | 7598010          | BM       | 6/9/05  | 4           | 1-5        |           |
| 407577          | 7598517          | BM       | 13/9/05 | 1           | 1-5        |           |
| 407581          | 7598010          | HE       | 6/9/05  | 10          | 6-20       |           |
| 407583          | 7598049          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407595          | 7598519          | BM       | 13/9/05 | 15          | 6-20       |           |
| 407599          | 7600399          | BM       | 8/8/05  | 3           | 1-5        |           |
| 407615          | 7598090          | BM       | 6/9/05  | 7           | 6-20       |           |
| 407640          | 7600410          | BM       | 8/8/05  | 5           | 1-5        |           |
| 407646          | 7598447          | MM       | 13/9/05 | 5           | 1-5        |           |
| 407658          | 7598526          | BM       | 13/9/05 | 10          | 6-20       |           |
| 407684          | 7598137          | HE       | 6/9/05  | 1           | 1-5        |           |
| 407684          | 7600321          | MM       | 8/8/05  | 1           | 1-5        |           |
| 407698          | 7598178          | BM       | 6/9/05  | 3           | 1-5        |           |
| 407730          | 7600777          | MM       | 8/8/05  | 3           | 1-5        |           |
| 407742          | 7600416          | BM       | 8/8/05  | 1           | 1-5        |           |
| 407747          | 7600608          | RO       | 8/8/05  | 1           | 1-5        |           |
| 407773          | 7598223          | BM       | 6/9/05  | 4           | 1-5        |           |
| 407786          | 7598259          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407789          | 7598554          | BM       | 13/9/05 | 10          | 6-20       |           |
| 407800          | 7598418          | MyM      | 13/9/05 | 3           | 1-5        |           |
| 407803          | 7600694          | BM       | 8/8/05  | 20          | 6-20       |           |
| 407811          | 7598267          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407818          | 7598258          | BM       | 6/9/05  | 4           | 1-5        |           |
| 407829          | 7598284          | BM       | 6/9/05  | 2           | 1-5        |           |
| 407832          | 7600709          | BM       | 8/8/05  | 3           | 1-5        |           |
| 407836          | 7600625          | RO       | 8/8/05  | 2           | 1-5        |           |
| 407846          | 7598307          | BM       | 6/9/05  | 11          | 6-20       |           |
| 407847          | 7600817          | MM       | 8/8/05  | 1           | 1-5        |           |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 407849          | 7598262          | BM       | 6/9/05  | 5           | 1-5        |
| 407876          | 7600829          | MM       | 8/8/05  | 2           | 1-5        |
| 407890          | 7598297          | BM       | 6/9/05  | 1           | 1-5        |
| 407902          | 7598352          | BM       | 6/9/05  | 1           | 1-5        |
| 407923          | 7598332          | BM       | 6/9/05  | 1           | 1-5        |
| 407923          | 7600536          | RO       | 8/8/05  | 2           | 1-5        |
| 407930          | 7600664          | RO       | 8/8/05  | 4           | 1-5        |
| 408017          | 7600851          | MM       | 8/8/05  | 4           | 1-5        |
| 408135          | 7600865          | MM       | 8/8/05  | 6           | 6-20       |
| 408141          | 7600674          | RO       | 8/8/05  | scattered   | 6-20       |
| 408184          | 7600799          | BM       | 8/8/05  | 1           | 1-5        |
| 408220          | 7598496          | BM       | 13/9/05 | 2           | 1-5        |
| 408234          | 7598550          | MM       | 13/9/05 | 1           | 1-5        |
| 408255          | 7600703          | RO       | 8/8/05  | scattered   | 6-20       |
| 408267          | 7598482          | BM       | 13/9/05 | 1           | 1-5        |
| 408269          | 7600803          | BM       | 8/8/05  | 5           | 1-5        |
| 408310          | 7600713          | RO       | 8/8/05  | scattered   | 6-20       |
| 408310          | 7600814          | BM       | 8/8/05  | 1           | 1-5        |
| 408330          | 7600826          | BM       | 8/8/05  | 3           | 1-5        |
| 408344          | 7600725          | RO       | 8/8/05  | scattered   | 6-20       |
| 408377          | 7598507          | BM       | 13/9/05 | 3           | 1-5        |
| 408385          | 7600839          | BM       | 8/8/05  | 20          | 6-20       |
| 408398          | 7598644          | MyM      | 13/9/05 | 3           | 1-5        |
| 408405          | 7600555          | BM       | 8/8/05  | 4           | 1-5        |
| 408421          | 7600852          | BM       | 8/8/05  | 3           | 1-5        |
| 408451          | 7600654          | RO       | 8/8/05  | 1           | 1-5        |
| 408457          | 7600746          | RO       | 8/8/05  | scattered   | 6-20       |
| 408458          | 7600864          | BM       | 8/8/05  | 2           | 1-5        |
| 408472          | 7600937          | MM       | 8/8/05  | 6           | 6-20       |
| 408518          | 7600955          | MM       | 8/8/05  | 1           | 1-5        |
| 408543          | 7598534          | BM       | 13/9/05 | 10          | 6-20       |
| 408545          | 7600783          | RO       | 8/8/05  | 12          | 6-20       |
| 408555          | 7600889          | BM       | 8/8/05  | 3           | 1-5        |
| 408581          | 7600730          | RO       | 8/8/05  | 3           | 1-5        |
| 408582          | 7600893          | BM       | 8/8/05  | 1           | 1-5        |
| 408583          | 7598598          | MM       | 13/9/05 | 1           | 1-5        |
| 408584          | 7600593          | BM       | 8/8/05  | 1           | 1-5        |
| 408605          | 7598551          | BM       | 13/9/05 | 10          | 6-20       |
| 408611          | 7600971          | MM       | 8/8/05  | 3           | 1-5        |
| 408624          | 7598626          | MM       | 13/9/05 | 4           | 1-5        |
| 408639          | 7600977          | MM       | 8/8/05  | 1           | 1-5        |
| 408643          | 7600818          | RO       | 8/8/05  | 15          | 6-20       |
| 408644          | 7600906          | BM       | 8/8/05  | 1           | 1-5        |
| 408667          | 7600842          | RO       | 8/8/05  | 1           | 1-5        |
| 408674          | 7600861          | RO       | 8/8/05  | 2           | 1-5        |
| 408686          | 7600737          | RO       | 8/8/05  | 4           | 1-5        |
| 408702          | 7600906          | BM       | 8/8/05  | 5           | 1-5        |
| 408707          | 7598656          | MM       | 13/9/05 | 2           | 1-5        |
| 408715          | 7600830          | RO       | 8/8/05  | 5           | 1-5        |
| 408731          | 7600918          | BM       | 8/8/05  | 4           | 1-5        |
| 408734          | 7600815          |          |         | 2-5%        | 21-99      |
| 408736          | 7598678          | MM       | 13/9/05 | 1           | 1-5        |
| 408738          | 7600969          | MM       | 8/8/05  | 30          | 21-99      |
| 408751          | 7598760          | MyM      | 13/9/05 | 3           | 1-5        |
| 408756          | 7600902          | MM       | 8/8/05  | 5           | 1-5        |
| 408761          | 7598604          | BM       | 13/9/05 | 3           | 1-5        |
| 408761          | 7600818          | MM       | 8/8/05  | 3           | 1-5        |
| 408762          | 7600827          | RO       | 8/8/05  | 20          | 6-20       |
| 408763          | 7600919          | BM       | 8/8/05  | 4           | 1-5        |
| 408765          | 7600866          | MM       | 8/8/05  | 10          | 6-20       |
| 408766          | 7600748          | RO       | 8/8/05  | 10          | 6-20       |
| 408770          | 7600816          | MM       | 8/8/05  | 6           | 6-20       |
| 408773          | 7600545          | MM       | 8/8/05  | 2           | 1-5        |
| 408782          | 7598609          | BM       | 13/9/05 | 2           | 1-5        |
| 408784          | 7598766          | MyM      | 13/9/05 | 1           | 1-5        |
| 408787          | 7600965          | MM       | 8/8/05  | 1           | 1-5        |
| 408791          | 7600803          | MM       | 8/8/05  | 2           | 1-5        |
| 408796          | 7600882          | MM       | 8/8/05  | 1           | 1-5        |
| 408803          | 7600869          | MM       | 8/8/05  | 3           | 1-5        |
| 408805          | 7600799          | MM       | 8/8/05  | 2           | 1-5        |
| 408812          | 7600839          | MM       | 8/8/05  | 1           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | COMMENTS       |
|-----------------|------------------|----------|---------|-------------|------------|----------------|
| 408816          | 7600629          | BM       | 8/8/05  | 80          | 21-99      |                |
| 408820          | 7600549          | MM       | 8/8/05  | 20          | 6-20       |                |
| 408840          | 7598617          | BM       | 13/9/05 | 2           | 1-5        |                |
| 408845          | 7601024          | MM       | 8/8/05  | 1           | 1-5        |                |
| 408856          | 7600561          | MM       | 8/8/05  | 10          | 6-20       |                |
| 408875          | 7601021          | MM       | 8/8/05  | 1           | 1-5        |                |
| 408879          | 7600990          | MM       | 8/8/05  | 1           | 1-5        |                |
| 408910          | 7600926          | MM       | 8/8/05  | 1           | 1-5        |                |
| 408936          | 7598872          | MyM      | 13/9/05 | 100         | >100       |                |
| 408964          | 7598719          | BM       | 13/9/05 | 5           | 1-5        |                |
| 408974          | 7598823          | MM       | 13/9/05 | 40          | 21-99      |                |
| 408989          | 7598852          | MM       | 13/9/05 | 100         | >100       |                |
| 409016          | 7598879          | MM       | 13/9/05 | 100         | >100       |                |
| 409016          | 7598966          | MyM      | 13/9/05 | 20          | 6-20       |                |
| 409036          | 7598867          | BM       | 13/9/05 | 80          | 21-99      |                |
| 409055          | 7598908          | MM       | 13/9/05 | 20          | 6-20       |                |
| 409056          | 7598932          | MM       | 13/9/05 | 60          | 21-99      |                |
| 409071          | 7599008          | MyM      | 13/9/05 | 20          | 6-20       |                |
| 409086          | 7598942          | MM       | 13/9/05 | 3           | 1-5        |                |
| 409092          | 7598867          | BM       | 13/9/05 | 100         | >100       |                |
| 409108          | 7598985          | MM       | 13/9/05 | 25          | 21-99      |                |
| 409125          | 7599103          | MyM      | 13/9/05 | 100         | >100       | minor flowline |
| 409134          | 7599034          | MM       | 13/9/05 | 50          | 21-99      |                |
| 409146          | 7598924          | BM       | 13/9/05 | 5           | 1-5        |                |
| 409152          | 7599047          | MM       | 13/9/05 | 10          | 6-20       |                |
| 409168          | 7599084          | MM       | 13/9/05 | 2           | 1-5        |                |
| 409175          | 7599097          | MM       | 13/9/05 | 15          | 6-20       |                |
| 409176          | 7598968          | BM       | 13/9/05 | 20          | 6-20       |                |
| 409200          | 7599229          | MyM      | 13/9/05 | 20          | 6-20       | minor flowline |
| 409201          | 7599143          | MM       | 13/9/05 | 15          | 6-20       |                |
| 409211          | 7599159          | MM       | 13/9/05 | 20          | 6-20       |                |
| 409216          | 7599046          | BM       | 13/9/05 | 10          | 6-20       |                |
| 409229          | 7598650          | BM       | 15/9/05 | 40          | 21-99      |                |
| 409230          | 7599178          | MM       | 13/9/05 | 2           | 1-5        |                |
| 409239          | 7600862          | RO       | 8/8/05  | 1           | 1-5        |                |
| 409245          | 7599327          | MyM      | 13/9/05 | 10          | 6-20       |                |
| 409247          | 7598705          | MM       | 15/9/05 | 1           | 1-5        |                |
| 409254          | 7598693          | MM       | 15/9/05 | 2           | 1-5        |                |
| 409262          | 7598975          | MyM      | 15/9/05 | 3           | 1-5        |                |
| 409265          | 7599116          | BM       | 13/9/05 | 20          | 6-20       |                |
| 409265          | 7600636          | MM       | 8/8/05  | 40          | 21-99      |                |
| 409271          | 7600707          | BM       | 8/8/05  | 20          | 6-20       |                |
| 409273          | 7599261          | MM       | 13/9/05 | 5           | 1-5        |                |
| 409282          | 7600641          | MM       | 8/8/05  | 5           | 1-5        |                |
| 409283          | 7599381          | MyM      | 13/9/05 | 3           | 1-5        | minor flowline |
| 409289          | 7598569          | BM       | 15/9/05 | 10          | 6-20       |                |
| 409306          | 7599173          | BM       | 13/9/05 | 5           | 1-5        |                |
| 409306          | 7599305          | MM       | 13/9/05 | 5           | 1-5        |                |
| 409316          | 7600636          | MM       | 8/8/05  | 1           | 1-5        |                |
| 409320          | 7598586          | MM       | 15/9/05 | 1           | 1-5        |                |
| 409324          | 7599329          | MM       | 13/9/05 | 30          | 21-99      |                |
| 409326          | 7599294          | BM       | 13/9/05 | 1           | 1-5        |                |
| 409327          | 7599202          | BM       | 13/9/05 | 5           | 1-5        |                |
| 409342          | 7599357          | MM       | 13/9/05 | 1           | 1-5        |                |
| 409349          | 7598596          | MyM      | 15/9/05 | 3           | 1-5        |                |
| 409358          | 7599130          | BM       | 15/9/05 | 5           | 1-5        |                |
| 409372          | 7599542          | MyM      | 13/9/05 | 10          | 6-20       |                |
| 409374          | 7598497          | MM       | 15/9/05 | 1           | 1-5        |                |
| 409383          | 7599423          | MM       | 13/9/05 | 1           | 1-5        |                |
| 409385          | 7600726          | BM       | 8/8/05  | 1           | 1-5        |                |
| 409394          | 7598460          | MM       | 15/9/05 | 1           | 1-5        |                |
| 409400          | 7598530          | MyM      | 15/9/05 | 1           | 1-5        |                |
| 409405          | 7598370          | BM       | 15/9/05 | 10          | 6-20       |                |
| 409409          | 7598523          | MyM      | 15/9/05 | 8           | 6-20       |                |
| 409413          | 7599335          | BM       | 13/9/05 | 5           | 1-5        |                |
| 409413          | 7599461          | MM       | 13/9/05 | 1           | 1-5        |                |
| 409423          | 7599149          | MyM      | 15/9/05 | 2           | 1-5        |                |
| 409426          | 7601020          | BM       | 8/8/05  | 1           | 1-5        |                |
| 409438          | 7599243          | BM       | 15/9/05 | 10          | 6-20       |                |
| 409447          | 7598613          | MM       | 15/9/05 | 1           | 1-5        |                |
| 409453          | 7601074          | MM       | 8/8/05  | 5           | 1-5        |                |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 409456          | 7599155          | MM       | 15/9/05 | 1           | 1-5        |
| 409462          | 7598396          | MyM      | 15/9/05 | 2           | 1-5        |
| 409474          | 7599189          | MyM      | 15/9/05 | 5           | 1-5        |
| 409478          | 7599352          | MyM      | 15/9/05 | 6           | 6-20       |
| 409478          | 7600620          | MM       | 8/8/05  | 10          | 6-20       |
| 409487          | 7599185          | MM       | 15/9/05 | 2           | 1-5        |
| 409489          | 7601074          | MM       | 8/8/05  | 6           | 6-20       |
| 409491          | 7599441          | BM       | 13/9/05 | 10          | 6-20       |
| 409502          | 7600623          | MM       | 8/8/05  | 20          | 6-20       |
| 409510          | 7601064          | MM       | 8/8/05  | 5           | 1-5        |
| 409520          | 7599522          | MyM      | 15/9/05 | 12          | 6-20       |
| 409522          | 7600701          | BM       | 8/8/05  | 5           | 1-5        |
| 409523          | 7598382          | MM       | 15/9/05 | 1           | 1-5        |
| 409523          | 7600618          | MM       | 8/8/05  | 10          | 6-20       |
| 409524          | 7598401          | MM       | 15/9/05 | 2           | 1-5        |
| 409528          | 7600994          | BM       | 8/8/05  | 3           | 1-5        |
| 409544          | 7599373          | BM       | 15/9/05 | 20          | 6-20       |
| 409547          | 7598727          | BM       | 15/9/05 | 1           | 1-5        |
| 409548          | 7600612          | MM       | 8/8/05  | 20          | 6-20       |
| 409550          | 7599452          | MM       | 15/9/05 | 5           | 1-5        |
| 409551          | 7599444          | MyM      | 13/9/05 | 10          | 6-20       |
| 409553          | 7598574          | BM       | 15/9/05 | 1           | 1-5        |
| 409556          | 7599534          | MM       | 15/9/05 | 12          | 6-20       |
| 409556          | 7599537          | BM       | 13/9/05 | 10          | 6-20       |
| 409567          | 7601062          | MM       | 8/8/05  | 5           | 1-5        |
| 409572          | 7599218          | MyM      | 15/9/05 | 30+         | 21-99      |
| 409576          | 7598406          | BM       | 15/9/05 | 1           | 1-5        |
| 409580          | 7599365          | MM       | 15/9/05 | 5           | 1-5        |
| 409583          | 7599422          | BM       | 15/9/05 | 10          | 6-20       |
| 409591          | 7598750          | MM       | 15/9/05 | 3           | 1-5        |
| 409594          | 7599289          | MyM      | 15/9/05 | 6           | 6-20       |
| 409603          | 7600617          | MM       | 8/8/05  | 60          | 21-99      |
| 409604          | 7599311          | MM       | 15/9/05 | 10          | 6-20       |
| 409607          | 7598686          | MM       | 15/9/05 | 5           | 1-5        |
| 409607          | 7599712          | MM       | 13/9/05 | 1           | 1-5        |
| 409616          | 7600618          | MM       | 8/8/05  | 20          | 6-20       |
| 409621          | 7599476          | BM       | 15/9/05 | 15          | 6-20       |
| 409625          | 7600690          | BM       | 8/8/05  | 30          | 21-99      |
| 409632          | 7599433          | BM       | 15/9/05 | 20          | 6-20       |
| 409634          | 7600814          | RO       | 8/8/05  | 10          | 6-20       |
| 409645          | 7600622          | MM       | 8/8/05  | 5           | 1-5        |
| 409648          | 7599234          | MM       | 15/9/05 | 1           | 1-5        |
| 409658          | 7599371          | BM       | 15/9/05 | 20          | 6-20       |
| 409677          | 7599323          | BM       | 15/9/05 | 20          | 6-20       |
| 409684          | 7600603          | MM       | 8/8/05  | 100         | >100       |
| 409701          | 7600604          | MM       | 8/8/05  | 45          | 21-99      |
| 409722          | 7598776          | MyM      | 15/9/05 | 1           | 1-5        |
| 409722          | 7600674          | BM       | 8/8/05  | 40          | 21-99      |
| 409751          | 7598612          | MyM      | 15/9/05 | 2           | 1-5        |
| 409766          | 7600670          | BM       | 8/8/05  | 20          | 6-20       |
| 409786          | 7598814          | MM       | 15/9/05 | 1           | 1-5        |
| 409799          | 7599856          | MM       | 13/9/05 | 20          | 6-20       |
| 409810          | 7600862          | RO       | 8/8/05  | 1           | 1-5        |
| 409811          | 7599869          | MM       | 13/9/05 | 25          | 21-99      |
| 409823          | 7599943          | MyM      | 13/9/05 | 100         | >100       |
| 409828          | 7600853          | RO       | 8/8/05  | 1           | 1-5        |
| 409841          | 7599811          | BM       | 13/9/05 | 20          | 6-20       |
| 409844          | 7599881          | MM       | 13/9/05 | 12          | 6-20       |
| 409846          | 7598713          | MM       | 15/9/05 | 1           | 1-5        |
| 409882          | 7599846          | BM       | 13/9/05 | 40          | 21-99      |
| 409882          | 7600852          | RO       | 8/8/05  | 4           | 1-5        |
| 409898          | 7600000          | MyM      | 13/9/05 | 10          | 6-20       |
| 409909          | 7599936          | MM       | 13/9/05 | 5           | 1-5        |
| 409917          | 7599864          | BM       | 13/9/05 | 15          | 6-20       |
| 409939          | 7600844          | RO       | 8/8/05  | 10          | 6-20       |
| 409942          | 7600800          | RO       | 8/8/05  | 100+        | >100       |
| 409947          | 7599871          | BM       | 13/9/05 | 1           | 1-5        |
| 409971          | 7600788          | RO       | 8/8/05  | 50          | 21-99      |
| 409979          | 7601038          | MM       | 8/8/05  | 1           | 1-5        |
| 409992          | 7600058          | MyM      | 13/9/05 | 50          | 21-99      |
| 409995          | 7600847          | RO       | 8/8/05  | 18          | 6-20       |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO. OF INDS | POP_N_SIZE_ | COMMENTS                 |
|-----------------|------------------|----------|---------|-------------|-------------|--------------------------|
| 409998          | 7599910          | BM       | 13/9/05 | 1           | 1-5         |                          |
| 410003          | 7601057          | MM       | 8/8/05  | 5           | 1-5         |                          |
| 410041          | 7600860          | RO       | 8/8/05  | 15          | 6-20        |                          |
| 410042          | 7600011          | MM       | 13/9/05 | 5           | 1-5         |                          |
| 410065          | 7601031          | MM       | 8/8/05  | 5           | 1-5         |                          |
| 410074          | 7600040          | MM       | 13/9/05 | 2           | 1-5         |                          |
| 410084          | 7600114          | MyM      | 13/9/05 | 100         | >100        | alluvial plain           |
| 410086          | 7599982          | BM       | 13/9/05 | 10          | 6-20        |                          |
| 410087          | 7600967          | BM       | 8/8/05  | 10          | 6-20        |                          |
| 410092          | 7600051          | MM       | 13/9/05 | 6           | 6-20        |                          |
| 410101          | 7600860          | RO       | 8/8/05  | 50          | 21-99       |                          |
| 410132          | 7599997          | BM       | 13/9/05 | 10          | 6-20        |                          |
| 410139          | 7600860          | RO       | 8/8/05  | 100+        | >100        |                          |
| 410142          | 7600074          | MM       | 13/9/05 | 25          | 21-99       |                          |
| 410150          | 7600851          | RO       | 8/8/05  | 100+        | >100        |                          |
| 410167          | 7600966          | BM       | 8/8/05  | 15          | 6-20        |                          |
| 410178          | 7600017          | BM       | 13/9/05 | 30          | 21-99       |                          |
| 410178          | 7600093          | MM       | 13/9/05 | 40          | 21-99       |                          |
| 410187          | 7600172          | MyM      | 13/9/05 | 100         | >100        | edge of drainage line    |
| 410196          | 7600848          | RO       | 8/8/05  | 10          | 6-20        |                          |
| 410202          | 7600107          | MM       | 13/9/05 | 30          | 21-99       |                          |
| 410212          | 7600937          | BM       | 8/8/05  | 400         | >100        |                          |
| 410221          | 7601026          | MM       | 8/8/05  | 3           | 1-5         |                          |
| 410242          | 7600117          | MM       | 13/9/05 | 50          | 21-99       |                          |
| 410253          | 7600060          | BM       | 13/9/05 | 60          | 21-99       |                          |
| 410258          | 7600858          | RO       | 8/8/05  | 30          | 21-99       |                          |
| 410268          | 7600128          | MM       | 13/9/05 | 100         | >100        |                          |
| 410268          | 7600221          | MyM      | 13/9/05 | 6           | 6-20        | moderate rocky hillslope |
| 410277          | 7600138          | MM       | 13/9/05 | 2           | 1-5         |                          |
| 410336          | 7600176          | MM       | 13/9/05 | 1           | 1-5         |                          |
| 410342          | 7600864          | RO       | 8/8/05  | 10          | 6-20        |                          |
| 410349          | 7600101          | BM       | 13/9/05 | 100         | >100        |                          |
| 410358          | 7600966          | BM       | 8/8/05  | 500         | >100        |                          |
| 410369          | 7600858          | RO       | 8/8/05  | 100+        | >100        |                          |
| 410374          | 7601047          | MM       | 8/8/05  | 6           | 6-20        |                          |
| 410400          | 7600136          | BM       | 13/9/05 | 2           | 1-5         |                          |
| 410421          | 7600763          | RO       | 8/8/05  | 50+         | 21-99       |                          |
| 410445          | 7600859          | RO       | 8/8/05  | 200+        | >100        |                          |
| 410491          | 7600838          | RO       | 8/8/05  | 5           | 1-5         |                          |
| 410511          | 7600738          | RO       | 8/8/05  | 25          | 21-99       |                          |
| 410511          | 7600958          | BM       | 8/8/05  | 500         | >100        |                          |
| 410542          | 7600836          | RO       | 8/8/05  | 500         | >100        |                          |
| 410598          | 7600644          | BM       | 8/8/05  | 50          | 21-99       |                          |
| 410615          | 7600815          | RO       | 8/8/05  | 500+        | >100        |                          |
| 410619          | 7600592          | MM       | 8/8/05  | 30          | 21-99       |                          |
| 410667          | 7601025          | MM       | 8/8/05  | 60          | 21-99       |                          |
| 410723          | 7600827          | RO       | 8/8/05  | scattered   | 6-20        |                          |
| 410726          | 7601009          | MM       | 8/8/05  | 100         | >100        |                          |
| 410747          | 7600928          | BM       | 8/8/05  | 300         | >100        |                          |
| 410805          | 7600911          | MM       | 8/8/05  | 100         | >100        |                          |
| 410852          | 7600988          | MM       | 10/9/05 | 200         | >100        |                          |
| 410861          | 7600931          | MM       | 10/9/05 | 200         | >100        |                          |
| 410898          | 7601000          | MM       | 10/9/05 | 150         | >100        |                          |
| 410937          | 7601003          | MM       | 10/9/05 | 150         | >100        |                          |
| 410965          | 7600686          | BM       | 10/9/05 | 2           | 1-5         |                          |
| 410997          | 7600935          | BM       | 10/9/05 | 100         | >100        |                          |
| 410998          | 7600863          | BM       | 10/9/05 | 10          | 6-20        |                          |
| 411012          | 7600999          | MM       | 10/9/05 | 10          | 6-20        |                          |
| 411040          | 7600850          | BM       | 10/9/05 | 5           | 1-5         |                          |
| 411062          | 7600929          | BM       | 10/9/05 | 100         | >100        |                          |
| 411062          | 7600992          | MM       | 10/9/05 | 20          | 6-20        |                          |
| 411099          | 7600987          | MM       | 10/9/05 | 30          | 21-99       |                          |
| 411138          | 7600981          | MM       | 10/9/05 | 50          | 21-99       |                          |
| 411161          | 7600910          | BM       | 10/9/05 | 30          | 21-99       |                          |
| 411184          | 7600984          | MM       | 10/9/05 | 10          | 6-20        |                          |
| 411226          | 7600906          | BM       | 10/9/05 | 60          | 21-99       |                          |
| 411235          | 7600975          | MM       | 10/9/05 | 50          | 21-99       |                          |
| 411274          | 7600971          | MM       | 10/9/05 | 30          | 21-99       |                          |
| 411318          | 7600893          | BM       | 10/9/05 | 25          | 21-99       |                          |
| 411329          | 7600832          | BM       | 10/9/05 | 15          | 6-20        |                          |
| 411334          | 7600976          | MM       | 10/9/05 | 200         | >100        |                          |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO. OF INDS | POPN_SIZE_ |
|------------------|-------------------|----------|---------|-------------|------------|
| 411394           | 7599877           | MyM      | 13/9/05 | 5           | 1-5        |
| 411416           | 7600955           | MM       | 10/9/05 | 30          | 21-99      |
| 411445           | 7600966           | MM       | 10/9/05 | 50          | 21-99      |
| 411449           | 7600878           | BM       | 10/9/05 | 10          | 6-20       |
| 411457           | 7600939           | MM       | 10/9/05 | 15          | 6-20       |
| 411496           | 7600939           | MM       | 10/9/05 | 5           | 1-5        |
| 411497           | 7600870           | BM       | 10/9/05 | 2           | 1-5        |
| 411507           | 7600922           | MM       | 10/9/05 | 5           | 1-5        |
| 411519           | 7599936           | MM       | 13/9/05 | 10          | 6-20       |
| 411525           | 7600933           | MM       | 10/9/05 | 50          | 21-99      |
| 411542           | 7599940           | MM       | 13/9/05 | 10          | 6-20       |
| 411544           | 7600872           | BM       | 10/9/05 | 15          | 6-20       |
| 411554           | 7600799           | BM       | 10/9/05 | 10          | 6-20       |
| 411566           | 7600934           | MM       | 10/9/05 | 1           | 1-5        |
| 411584           | 7599846           | MyM      | 13/9/05 | 3           | 1-5        |
| 411586           | 7600731           | MM       | 10/9/05 | 2           | 1-5        |
| 411606           | 7600928           | MM       | 10/9/05 | 20          | 6-20       |
| 411613           | 7600861           | BM       | 10/9/05 | 5           | 1-5        |
| 411657           | 7600921           | MM       | 10/9/05 | 7           | 6-20       |
| 411662           | 7600780           | BM       | 10/9/05 | 20          | 6-20       |
| 411663           | 7600666           | MM       | 10/9/05 | 10          | 6-20       |
| 411665           | 7600602           | BM       | 10/9/05 | 2           | 1-5        |
| 411686           | 7600535           | BM       | 10/9/05 | 1           | 1-5        |
| 411689           | 7600922           | MM       | 10/9/05 | 5           | 1-5        |
| 411692           | 7600717           | MM       | 10/9/05 | 5           | 1-5        |
| 411705           | 7600923           | MM       | 10/9/05 | 3           | 1-5        |
| 411718           | 7600528           | BM       | 10/9/05 | 1           | 1-5        |
| 411718           | 7600850           | BM       | 10/9/05 | 5           | 1-5        |
| 411736           | 7600774           | BM       | 10/9/05 | 10          | 6-20       |
| 411748           | 7600661           | MM       | 10/9/05 | 1           | 1-5        |
| 411760           | 7600906           | MM       | 10/9/05 | 30          | 21-99      |
| 411766           | 7600703           | MM       | 10/9/05 | 2           | 1-5        |
| 411784           | 7600844           | BM       | 10/9/05 | 10          | 6-20       |
| 411796           | 7600909           | MM       | 10/9/05 | 15          | 6-20       |
| 411804           | 7599932           | MM       | 13/9/05 | 1           | 1-5        |
| 411806           | 7600693           | MM       | 10/9/05 | 1           | 1-5        |
| 411809           | 7600655           | MM       | 10/9/05 | 1           | 1-5        |
| 411810           | 7600769           | BM       | 10/9/05 | 20          | 6-20       |
| 411832           | 7600589           | BM       | 10/9/05 | 10          | 6-20       |
| 411845           | 7600904           | MM       | 10/9/05 | 3           | 1-5        |
| 411846           | 7600513           | BM       | 10/9/05 | 10          | 6-20       |
| 411862           | 7599816           | MyM      | 13/9/05 | 1           | 1-5        |
| 411866           | 7600696           | MM       | 10/9/05 | 10          | 6-20       |
| 411872           | 7600436           | MM       | 10/9/05 | 5           | 1-5        |
| 411872           | 7600832           | BM       | 10/9/05 | 5           | 1-5        |
| 411875           | 7600630           | MM       | 10/9/05 | 1           | 1-5        |
| 411889           | 7600436           | MM       | 10/9/05 | 5           | 1-5        |
| 411905           | 7600899           | MM       | 10/9/05 | 10          | 6-20       |
| 411914           | 7600761           | BM       | 10/9/05 | 20          | 6-20       |
| 411919           | 7600514           | BM       | 10/9/05 | 4           | 1-5        |
| 411925           | 7599898           | MM       | 13/9/05 | 1           | 1-5        |
| 411934           | 7600882           | MM       | 10/9/05 | 10          | 6-20       |
| 411955           | 7600579           | BM       | 10/9/05 | 5           | 1-5        |
| 411961           | 7600422           | MM       | 10/9/05 | 1           | 1-5        |
| 411963           | 7600684           | MM       | 10/9/05 | 1           | 1-5        |
| 411972           | 7600821           | BM       | 10/9/05 | 15          | 6-20       |
| 411981           | 7600882           | MM       | 10/9/05 | 30          | 21-99      |
| 411993           | 7600619           | MM       | 10/9/05 | 1           | 1-5        |
| 412003           | 7600868           | MM       | 10/9/05 | 40          | 21-99      |
| 412021           | 7599910           | MM       | 13/9/05 | 1           | 1-5        |
| 412024           | 7600572           | BM       | 10/9/05 | 5           | 1-5        |
| 412027           | 7600412           | MM       | 10/9/05 | 2           | 1-5        |
| 412045           | 7599913           | MM       | 13/9/05 | 1           | 1-5        |
| 412051           | 7600875           | MM       | 10/9/05 | 40          | 21-99      |
| 412085           | 7600799           | BM       | 10/9/05 | 50          | 21-99      |
| 412090           | 7600728           | BM       | 10/9/05 | 4           | 1-5        |
| 412093           | 7600657           | MM       | 10/9/05 | 6           | 6-20       |
| 412099           | 7600608           | MM       | 10/9/05 | 2           | 1-5        |
| 412101           | 7600047           | BM       | 13/9/05 | 2           | 1-5        |
| 412104           | 7600553           | BM       | 10/9/05 | 10          | 6-20       |
| 412114           | 7600602           | MM       | 10/9/05 | 20          | 6-20       |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 412127          | 7600664          | MM       | 10/9/05 | 5           | 1-5        |
| 412133          | 7600865          | MM       | 10/9/05 | 100         | >100       |
| 412136          | 7600608          | MM       | 10/9/05 | 1           | 1-5        |
| 412144          | 7600722          | BM       | 10/9/05 | 10          | 6-20       |
| 412156          | 7600409          | MM       | 10/9/05 | 2           | 1-5        |
| 412169          | 7600612          | MM       | 10/9/05 | 10          | 6-20       |
| 412169          | 7600654          | MM       | 10/9/05 | 5           | 1-5        |
| 412176          | 7600097          | MM       | 13/9/05 | 2           | 1-5        |
| 412177          | 7600773          | BM       | 10/9/05 | 40          | 21-99      |
| 412180          | 7600461          | BM       | 10/9/05 | 10          | 6-20       |
| 412187          | 7600024          | BM       | 13/9/05 | 3           | 1-5        |
| 412188          | 7600529          | BM       | 10/9/05 | 10          | 6-20       |
| 412190          | 7600720          | BM       | 10/9/05 | 20          | 6-20       |
| 412192          | 7600596          | MM       | 10/9/05 | 10          | 6-20       |
| 412200          | 7600651          | MM       | 10/9/05 | 3           | 1-5        |
| 412210          | 7599941          | BM       | 13/9/05 | 1           | 1-5        |
| 412211          | 7600594          | MM       | 10/9/05 | 20          | 6-20       |
| 412216          | 7600652          | MM       | 10/9/05 | 20          | 6-20       |
| 412221          | 7600088          | MM       | 13/9/05 | 4           | 1-5        |
| 412239          | 7600163          | MyM      | 13/9/05 | 5           | 1-5        |
| 412242          | 7599938          | BM       | 13/9/05 | 2           | 1-5        |
| 412242          | 7600586          | MM       | 10/9/05 | 20          | 6-20       |
| 412242          | 7600651          | MM       | 10/9/05 | 25          | 21-99      |
| 412257          | 7600526          | BM       | 10/9/05 | 25          | 21-99      |
| 412266          | 7600584          | MM       | 10/9/05 | 25          | 21-99      |
| 412266          | 7600646          | MM       | 10/9/05 | 20          | 6-20       |
| 412280          | 7600389          | MM       | 10/9/05 | 2           | 1-5        |
| 412280          | 7600454          | BM       | 10/9/05 | 10          | 6-20       |
| 412294          | 7600526          | BM       | 10/9/05 | 20          | 6-20       |
| 412297          | 7600707          | BM       | 10/9/05 | 20          | 6-20       |
| 412300          | 7600569          | MM       | 10/9/05 | 60          | 21-99      |
| 412306          | 7600841          | MM       | 10/9/05 | 50          | 21-99      |
| 412314          | 7600761          | BM       | 10/9/05 | 7           | 6-20       |
| 412322          | 7599780          | MyM      | 13/9/05 | 1           | 1-5        |
| 412339          | 7600442          | BM       | 10/9/05 | 3           | 1-5        |
| 412350          | 7600834          | MM       | 10/9/05 | 1           | 1-5        |
| 412394          | 7600360          | MM       | 10/9/05 | 3           | 1-5        |
| 412395          | 7599926          | BM       | 13/9/05 | 2           | 1-5        |
| 412403          | 7600563          | MM       | 10/9/05 | 5           | 1-5        |
| 412413          | 7600361          | MM       | 10/9/05 | 3           | 1-5        |
| 412451          | 7599979          | BM       | 13/9/05 | 1           | 1-5        |
| 412455          | 7600809          | MM       | 10/9/05 | 1           | 1-5        |
| 412496          | 7600001          | MM       | 10/9/05 | 1           | 1-5        |
| 412512          | 7600810          | MM       | 10/9/05 | 3           | 1-5        |
| 412530          | 7599962          | MM       | 10/9/05 | 1           | 1-5        |
| 412539          | 7600530          | MM       | 10/9/05 | 1           | 1-5        |
| 412553          | 7599953          | MM       | 10/9/05 | 1           | 1-5        |
| 412553          | 7600798          | MM       | 10/9/05 | 3           | 1-5        |
| 412578          | 7600124          | MM       | 10/9/05 | 1           | 1-5        |
| 412611          | 7600119          | MM       | 10/9/05 | 2           | 1-5        |
| 412616          | 7600337          | MM       | 10/9/05 | 1           | 1-5        |
| 412622          | 7599992          | BM       | 10/9/05 | 6           | 6-20       |
| 412623          | 7600779          | MM       | 10/9/05 | 1           | 1-5        |
| 412624          | 7599936          | MM       | 10/9/05 | 1           | 1-5        |
| 412627          | 7600397          | BM       | 10/9/05 | 5           | 1-5        |
| 412636          | 7600121          | MM       | 10/9/05 | 3           | 1-5        |
| 412642          | 7600580          | MM       | 10/9/05 | 1           | 1-5        |
| 412642          | 7600793          | MM       | 10/9/05 | 1           | 1-5        |
| 412681          | 7600326          | MM       | 10/9/05 | 5           | 1-5        |
| 412684          | 7600779          | MM       | 10/9/05 | 1           | 1-5        |
| 412686          | 7599937          | MM       | 10/9/05 | 1           | 1-5        |
| 412690          | 7600115          | MM       | 10/9/05 | 3           | 1-5        |
| 412692          | 7600461          | BM       | 10/9/05 | 1           | 1-5        |
| 412701          | 7600780          | MM       | 10/9/05 | 5           | 1-5        |
| 412704          | 7600571          | MM       | 10/9/05 | 1           | 1-5        |
| 412718          | 7600506          | MM       | 10/9/05 | 1           | 1-5        |
| 412733          | 7600756          | MM       | 10/9/05 | 15          | 6-20       |
| 412735          | 7600508          | MM       | 10/9/05 | 1           | 1-5        |
| 412741          | 7600559          | MM       | 10/9/05 | 4           | 1-5        |
| 412747          | 7600052          | BM       | 10/9/05 | 1           | 1-5        |
| 412762          | 7600500          | MM       | 10/9/05 | 3           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 412762          | 7600761          | MM       | 10/9/05 | 25          | 21-99      |
| 412774          | 7600558          | MM       | 10/9/05 | 20          | 6-20       |
| 412786          | 7600629          | BM       | 10/9/05 | 20          | 6-20       |
| 412791          | 7600699          | BM       | 10/9/05 | 1           | 1-5        |
| 412795          | 7600501          | MM       | 10/9/05 | 2           | 1-5        |
| 412803          | 7600550          | MM       | 10/9/05 | 10          | 6-20       |
| 412804          | 7600304          | MM       | 10/9/05 | 1           | 1-5        |
| 412804          | 7600756          | MM       | 10/9/05 | 30          | 21-99      |
| 412813          | 7600438          | BM       | 10/9/05 | 2           | 1-5        |
| 412835          | 7600752          | MM       | 10/9/05 | 15          | 6-20       |
| 412836          | 7599912          | MM       | 10/9/05 | 1           | 1-5        |
| 412847          | 7600293          | MM       | 10/9/05 | 1           | 1-5        |
| 412856          | 7600754          | MM       | 10/9/05 | 2           | 1-5        |
| 412879          | 7600615          | BM       | 10/9/05 | 10          | 6-20       |
| 412892          | 7599951          | BM       | 10/9/05 | 2           | 1-5        |
| 412906          | 7600676          | BM       | 10/9/05 | 5           | 1-5        |
| 412908          | 7599898          | MM       | 10/9/05 | 10          | 6-20       |
| 412913          | 7600358          | BM       | 10/9/05 | 4           | 1-5        |
| 412918          | 7600733          | MM       | 10/9/05 | 2           | 1-5        |
| 412931          | 7599889          | MM       | 10/9/05 | 4           | 1-5        |
| 412931          | 7600538          | MM       | 10/9/05 | 30          | 21-99      |
| 412932          | 7600410          | BM       | 10/9/05 | 20          | 6-20       |
| 412942          | 7599943          | BM       | 10/9/05 | 10          | 6-20       |
| 412949          | 7600282          | MM       | 10/9/05 | 3           | 1-5        |
| 412958          | 7600529          | MM       | 10/9/05 | 30          | 21-99      |
| 412968          | 7599946          | BM       | 10/9/05 | 1           | 1-5        |
| 412973          | 7600526          | MM       | 10/9/05 | 10          | 6-20       |
| 412984          | 7600465          | MM       | 10/9/05 | 6           | 6-20       |
| 412988          | 7600660          | BM       | 10/9/05 | 20          | 6-20       |
| 412989          | 7600404          | BM       | 10/9/05 | 30          | 21-99      |
| 412990          | 7600272          | MM       | 10/9/05 | 5           | 1-5        |
| 412990          | 7600727          | MM       | 10/9/05 | 1           | 1-5        |
| 412996          | 7600609          | BM       | 10/9/05 | 20          | 6-20       |
| 413001          | 7600259          | MM       | 10/9/05 | 5           | 1-5        |
| 413002          | 7600516          | MM       | 10/9/05 | 50          | 21-99      |
| 413004          | 7600469          | MM       | 10/9/05 | 5           | 1-5        |
| 413005          | 7599872          | MM       | 10/9/05 | 1           | 1-5        |
| 413022          | 7599933          | BM       | 10/9/05 | 2           | 1-5        |
| 413035          | 7600506          | MM       | 10/9/05 | 25          | 21-99      |
| 413038          | 7599996          | BM       | 10/9/05 | 1           | 1-5        |
| 413048          | 7600714          | MM       | 10/9/05 | 8           | 6-20       |
| 413056          | 7600455          | MM       | 10/9/05 | 20          | 6-20       |
| 413064          | 7600391          | BM       | 10/9/05 | 10          | 6-20       |
| 413076          | 7600334          | BM       | 10/9/05 | 20          | 6-20       |
| 413100          | 7600593          | BM       | 10/9/05 | 30          | 21-99      |
| 413109          | 7600636          | BM       | 10/9/05 | 40          | 21-99      |
| 413110          | 7599979          | BM       | 10/9/05 | 1           | 1-5        |
| 413114          | 7600441          | MM       | 10/9/05 | 10          | 6-20       |
| 413118          | 7600039          | MM       | 10/9/05 | 2           | 1-5        |
| 413129          | 7600500          | MM       | 10/9/05 | 1           | 1-5        |
| 413130          | 7600706          | MM       | 10/9/05 | 10          | 6-20       |
| 413131          | 7600039          | MM       | 10/9/05 | 1           | 1-5        |
| 413142          | 7599860          | MM       | 10/9/05 | 1           | 1-5        |
| 413146          | 7600322          | BM       | 10/9/05 | 10          | 6-20       |
| 413152          | 7600035          | MM       | 10/9/05 | 5           | 1-5        |
| 413157          | 7600498          | MM       | 10/9/05 | 5           | 1-5        |
| 413159          | 7600374          | BM       | 10/9/05 | 3           | 1-5        |
| 413160          | 7600247          | MM       | 10/9/05 | 1           | 1-5        |
| 413161          | 7600632          | BM       | 10/9/05 | 5           | 1-5        |
| 413172          | 7600711          | MM       | 10/9/05 | 15          | 6-20       |
| 413192          | 7600572          | BM       | 10/9/05 | 60          | 21-99      |
| 413192          | 7600701          | MM       | 10/9/05 | 5           | 1-5        |
| 413193          | 7600495          | MM       | 10/9/05 | 6           | 6-20       |
| 413212          | 7600699          | MM       | 10/9/05 | 3           | 1-5        |
| 413217          | 7600022          | MM       | 10/9/05 | 1           | 1-5        |
| 413224          | 7600493          | MM       | 10/9/05 | 30          | 21-99      |
| 413228          | 7600441          | MM       | 10/9/05 | 1           | 1-5        |
| 413234          | 7600623          | BM       | 10/9/05 | 30          | 21-99      |
| 413243          | 7600234          | MM       | 10/9/05 | 1           | 1-5        |
| 413243          | 7600446          | MM       | 10/9/05 | 1           | 1-5        |
| 413246          | 7599954          | BM       | 10/9/05 | 5           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 413246          | 7600694          | MM       | 10/9/05 | 2           | 1-5        |
| 413251          | 7599867          | MM       | 10/9/05 | 1           | 1-5        |
| 413254          | 7600442          | MM       | 10/9/05 | 20          | 6-20       |
| 413262          | 7600484          | MM       | 10/9/05 | 40          | 21-99      |
| 413276          | 7599857          | MM       | 10/9/05 | 2           | 1-5        |
| 413281          | 7600348          | BM       | 10/9/05 | 10          | 6-20       |
| 413283          | 7600439          | MM       | 10/9/05 | 40          | 21-99      |
| 413287          | 7600307          | BM       | 10/9/05 | 10          | 6-20       |
| 413296          | 7599936          | BM       | 10/9/05 | 5           | 1-5        |
| 413311          | 7600486          | MM       | 10/9/05 | 30          | 21-99      |
| 413312          | 7600683          | MM       | 10/9/05 | 1           | 1-5        |
| 413313          | 7600421          | MM       | 10/9/05 | 20          | 6-20       |
| 413328          | 7600309          | BM       | 10/9/05 | 3           | 1-5        |
| 413352          | 7600425          | MM       | 10/9/05 | 80          | 21-99      |
| 413369          | 7600470          | MM       | 10/9/05 | 5           | 1-5        |
| 413376          | 7600359          | BM       | 10/9/05 | 20          | 6-20       |
| 413379          | 7600538          | BM       | 10/9/05 | 20          | 6-20       |
| 413380          | 7600303          | BM       | 10/9/05 | 15          | 6-20       |
| 413388          | 7600844          | MM       | 9/9/05  | 1           | 1-5        |
| 413397          | 7600219          | MM       | 10/9/05 | 20          | 6-20       |
| 413412          | 7599697          | RO       | 13/8/05 | 1           | 1-5        |
| 413416          | 7600362          | BM       | 10/9/05 | 3           | 1-5        |
| 413428          | 7600424          | MM       | 10/9/05 | 3           | 1-5        |
| 413438          | 7599682          | RO       | 13/8/05 | 1           | 1-5        |
| 413443          | 7600421          | MM       | 10/9/05 | 5           | 1-5        |
| 413457          | 7600351          | BM       | 9/9/05  | 50          | 21-99      |
| 413458          | 7600421          | MM       | 9/9/05  | 2           | 1-5        |
| 413472          | 7599667          | RO       | 13/8/05 | 1           | 1-5        |
| 413557          | 7600409          | MM       | 9/9/05  | 2           | 1-5        |
| 413687          | 7599490          | RO       | 13/8/05 | 1           | 1-5        |
| 413702          | 7600342          | BM       | 9/9/05  | 1           | 1-5        |
| 413819          | 7599312          | RO       | 13/8/05 | 1           | 1-5        |
| 413825          | 7599394          | RO       | 13/8/05 | 1           | 1-5        |
| 413886          | 7599548          | RO       | 13/8/05 | 1           | 1-5        |
| 413929          | 7599453          | BM       | 13/8/05 | 1           | 1-5        |
| 413941          | 7599302          | RO       | 13/8/05 | 1           | 1-5        |
| 413958          | 7599212          | BM       | 12/8/05 | 2           | 1-5        |
| 414017          | 7600376          | MM       | 9/9/05  | 1           | 1-5        |
| 414028          | 7599718          | MM       | 12/9/05 | 1           | 1-5        |
| 414036          | 7600200          | BM       | 6/9/05  | 1           | 1-5        |
| 414107          | 7599693          | MM       | 12/9/05 | 1           | 1-5        |
| 414108          | 7600410          | BM       | 9/9/05  | 1           | 1-5        |
| 414157          | 7600557          | MM       | 9/9/05  | 2           | 1-5        |
| 414207          | 7599392          | RO       | 13/8/05 | 1           | 1-5        |
| 414237          | 7600145          | BM       | 6/9/05  | 1           | 1-5        |
| 414306          | 7599271          | RO       | 13/8/05 | 1           | 1-5        |
| 414375          | 7599097          | RO       | 12/8/05 | 1           | 1-5        |
| 414407          | 7599078          | RO       | 12/8/05 | 3           | 1-5        |
| 414434          | 7599058          | RO       | 12/8/05 | 2           | 1-5        |
| 414701          | 7599005          | BM       | 12/8/05 | 1           | 1-5        |
| 414998          | 7599755          | MM       | 12/9/05 | 1           | 1-5        |
| 415004          | 7599749          | MM       | 12/9/05 | 2           | 1-5        |
| 415018          | 7599565          | MM       | 12/9/05 | 1           | 1-5        |
| 415067          | 7599828          | MM       | 9/9/05  | 1           | 1-5        |
| 415091          | 7599763          | MM       | 12/9/05 | 1           | 1-5        |
| 415107          | 7600141          | BM       | 9/9/05  | 1           | 1-5        |
| 415111          | 7599813          | MM       | 9/9/05  | 1           | 1-5        |
| 415143          | 7598707          | RO       | 12/8/05 | 1           | 1-5        |
| 415170          | 7598845          | BM       | 8/9/05  | 15          | 6-20       |
| 415189          | 7598858          | RO       | 12/8/05 | 2           | 1-5        |
| 415193          | 7599671          | MM       | 12/9/05 | 1           | 1-5        |
| 415194          | 7598631          | RO       | 12/8/05 | 1           | 1-5        |
| 415194          | 7598948          | MM       | 8/9/05  | 1           | 1-5        |
| 415194          | 7599987          | MM       | 9/9/05  | 1           | 1-5        |
| 415215          | 7598626          | RO       | 12/8/05 | 1           | 1-5        |
| 415245          | 7599861          | BM       | 6/9/05  | 2           | 1-5        |
| 415257          | 7598687          | BM       | 12/8/05 | 1           | 1-5        |
| 415257          | 7599635          | MM       | 12/9/05 | 1           | 1-5        |
| 415298          | 7599597          | MM       | 12/9/05 | 1           | 1-5        |
| 415304          | 7599644          | MM       | 12/9/05 | 1           | 1-5        |
| 415307          | 7598666          | BM       | 12/8/05 | 1           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POP_N_SIZE_ |
|-----------------|------------------|----------|---------|-------------|-------------|
| 415316          | 7599490          | MM       | 12/9/05 | 1           | 1-5         |
| 415325          | 7598659          | BM       | 12/8/05 | 1           | 1-5         |
| 415360          | 7599502          | MM       | 12/9/05 | 1           | 1-5         |
| 415371          | 7599956          | MM       | 9/9/05  | 1           | 1-5         |
| 415398          | 7598730          | RO       | 12/8/05 | 2           | 1-5         |
| 415437          | 7599934          | MM       | 9/9/05  | 1           | 1-5         |
| 415448          | 7598974          | BM       | 8/9/05  | 10          | 6-20        |
| 415471          | 7598928          | MM       | 8/9/05  | 20          | 6-20        |
| 415475          | 7598664          | RO       | 12/8/05 | 100+        | >100        |
| 415485          | 7598616          | MM       | 8/9/05  | 2           | 1-5         |
| 415499          | 7598874          | MM       | 8/9/05  | 2           | 1-5         |
| 415508          | 7599271          | MM       | 8/9/05  | 1           | 1-5         |
| 415510          | 7598959          | MM       | 8/9/05  | 1           | 1-5         |
| 415511          | 7598865          | MM       | 8/9/05  | 10          | 6-20        |
| 415537          | 7598965          | MM       | 8/9/05  | 1           | 1-5         |
| 415539          | 7598643          | MM       | 8/9/05  | 20          | 6-20        |
| 415541          | 7598903          | MM       | 8/9/05  | 30          | 21-99       |
| 415559          | 7598991          | MM       | 8/9/05  | 2           | 1-5         |
| 415563          | 7598923          | MM       | 8/9/05  | 10          | 6-20        |
| 415564          | 7598658          | MM       | 8/9/05  | 20          | 6-20        |
| 415570          | 7599491          | MM       | 12/9/05 | 1           | 1-5         |
| 415578          | 7598643          | BM       | 8/9/05  | 20          | 6-20        |
| 415591          | 7598945          | MM       | 8/9/05  | 20          | 6-20        |
| 415595          | 7598856          | BM       | 8/9/05  | 50          | 21-99       |
| 415597          | 7598681          | MM       | 8/9/05  | 10          | 6-20        |
| 415600          | 7599951          | MM       | 9/9/05  | 1           | 1-5         |
| 415612          | 7598604          | MM       | 8/9/05  | 10          | 6-20        |
| 415617          | 7599887          | MM       | 9/9/05  | 1           | 1-5         |
| 415618          | 7598967          | MM       | 8/9/05  | 100         | >100        |
| 415630          | 7598884          | BM       | 8/9/05  | 70          | 21-99       |
| 415631          | 7598791          | BM       | 8/9/05  | 5           | 1-5         |
| 415643          | 7598711          | MM       | 8/9/05  | 20          | 6-20        |
| 415647          | 7599943          | MM       | 9/9/05  | 1           | 1-5         |
| 415648          | 7598669          | BM       | 8/9/05  | 40          | 21-99       |
| 415651          | 7598681          | MM       | 8/9/05  | 100         | >100        |
| 415665          | 7598713          | MM       | 8/9/05  | 2           | 1-5         |
| 415667          | 7598655          | MM       | 8/9/05  | 60          | 21-99       |
| 415671          | 7599009          | MM       | 8/9/05  | 100         | >100        |
| 415679          | 7599089          | MM       | 8/9/05  | 10          | 6-20        |
| 415680          | 7598665          | MM       | 8/9/05  | 50          | 21-99       |
| 415686          | 7598725          | MM       | 8/9/05  | 1           | 1-5         |
| 415695          | 7598751          | MM       | 8/9/05  | 1           | 1-5         |
| 415701          | 7599093          | MM       | 8/9/05  | 1           | 1-5         |
| 415711          | 7598677          | MM       | 8/9/05  | 20          | 6-20        |
| 415713          | 7598951          | BM       | 8/9/05  | 200         | >100        |
| 415717          | 7599811          | BM       | 9/9/05  | 1           | 1-5         |
| 415723          | 7598850          | BM       | 8/9/05  | 50          | 21-99       |
| 415724          | 7599351          | MM       | 8/9/05  | 1           | 1-5         |
| 415728          | 7598694          | MM       | 8/9/05  | 35          | 21-99       |
| 415734          | 7599280          | BM       | 8/9/05  | 1           | 1-5         |
| 415740          | 7599121          | MM       | 8/9/05  | 5           | 1-5         |
| 415741          | 7599055          | MM       | 8/9/05  | 20          | 6-20        |
| 415744          | 7598712          | MM       | 8/9/05  | 6           | 6-20        |
| 415747          | 7599148          | MM       | 8/9/05  | 1           | 1-5         |
| 415771          | 7599384          | MM       | 8/9/05  | 3           | 1-5         |
| 415779          | 7599649          | MM       | 9/9/05  | 5           | 1-5         |
| 415781          | 7598897          | BM       | 8/9/05  | 20          | 6-20        |
| 415784          | 7598798          | MM       | 8/9/05  | 2           | 1-5         |
| 415789          | 7598967          | BM       | 8/9/05  | 5           | 1-5         |
| 415789          | 7599642          | MM       | 9/9/05  | 2           | 1-5         |
| 415791          | 7599070          | MM       | 8/9/05  | 5           | 1-5         |
| 415793          | 7600096          | MM       | 9/9/05  | 2           | 1-5         |
| 415819          | 7599097          | MM       | 8/9/05  | 10          | 6-20        |
| 415820          | 7600099          | MM       | 9/9/05  | 1           | 1-5         |
| 415827          | 7599424          | MM       | 8/9/05  | 5           | 1-5         |
| 415832          | 7599681          | MM       | 9/9/05  | 2           | 1-5         |
| 415835          | 7599658          | MM       | 9/9/05  | 1           | 1-5         |
| 415837          | 7599014          | BM       | 8/9/05  | 15          | 6-20        |
| 415838          | 7599180          | MM       | 8/9/05  | 5           | 1-5         |
| 415846          | 7600095          | MM       | 9/9/05  | 4           | 1-5         |
| 415854          | 7599444          | MM       | 8/9/05  | 3           | 1-5         |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE   | NO_ OF INDS | POPN_ SIZE_ |
|------------------|-------------------|----------|--------|-------------|-------------|
| 415857           | 7598848           | MM       | 8/9/05 | 2           | 1-5         |
| 415878           | 7599204           | MM       | 8/9/05 | 5           | 1-5         |
| 415881           | 7599118           | MM       | 8/9/05 | 1           | 1-5         |
| 415899           | 7599050           | BM       | 8/9/05 | 50          | 21-99       |
| 415919           | 7599143           | MM       | 8/9/05 | 2           | 1-5         |
| 415932           | 7599608           | MM       | 7/9/05 | 10          | 6-20        |
| 415938           | 7598863           | MM       | 8/9/05 | 15          | 6-20        |
| 415940           | 7599271           | MM       | 8/9/05 | 1           | 1-5         |
| 415950           | 7599167           | MM       | 8/9/05 | 2           | 1-5         |
| 415951           | 7599601           | MM       | 7/9/05 | 8           | 6-20        |
| 415968           | 7599099           | BM       | 8/9/05 | 30          | 21-99       |
| 415971           | 7598890           | MM       | 8/9/05 | 20          | 6-20        |
| 415981           | 7600031           | BM       | 7/9/05 | 2           | 1-5         |
| 415982           | 7599196           | MM       | 8/9/05 | 2           | 1-5         |
| 415990           | 7598834           | MM       | 8/9/05 | 1           | 1-5         |
| 416000           | 7599210           | MM       | 8/9/05 | 3           | 1-5         |
| 416005           | 7599768           | BM       | 7/9/05 | 10          | 6-20        |
| 416013           | 7598919           | MM       | 8/9/05 | 30          | 21-99       |
| 416013           | 7599040           | BM       | 8/9/05 | 60          | 21-99       |
| 416015           | 7599941           | BM       | 7/9/05 | 10          | 6-20        |
| 416032           | 7599807           | MM       | 7/9/05 | 10          | 6-20        |
| 416051           | 7599672           | BM       | 7/9/05 | 1           | 1-5         |
| 416057           | 7599799           | MM       | 7/9/05 | 2           | 1-5         |
| 416063           | 7598887           | MM       | 8/9/05 | 6           | 6-20        |
| 416073           | 7599164           | BM       | 8/9/05 | 30          | 21-99       |
| 416081           | 7598904           | MM       | 8/9/05 | 1           | 1-5         |
| 416082           | 7600050           | MM       | 7/9/05 | 5           | 1-5         |
| 416089           | 7599080           | BM       | 8/9/05 | 100         | >100        |
| 416094           | 7598969           | MM       | 8/9/05 | 20          | 6-20        |
| 416099           | 7600038           | MM       | 7/9/05 | 10          | 6-20        |
| 416100           | 7598922           | MM       | 8/9/05 | 3           | 1-5         |
| 416101           | 7599269           | MM       | 8/9/05 | 1           | 1-5         |
| 416101           | 7599507           | MM       | 8/9/05 | 1           | 1-5         |
| 416103           | 7599981           | BM       | 7/9/05 | 20          | 6-20        |
| 416127           | 7599794           | MM       | 7/9/05 | 8           | 6-20        |
| 416131           | 7599837           | MM       | 7/9/05 | 20          | 6-20        |
| 416137           | 7599715           | BM       | 7/9/05 | 5           | 1-5         |
| 416143           | 7600045           | MM       | 7/9/05 | 5           | 1-5         |
| 416148           | 7599114           | BM       | 8/9/05 | 80          | 21-99       |
| 416150           | 7599785           | MM       | 7/9/05 | 10          | 6-20        |
| 416164           | 7599022           | MM       | 8/9/05 | 10          | 6-20        |
| 416167           | 7599827           | MM       | 7/9/05 | 20          | 6-20        |
| 416168           | 7599221           | BM       | 8/9/05 | 3           | 1-5         |
| 416172           | 7599766           | MM       | 7/9/05 | 30          | 21-99       |
| 416175           | 7599457           | MM       | 8/9/05 | 5           | 1-5         |
| 416185           | 7599040           | MM       | 8/9/05 | 30          | 21-99       |
| 416190           | 7599826           | MM       | 7/9/05 | 50          | 21-99       |
| 416193           | 7599544           | MM       | 7/9/05 | 1           | 1-5         |
| 416199           | 7599154           | BM       | 8/9/05 | 20          | 6-20        |
| 416204           | 7599704           | BM       | 7/9/05 | 2           | 1-5         |
| 416216           | 7599351           | MM       | 8/9/05 | 1           | 1-5         |
| 416220           | 7599078           | MM       | 8/9/05 | 20          | 6-20        |
| 416235           | 7599751           | MM       | 7/9/05 | 30          | 21-99       |
| 416247           | 7599865           | BM       | 7/9/05 | 30          | 21-99       |
| 416250           | 7599452           | MM       | 8/9/05 | 10          | 6-20        |
| 416259           | 7599466           | MM       | 8/9/05 | 1           | 1-5         |
| 416260           | 7599278           | BM       | 8/9/05 | 10          | 6-20        |
| 416264           | 7599096           | MM       | 8/9/05 | 20          | 6-20        |
| 416265           | 7599127           | MM       | 8/9/05 | 15          | 6-20        |
| 416271           | 7599809           | MM       | 7/9/05 | 100         | >100        |
| 416282           | 7599750           | MM       | 7/9/05 | 1           | 1-5         |
| 416283           | 7599138           | MM       | 8/9/05 | 3           | 1-5         |
| 416289           | 7599229           | BM       | 8/9/05 | 40          | 21-99       |
| 416290           | 7599388           | MM       | 8/9/05 | 2           | 1-5         |
| 416297           | 7599165           | MM       | 8/9/05 | 10          | 6-20        |
| 416306           | 7600001           | MM       | 7/9/05 | 1           | 1-5         |
| 416307           | 7599923           | BM       | 7/9/05 | 20          | 6-20        |
| 416320           | 7599738           | MM       | 7/9/05 | 25          | 21-99       |
| 416330           | 7599804           | MM       | 7/9/05 | 60          | 21-99       |
| 416333           | 7599613           | BM       | 7/9/05 | 4           | 1-5         |
| 416335           | 7599188           | MM       | 8/9/05 | 100         | >100        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | POP_N_SIZE_ | COMMENTS |
|-----------------|------------------|----------|--------|-------------|-------------|----------|
| 416337          | 7599336          | BM       | 8/9/05 | 40          | 21-99       |          |
| 416358          | 7599235          | MM       | 8/9/05 | 100         | >100        |          |
| 416362          | 7599513          | MM       | 7/9/05 | 1           | 1-5         |          |
| 416377          | 7599858          | BM       | 7/9/05 | 200         | >100        |          |
| 416396          | 7599773          | MM       | 7/9/05 | 6           | 6-20        |          |
| 416407          | 7599268          | MM       | 8/9/05 | 100         | >100        |          |
| 416414          | 7599973          | MM       | 7/9/05 | 10          | 6-20        | flowline |
| 416423          | 7599323          | BM       | 8/9/05 | 20          | 6-20        |          |
| 416423          | 7599672          | BM       | 7/9/05 | 10          | 6-20        |          |
| 416436          | 7599908          | BM       | 7/9/05 | 500         | >100        |          |
| 416440          | 7599288          | MM       | 8/9/05 | 50          | 21-99       |          |
| 416441          | 7599963          | MM       | 7/9/05 | 200         | >100        |          |
| 416466          | 7599429          | BM       | 8/9/05 | 80          | 21-99       |          |
| 416469          | 7599654          | BM       | 7/9/05 | 3           | 1-5         |          |
| 416472          | 7599350          | BM       | 8/9/05 | 20          | 6-20        |          |
| 416476          | 7599433          | MM       | 8/9/05 | 10          | 6-20        |          |
| 416478          | 7599313          | MM       | 8/9/05 | 100         | >100        |          |
| 416492          | 7599954          | MM       | 7/9/05 | 10          | 6-20        |          |
| 416494          | 7599532          | BM       | 7/9/05 | 1           | 1-5         |          |
| 416512          | 7599439          | MM       | 8/9/05 | 50          | 21-99       |          |
| 416514          | 7599328          | MM       | 8/9/05 | 20          | 6-20        |          |
| 416516          | 7599452          | MM       | 7/9/05 | 60          | 21-99       |          |
| 416518          | 7599809          | BM       | 7/9/05 | 5           | 1-5         |          |
| 416546          | 7599339          | MM       | 8/9/05 | 20          | 6-20        |          |
| 416552          | 7599947          | MM       | 7/9/05 | 200         | >100        |          |
| 416561          | 7599730          | MM       | 7/9/05 | 30          | 21-99       |          |
| 416572          | 7599441          | MM       | 8/9/05 | 50          | 21-99       |          |
| 416580          | 7599355          | MM       | 8/9/05 | 5           | 1-5         |          |
| 416585          | 7599410          | BM       | 8/9/05 | 40          | 21-99       |          |
| 416592          | 7599681          | MM       | 7/9/05 | 20          | 6-20        |          |
| 416599          | 7599859          | BM       | 7/9/05 | 50          | 21-99       |          |
| 416600          | 7599469          | MM       | 7/9/05 | 150         | >100        |          |
| 416619          | 7599929          | MM       | 7/9/05 | 50          | 21-99       |          |
| 416627          | 7599665          | MM       | 7/9/05 | 20          | 6-20        |          |
| 416629          | 7599391          | MM       | 8/9/05 | 20          | 6-20        |          |
| 416646          | 7599457          | MM       | 7/9/05 | 100         | >100        |          |
| 416650          | 7599851          | BM       | 7/9/05 | 1           | 1-5         |          |
| 416662          | 7599417          | MM       | 8/9/05 | 10          | 6-20        |          |
| 416665          | 7599775          | BM       | 7/9/05 | 2           | 1-5         |          |
| 416675          | 7599595          | BM       | 7/9/05 | 5           | 1-5         |          |
| 416682          | 7599714          | MM       | 7/9/05 | 10          | 6-20        |          |
| 416693          | 7599652          | MM       | 7/9/05 | 25          | 21-99       |          |
| 416702          | 7599917          | MM       | 7/9/05 | 40          | 21-99       |          |
| 416712          | 7599700          | MM       | 7/9/05 | 30          | 21-99       |          |
| 416724          | 7599816          | BM       | 7/9/05 | 35          | 21-99       |          |
| 416732          | 7599410          | MM       | 8/9/05 | 6           | 6-20        |          |
| 416741          | 7599383          | BM       | 8/9/05 | 30          | 21-99       |          |
| 416743          | 7599640          | MM       | 7/9/05 | 10          | 6-20        |          |
| 416749          | 7599760          | BM       | 7/9/05 | 40          | 21-99       |          |
| 416752          | 7599505          | BM       | 7/9/05 | 150         | >100        |          |
| 416765          | 7599425          | MM       | 7/9/05 | 50          | 21-99       |          |
| 416803          | 7599578          | BM       | 7/9/05 | 50          | 21-99       |          |
| 416807          | 7599403          | MM       | 7/9/05 | 60          | 21-99       |          |
| 416809          | 7599684          | MM       | 7/9/05 | 60          | 21-99       |          |
| 416824          | 7599765          | BM       | 7/9/05 | 20          | 6-20        |          |
| 416828          | 7599880          | MM       | 7/9/05 | 2           | 1-5         |          |
| 416831          | 7599624          | MM       | 7/9/05 | 15          | 6-20        |          |
| 416853          | 7599727          | BM       | 7/9/05 | 10          | 6-20        |          |
| 416853          | 7599875          | MM       | 7/9/05 | 25          | 21-99       |          |
| 416864          | 7599562          | MM       | 7/9/05 | 50          | 21-99       |          |
| 416868          | 7599592          | MM       | 7/9/05 | 20          | 6-20        |          |
| 416871          | 7599402          | BM       | 8/9/05 | 20          | 6-20        |          |
| 416890          | 7599530          | MM       | 8/9/05 | 100         | >100        |          |
| 416891          | 7599785          | BM       | 7/9/05 | 50          | 21-99       |          |
| 416902          | 7599659          | MM       | 7/9/05 | 40          | 21-99       |          |
| 416919          | 7599844          | MM       | 7/9/05 | 40          | 21-99       |          |
| 416920          | 7599778          | BM       | 7/9/05 | 4           | 1-5         |          |
| 416927          | 7599574          | MM       | 8/9/05 | 10          | 6-20        |          |
| 416928          | 7599718          | BM       | 7/9/05 | 20          | 6-20        |          |
| 416941          | 7599504          | BM       | 8/9/05 | 20          | 6-20        |          |
| 416961          | 7599653          | MM       | 7/9/05 | 100         | >100        |          |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE   | NO_ OF INDS | POPN_SIZE_ |
|------------------|-------------------|----------|--------|-------------|------------|
| 416973           | 7599743           | BM       | 7/9/05 | 10          | 6-20       |
| 416975           | 7599421           | BM       | 8/9/05 | 40          | 21-99      |
| 416978           | 7599557           | MM       | 8/9/05 | 10          | 6-20       |
| 417002           | 7599640           | MM       | 7/9/05 | 200         | >100       |
| 417003           | 7599744           | BM       | 7/9/05 | 2           | 1-5        |
| 417011           | 7599566           | MM       | 8/9/05 | 20          | 6-20       |
| 417044           | 7599846           | MM       | 7/9/05 | scattered   | 6-20       |
| 417061           | 7599625           | MM       | 7/9/05 | 200         | >100       |
| 417067           | 7599564           | MM       | 8/9/05 | 10          | 6-20       |
| 417098           | 7599615           | MM       | 7/9/05 | 50          | 21-99      |
| 417105           | 7599555           | MM       | 8/9/05 | 15          | 6-20       |
| 417106           | 7599771           | BM       | 7/9/05 | 100         | >100       |
| 417113           | 7599507           | BM       | 8/9/05 | 6           | 6-20       |
| 417113           | 7599673           | BM       | 7/9/05 | 250         | >100       |
| 417154           | 7599612           | MM       | 7/9/05 | 20          | 6-20       |
| 417162           | 7599839           | MM       | 7/9/05 | 10          | 6-20       |
| 417165           | 7599540           | MM       | 8/9/05 | 50          | 21-99      |
| 417171           | 7599476           | BM       | 8/9/05 | 20          | 6-20       |
| 417214           | 7599774           | BM       | 7/9/05 | 500         | >100       |
| 417217           | 7599545           | MM       | 8/9/05 | 15          | 6-20       |
| 417246           | 7599618           | MM       | 7/9/05 | 10          | 6-20       |
| 417249           | 7599843           | MM       | 7/9/05 | 100         | >100       |
| 417269           | 7599474           | BM       | 8/9/05 | 50          | 21-99      |
| 417271           | 7599537           | MM       | 8/9/05 | 20          | 6-20       |
| 417327           | 7599833           | MM       | 7/9/05 | 100         | >100       |
| 417339           | 7599776           | BM       | 7/9/05 | 100         | >100       |
| 417340           | 7599455           | BM       | 8/9/05 | 20          | 6-20       |
| 417347           | 7599674           | BM       | 7/9/05 | 10          | 6-20       |
| 417350           | 7599624           | MM       | 7/9/05 | 10          | 6-20       |
| 417359           | 7599519           | MM       | 8/9/05 | 30          | 21-99      |
| 417379           | 7599823           | MM       | 7/9/05 | 50          | 21-99      |
| 417395           | 7599762           | BM       | 7/9/05 | 40          | 21-99      |
| 417401           | 7599528           | MM       | 8/9/05 | 30          | 21-99      |
| 417419           | 7599815           | MM       | 7/9/05 | 20          | 6-20       |
| 417421           | 7599608           | MM       | 7/9/05 | 10          | 6-20       |
| 417433           | 7599529           | MM       | 8/9/05 | 50          | 21-99      |
| 417452           | 7599599           | MM       | 7/9/05 | 20          | 6-20       |
| 417477           | 7599493           | MM       | 8/9/05 | 20          | 6-20       |
| 417490           | 7599639           | BM       | 7/9/05 | 20          | 6-20       |
| 417513           | 7599744           | BM       | 7/9/05 | 3           | 1-5        |
| 417514           | 7599568           | MM       | 7/9/05 | 30          | 21-99      |
| 417523           | 7599483           | MM       | 8/9/05 | 20          | 6-20       |
| 417554           | 7599472           | MM       | 8/9/05 | 30          | 21-99      |
| 417571           | 7599745           | BM       | 7/9/05 | 3           | 1-5        |
| 417575           | 7599407           | BM       | 8/9/05 | 200         | >100       |
| 417586           | 7599803           | MM       | 7/9/05 | 20          | 6-20       |
| 417608           | 7599558           | MM       | 7/9/05 | 10          | 6-20       |
| 417613           | 7599468           | MM       | 8/9/05 | 40          | 21-99      |
| 417630           | 7599798           | MM       | 7/9/05 | 6           | 6-20       |
| 417657           | 7599735           | BM       | 7/9/05 | 12          | 6-20       |
| 417659           | 7599472           | MM       | 8/9/05 | 10          | 6-20       |
| 417673           | 7599540           | MM       | 7/9/05 | 2           | 1-5        |
| 417684           | 7599463           | MM       | 8/9/05 | 40          | 21-99      |
| 417684           | 7599787           | MM       | 7/9/05 | 10          | 6-20       |
| 417718           | 7599545           | MM       | 7/9/05 | 10          | 6-20       |
| 417726           | 7599374           | BM       | 8/9/05 | 3           | 1-5        |
| 417729           | 7599456           | MM       | 8/9/05 | 10          | 6-20       |
| 417744           | 7599787           | MM       | 7/9/05 | 20          | 6-20       |
| 417751           | 7599532           | MM       | 7/9/05 | 10          | 6-20       |
| 417764           | 7599452           | MM       | 8/9/05 | 20          | 6-20       |
| 417793           | 7599779           | MM       | 7/9/05 | 50          | 21-99      |
| 417795           | 7599430           | MM       | 8/9/05 | 100         | >100       |
| 417801           | 7599729           | BM       | 7/9/05 | 50          | 21-99      |
| 417807           | 7599639           | BM       | 7/9/05 | 40          | 21-99      |
| 417831           | 7599527           | MM       | 7/9/05 | 5           | 1-5        |
| 417841           | 7599425           | MM       | 8/9/05 | 30          | 21-99      |
| 417859           | 7599777           | MM       | 7/9/05 | 15          | 6-20       |
| 417870           | 7599342           | BM       | 8/9/05 | 1           | 1-5        |
| 417895           | 7599420           | MM       | 8/9/05 | 15          | 6-20       |
| 417896           | 7599512           | MM       | 7/9/05 | 3           | 1-5        |
| 417906           | 7599775           | MM       | 7/9/05 | 5           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 417949          | 7599403          | MM       | 8/9/05  | 15          | 6-20       |
| 417954          | 7599764          | MM       | 7/9/05  | 5           | 1-5        |
| 417963          | 7599712          | BM       | 7/9/05  | 100         | >100       |
| 417980          | 7599509          | MM       | 7/9/05  | 3           | 1-5        |
| 418008          | 7599386          | MM       | 8/9/05  | 30          | 21-99      |
| 418022          | 7599508          | MM       | 7/9/05  | 10          | 6-20       |
| 418025          | 7599754          | MM       | 7/9/05  | 15          | 6-20       |
| 418032          | 7599562          | BM       | 7/9/05  | 60          | 21-99      |
| 418039          | 7599614          | BM       | 7/9/05  | 10          | 6-20       |
| 418051          | 7599382          | MM       | 8/9/05  | 20          | 6-20       |
| 418059          | 7599503          | MM       | 7/9/05  | 10          | 6-20       |
| 418073          | 7599745          | MM       | 7/9/05  | 5           | 1-5        |
| 418100          | 7599673          | BM       | 7/9/05  | 80          | 21-99      |
| 418110          | 7599500          | MM       | 7/9/05  | 100         | >100       |
| 418127          | 7599149          | MM       | 8/9/05  | 1           | 1-5        |
| 418150          | 7599492          | MM       | 7/9/05  | 200         | >100       |
| 418151          | 7599737          | MM       | 7/9/05  | 3           | 1-5        |
| 418162          | 7599412          | MM       | 8/9/05  | 80          | 21-99      |
| 418179          | 7599733          | MM       | 7/9/05  | 100         | >100       |
| 418199          | 7599404          | MM       | 8/9/05  | 10          | 6-20       |
| 418227          | 7599692          | BM       | 7/9/05  | 200         | >100       |
| 418252          | 7599726          | MM       | 7/9/05  | 6           | 6-20       |
| 418282          | 7599726          | MM       | 7/9/05  | 50          | 21-99      |
| 418317          | 7599414          | MM       | 7/9/05  | 1           | 1-5        |
| 418366          | 7599539          | MM       | 7/9/05  | 100         | >100       |
| 418366          | 7599650          | BM       | 7/9/05  | 250         | >100       |
| 418374          | 7599695          | MM       | 7/9/05  | 100         | >100       |
| 418377          | 7599592          | MM       | 7/9/05  | 6           | 6-20       |
| 418389          | 7599498          | MM       | 7/9/05  | 100         | >100       |
| 418453          | 7599212          | RO       | 10/8/05 | scattered   | 6-20       |
| 418473          | 7598657          | MM       | 10/8/05 | 1           | 1-5        |
| 418477          | 7599103          | BM       | 10/8/05 | 20          | 6-20       |
| 418483          | 7599160          | RO       | 10/8/05 | scattered   | 6-20       |
| 418497          | 7599129          | RO       | 10/8/05 | scattered   | 6-20       |
| 418499          | 7599061          | BM       | 10/8/05 | 3           | 1-5        |
| 418501          | 7599362          | MM       | 10/8/05 | 100         | >100       |
| 418538          | 7599350          | BM       | 10/8/05 | 150         | >100       |
| 418541          | 7599052          | RO       | 10/8/05 | scattered   | 6-20       |
| 418548          | 7598811          | BM       | 10/8/05 | 1           | 1-5        |
| 418550          | 7599203          | RO       | 10/8/05 | scattered   | 6-20       |
| 418559          | 7598955          | BM       | 10/8/05 | 5           | 1-5        |
| 418573          | 7598957          | RO       | 10/8/05 | scattered   | 6-20       |
| 418598          | 7598666          | BM       | 10/8/05 | 1           | 1-5        |
| 418605          | 7599256          | BM       | 10/8/05 | 100         | >100       |
| 418609          | 7599015          | RO       | 10/8/05 | scattered   | 6-20       |
| 418613          | 7598801          | RO       | 10/8/05 | scattered   | 6-20       |
| 418621          | 7598779          | RO       | 10/8/05 | scattered   | 6-20       |
| 418626          | 7598981          | RO       | 10/8/05 | scattered   | 6-20       |
| 418633          | 7598930          | RO       | 10/8/05 | scattered   | 6-20       |
| 418638          | 7598721          | RO       | 10/8/05 | scattered   | 6-20       |
| 418639          | 7598895          | RO       | 10/8/05 | scattered   | 6-20       |
| 418651          | 7598826          | RO       | 10/8/05 | scattered   | 6-20       |
| 418667          | 7599400          | MM       | 10/8/05 | 1           | 1-5        |
| 418679          | 7599148          | BM       | 10/8/05 | 100         | >100       |
| 418683          | 7599075          | BM       | 10/8/05 | 50          | 21-99      |
| 418683          | 7599383          | MM       | 10/8/05 | 2           | 1-5        |
| 418687          | 7598729          | RO       | 10/8/05 | scattered   | 6-20       |
| 418705          | 7599351          | MM       | 10/8/05 | 2           | 1-5        |
| 418713          | 7597363          | MyM      | 9/7/05  | 1           | 1-5        |
| 418713          | 7598691          | RO       | 10/8/05 | scattered   | 6-20       |
| 418714          | 7598892          | BM       | 10/8/05 | 50          | 21-99      |
| 418715          | 7598975          | BM       | 10/8/05 | 200         | >100       |
| 418722          | 7598678          | RO       | 10/8/05 | scattered   | 6-20       |
| 418725          | 7598650          | RO       | 9/7/05  | 10          | 6-20       |
| 418738          | 7598661          | RO       | 10/8/05 | 15          | 6-20       |
| 418750          | 7598803          | BM       | 10/8/05 | 100         | >100       |
| 418752          | 7598744          | BM       | 10/8/05 | 10          | 6-20       |
| 418765          | 7599193          | MM       | 10/8/05 | 5           | 1-5        |
| 418785          | 7597667          | BM       | 9/7/05  | scattered   | 6-20       |
| 418787          | 7598679          | BM       | 10/8/05 | 9           | 6-20       |
| 418811          | 7599045          | MM       | 10/8/05 | 5           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|---------|-------------|------------|-------------|
| 418821          | 7597152          | BM       | 9/7/05  | 1           | 1-5        |             |
| 418825          | 7598997          | MM       | 10/8/05 | 9           | 6-20       |             |
| 418827          | 7597091          | RO       | 9/7/05  | 1           | 1-5        |             |
| 418844          | 7598922          | MM       | 10/8/05 | 10          | 6-20       |             |
| 418848          | 7598874          | MM       | 10/8/05 | 100         | >100       |             |
| 418855          | 7596535          | RO       | 9/7/05  | 1           | 1-5        |             |
| 418860          | 7598672          | MM       | 10/8/05 | 1           | 1-5        |             |
| 418861          | 7596988          | RO       | 9/7/05  | 1           | 1-5        |             |
| 418862          | 7598846          | MM       | 10/8/05 | 100         | >100       |             |
| 418863          | 7596457          | RO       | 9/7/05  | 20          | 6-20       |             |
| 418867          | 7596641          | RO       | 9/7/05  | 5           | 1-5        |             |
| 418868          | 7598687          | MM       | 10/8/05 | 10          | 6-20       |             |
| 418872          | 7598804          | MM       | 10/8/05 | 100         | >100       |             |
| 418881          | 7598780          | MM       | 10/8/05 | 100         | >100       |             |
| 418892          | 7598737          | MM       | 10/8/05 | 50          | 21-99      |             |
| 418899          | 7598706          | MM       | 10/8/05 | 20          | 6-20       |             |
| 418899          | 7598716          | MM       | 10/8/05 | 5           | 1-5        |             |
| 418900          | 7596737          | RO       | 9/7/05  | 1           | 1-5        |             |
| 418900          | 7597831          | RO       | 9/7/05  | scattered   | 6-20       |             |
| 418916          | 7596873          | RO       | 9/7/05  | 30          | 21-99      |             |
| 418917          | 7597396          | RO       | 9/7/05  | 300+        | >100       |             |
| 418928          | 7597090          | RO       | 9/7/05  | 50          | 21-99      |             |
| 418944          | 7597065          | RO       | 9/7/05  | 25          | 21-99      |             |
| 418974          | 7599224          | MyM      | 5/7/05  | 20          | 6-20       |             |
| 418977          | 7596112          | RO       | 9/7/05  | 10          | 6-20       |             |
| 418998          | 7596775          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419002          | 7597074          | RO       | 9/7/05  | 500+        | >100       |             |
| 419018          | 7596325          | RO       | 9/7/05  | scattered   | 6-20       |             |
| 419021          | 7595929          | RO       | 9/7/05  | 25          | 21-99      |             |
| 419042          | 7599374          | BM       | 10/8/05 | 3           | 1-5        |             |
| 419044          | 7596666          | RO       | 9/7/05  | 25          | 21-99      |             |
| 419044          | 7599488          | BM       | 10/8/05 | 3           | 1-5        |             |
| 419051          | 7599436          | RO       | 10/8/05 | 4           | 1-5        |             |
| 419054          | 7599212          | MyM      | 5/7/05  | 3           | 1-5        |             |
| 419061          | 7596216          | RO       | 9/7/05  | 12+         | 6-20       |             |
| 419062          | 7596501          | RO       | 9/7/05  | 4           | 1-5        |             |
| 419066          | 7598806          |          |         | 3-4%        | 21-99      |             |
| 419068          | 7599413          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419074          | 7595774          | MyM      | 9/7/05  | 20          | 6-20       |             |
| 419075          | 7596140          | RO       | 9/7/05  | scattered   | 6-20       |             |
| 419078          | 7596572          | RO       | 9/7/05  | 50          | 21-99      |             |
| 419081          | 7599394          | RO       | 10/8/05 | 3           | 1-5        |             |
| 419089          | 7599495          | BM       | 10/8/05 | 1           | 1-5        |             |
| 419096          | 7599384          | RO       | 10/8/05 | 4           | 1-5        |             |
| 419100          | 7596396          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419114          | 7596253          | RO       | 9/7/05  | 1           | 1-5        |             |
| 419120          | 7598765          | RO       | 5/7/05  | 1           | 1-5        | 2MATC-50    |
| 419122          | 7599374          | RO       | 10/8/05 | 2           | 1-5        |             |
| 419134          | 7595929          | RO       | 9/7/05  | 10          | 6-20       |             |
| 419137          | 7595870          | MyM      | 9/7/05  | 20          | 6-20       |             |
| 419140          | 7595607          | MyM      | 9/7/05  | 20          | 6-20       |             |
| 419144          | 7596242          | RO       | 9/7/05  | 2           | 1-5        |             |
| 419147          | 7595521          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419147          | 7599377          | RO       | 10/8/05 | 1           | 1-5        |             |
| 419188          | 7595582          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419205          | 7595859          | MyM      | 9/7/05  | scattered   | 6-20       |             |
| 419213          | 7595644          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419247          | 7595499          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419252          | 7595971          |          |         | +           | 6-20       |             |
| 419304          | 7595261          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419306          | 7595319          | MyM      | 9/7/05  | 3           | 1-5        |             |
| 419326          | 7595471          | MyM      | 9/7/05  | 5           | 1-5        |             |
| 419336          | 7595928          | BM       | 9/7/05  | 1           | 1-5        |             |
| 419352          | 7595249          | MyM      | 9/7/05  | 2           | 1-5        |             |
| 419355          | 7595363          | MyM      | 9/7/05  | 1           | 1-5        |             |
| 419364          | 7595713          | MyM      | 9/7/05  | 5           | 1-5        |             |
| 419417          | 7595235          | MyM      | 9/7/05  | 10+         | 6-20       |             |
| 419455          | 7595369          | MyM      | 9/7/05  | 3           | 1-5        |             |
| 419479          | 7594580          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419497          | 7594538          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419507          | 7595753          | MyM      | 9/7/05  | 10          | 6-20       |             |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ | SPECIMEN_NO |
|-----------------|------------------|----------|---------|-------------|------------|-------------|
| 419509          | 7594501          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419543          | 7595299          | MyM      | 9/7/05  | 3           | 1-5        |             |
| 419546          | 7594469          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419591          | 7594573          | RO       | 8/7/05  | 5           | 1-5        |             |
| 419613          | 7595096          | MyM      | 8/7/05  | 2           | 1-5        |             |
| 419618          | 7594274          | RO       | 8/7/05  | 15          | 6-20       |             |
| 419620          | 7595282          | BM       | 9/7/05  | 20          | 6-20       |             |
| 419622          | 7594548          | RO       | 8/7/05  | 2           | 1-5        |             |
| 419628          | 7594329          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419634          | 7595406          | MyM      | 9/7/05  | 4           | 1-5        |             |
| 419645          | 7595368          | MyM      | 9/7/05  | 5           | 1-5        |             |
| 419650          | 7595069          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419654          | 7595302          | MyM      | 9/7/05  | 100+        | >100       |             |
| 419658          | 7598979          | RO       | 4/7/05  | 2           | 1-5        | 2MATC-24    |
| 419661          | 7594285          | RO       | 8/7/05  | 5           | 1-5        |             |
| 419671          | 7595107          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 419675          | 7594618          | BM       | 8/7/05  | 1           | 1-5        |             |
| 419700          | 7594573          | RO       | 8/7/05  | 1           | 1-5        |             |
| 419701          | 7594242          | RO       | 8/7/05  | 20          | 6-20       |             |
| 419702          | 7594557          | RO       | 8/7/05  | 1           | 1-5        |             |
| 419705          | 7594753          |          |         | +           | 6-20       |             |
| 419705          | 7595039          | MyM      | 8/7/05  | 50+         | 21-99      |             |
| 419708          | 7595143          | MyM      | 9/7/05  | 5           | 1-5        |             |
| 419717          | 7594642          | BM       | 8/7/05  | 1           | 1-5        |             |
| 419726          | 7594917          | RO       | 8/7/05  | 10          | 6-20       |             |
| 419746          | 7594174          | RO       | 8/7/05  | 40          | 21-99      |             |
| 419756          | 7594376          | RO       | 8/7/05  | 10          | 6-20       |             |
| 419757          | 7594241          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 419767          | 7594766          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419768          | 7594181          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419823          | 7594453          | RO       | 8/7/05  | scattered   | 6-20       |             |
| 419826          | 7594732          | MyM      | 8/7/05  | 5           | 1-5        |             |
| 419851          | 7594622          | RO       | 8/7/05  | 10          | 6-20       |             |
| 419864          | 7594687          | RO       | 8/7/05  | 5           | 1-5        |             |
| 419868          | 7594736          | RO       | 8/7/05  | 2           | 1-5        |             |
| 419881          | 7594482          | RO       | 8/7/05  | 5           | 1-5        |             |
| 419909          | 7594559          | RO       | 8/7/05  | 4           | 1-5        |             |
| 420008          | 7594329          | RO       | 8/7/05  | 1           | 1-5        |             |
| 420034          | 7594233          | MyM      | 8/7/05  | 5           | 1-5        |             |
| 420035          | 7594340          | RO       | 8/7/05  | 3           | 1-5        |             |
| 420091          | 7594437          | RO       | 8/7/05  | 1           | 1-5        |             |
| 420123          | 7594348          | RO       | 8/7/05  | 4           | 1-5        |             |
| 420287          | 7594352          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 420309          | 7594291          | MyM      | 8/7/05  | 1           | 1-5        |             |
| 420367          | 7594356          | MyM      | 8/7/05  | 5           | 1-5        |             |
| 420435          | 7594394          | RO       | 8/7/05  | 1           | 1-5        |             |
| 421805          | 7599232          | MyM      | 7/7/05  | 9           | 6-20       |             |
| 421906          | 7599022          |          |         | +           | 6-20       |             |
| 422002          | 7599143          | BM       | 6/7/05  | 1           | 1-5        |             |
| 423013          | 7591421          |          |         | +           | 6-20       |             |
| 423164          | 7599660          | BM       | 7/7/05  | 1           | 1-5        |             |
| 423171          | 7599656          | MyM      | 7/7/05  | 1           | 1-5        |             |
| 423234          | 7591607          | MM       | 30/4/05 | 2           | 1-5        |             |
| 423236          | 7591397          | MM       | 30/4/05 | 2           | 1-5        |             |
| 423250          | 7591442          | MM       | 30/4/05 | 5           | 1-5        |             |
| 423269          | 7591610          | MM       | 30/4/05 | 1           | 1-5        |             |
| 423274          | 7599502          | MyM      | 7/7/05  | 1           | 1-5        |             |
| 423751          | 7597975          | MyM      | 16/9/05 | 1           | 1-5        |             |
| 424218          | 7597565          | MM       | 16/9/05 | 3           | 1-5        |             |
| 424342          | 7597645          | MM       | 16/9/05 | 1           | 1-5        |             |
| 424435          | 7597742          | MM       | 16/9/05 | 1           | 1-5        |             |
| 424697          | 7600112          | BM       | 7/7/05  | 3           | 1-5        |             |
| 424749          | 7600172          | BM       | 7/7/05  | 7           | 6-20       |             |
| 424798          | 7598554          | MM       | 16/9/05 | 1           | 1-5        |             |
| 424809          | 7598540          | MM       | 16/9/05 | 5           | 1-5        |             |
| 424825          | 7598588          | MM       | 16/9/05 | 6           | 6-20       |             |
| 424836          | 7598592          | MM       | 16/9/05 | 1           | 1-5        |             |
| 424838          | 7598570          | MM       | 16/9/05 | 6           | 6-20       |             |
| 424849          | 7598558          | MM       | 16/9/05 | 8           | 6-20       |             |
| 424850          | 7598590          | MM       | 16/9/05 | 15          | 6-20       |             |
| 424864          | 7598713          | MM       | 16/9/05 | 3           | 1-5        |             |

**Sida sp. Wittenoom (W.R. Barker 1962) (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_INDS | POPN_SIZE_ |
|-----------------|------------------|----------|---------|-------------|------------|
| 424876          | 7600252          | BM       | 7/7/05  | 2           | 1-5        |
| 424877          | 7598609          | MM       | 16/9/05 | 5           | 1-5        |
| 424891          | 7600315          | BM       | 7/7/05  | 4           | 1-5        |
| 424905          | 7598744          | MM       | 16/9/05 | 20          | 6-20       |
| 424906          | 7598622          | MM       | 16/9/05 | 10          | 6-20       |
| 424927          | 7598719          | MM       | 16/9/05 | 5           | 1-5        |
| 424950          | 7598687          | MM       | 16/9/05 | 20          | 6-20       |
| 424960          | 7598677          | MM       | 16/9/05 | 3           | 1-5        |
| 424963          | 7599820          | RO       | 7/7/05  | 2           | 1-5        |
| 424973          | 7599907          | RO       | 7/7/05  | 1           | 1-5        |
| 425000          | 7599937          | RO       | 7/7/05  | 8           | 6-20       |
| 425029          | 7599907          | MyM      | 7/7/05  | 2           | 1-5        |
| 425048          | 7599935          | MyM      | 7/7/05  | 7           | 6-20       |
| 425056          | 7600046          | MyM      | 7/7/05  | 3           | 1-5        |
| 425142          | 7600015          | MyM      | 7/7/05  | 5           | 1-5        |
| 425166          | 7600218          | RO       | 7/7/05  | 1           | 1-5        |
| 425196          | 7600134          | RO       | 7/7/05  | 1           | 1-5        |
| 425291          | 7600319          | RO       | 7/7/05  | 2           | 1-5        |

**Sida sp. Wittenoom (W.R. Barker 1962) (additional locations recorded by B. Morgan)**

| EASTING_(WGS84) | NORTHING_(WGS84) | NO._OF_INDS | POPN_SIZE |
|-----------------|------------------|-------------|-----------|
| 378082          | 7606257          | 5           | 1-5       |
| 378082          | 7606259          | 5           | 1-5       |
| 378081          | 7606357          | 1           | 1-5       |
| 378180          | 7606259          | 2           | 1-5       |
| 378186          | 7605999          | 3           | 1-5       |
| 378190          | 7605959          | 2           | 1-5       |
| 378299          | 7605872          | 2           | 1-5       |
| 378288          | 7605996          | 2           | 1-5       |
| 378282          | 7606205          | 1           | 1-5       |
| 378403          | 7605511          | 2           | 1-5       |
| 378587          | 7606039          | 5           | 1-5       |
| 378559          | 7606979          | 1           | 1-5       |
| 378563          | 7607002          | 1           | 1-5       |
| 378461          | 7606889          | 5           | 1-5       |
| 378456          | 7606886          | 1           | 1-5       |
| 378461          | 7606885          | 5           | 1-5       |
| 378801          | 7605832          | 1           | 1-5       |
| 378792          | 7605832          | 1           | 1-5       |
| 378660          | 7607058          | 1           | 1-5       |
| 378664          | 7606881          | 1           | 1-5       |
| 378668          | 7606732          | 1           | 1-5       |
| 378895          | 7605779          | 1           | 1-5       |
| 378895          | 7605760          | 1           | 1-5       |
| 378984          | 7605699          | 1           | 1-5       |
| 378989          | 7605699          |             | 1-5       |
| 378075          | 7606292          | 2           | 1-5       |
| 378078          | 7606449          | 3           | 1-5       |
| 378171          | 7606348          |             | 1-5       |
| 378182          | 7605947          | 3           | 1-5       |
| 378185          | 7605933          |             | 1-5       |
| 378190          | 7605879          |             | 1-5       |
| 378197          | 7605679          |             | 1-5       |
| 378197          | 7605617          | 1           | 1-5       |
| 378202          | 7605583          | 1           | 1-5       |

**Sida sp. Wittenoom (W.R. Barker 1962) (additional locations recorded by Pilbara Iron)**

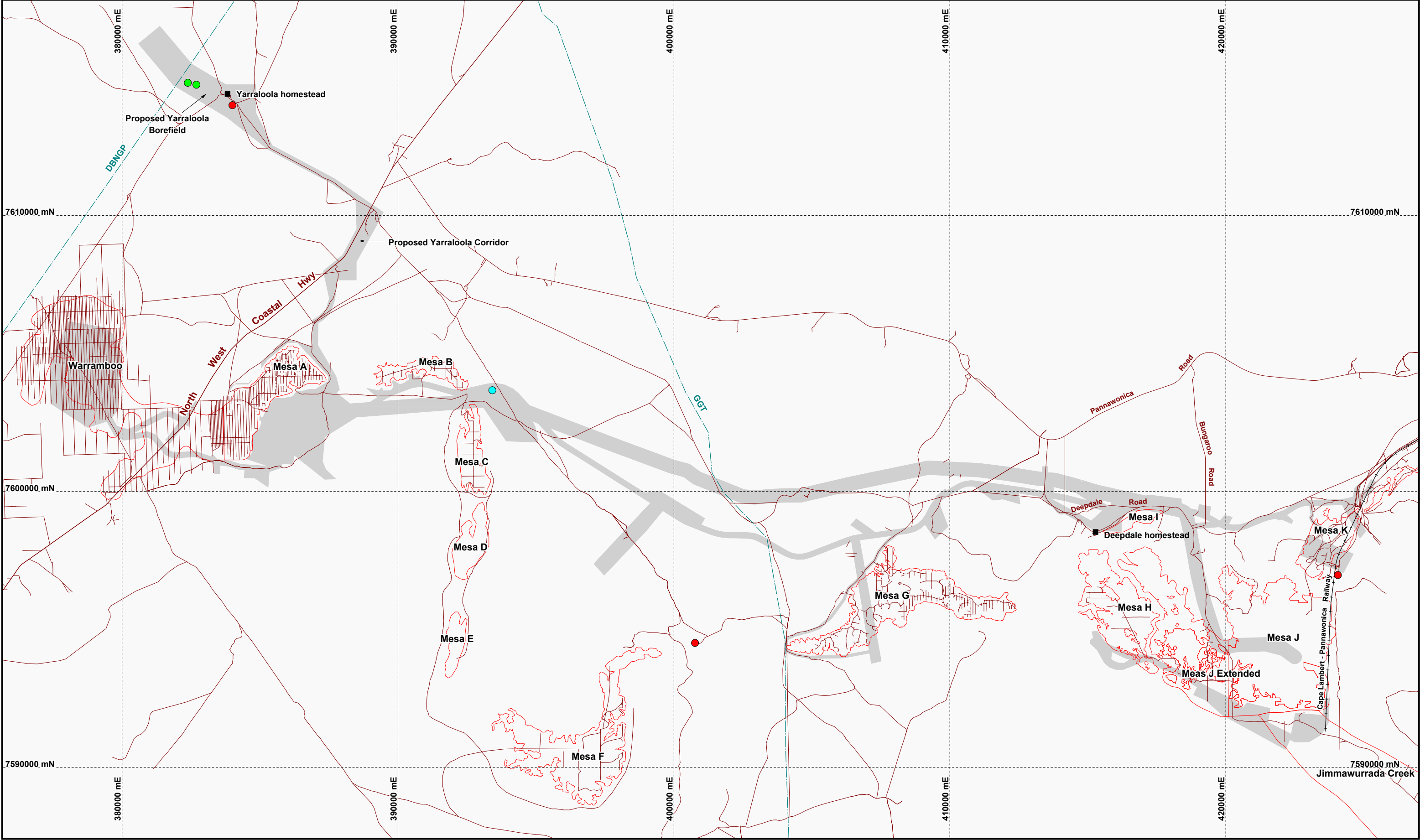
| EASTING_(WGS84) | NORTHING_(WGS84) | NO_INDS | POPN_SIZE |
|-----------------|------------------|---------|-----------|
| 378048          | 7605337          | 1       | 1-5       |
| 379807          | 7605921          | 1       | 1-5       |
| 379414          | 7605901          |         | 1-5       |
| 377387          | 7606245          | 2       | 1-5       |
| 377488          | 7605726          | 20      | 6-20      |
| 377014          | 7604943          | 5       | 1-5       |
| 376933          | 7604634          | 50      | 21-99     |
| 377018          | 7605153          |         | 1-5       |
| 377422          | 7605116          |         | 1-5       |
| 379900          | 7605332          |         | 1-5       |
| 379811          | 7605067          |         | 1-5       |
| 379700          | 7605564          |         | 1-5       |
| 379497          | 7605778          |         | 1-5       |

**Sida sp. Wittenoom (W.R. Barker 1962) (additional locations recorded by Pilbara Iron) (continued)**

| EASTING_ (WGS84) | NORTHING_ (WGS84) | NO_INDS | POPN_SIZE |
|------------------|-------------------|---------|-----------|
| 379387           | 7605806           |         | 1-5       |
| 379491           | 7602945           |         | 1-5       |

**Triodia sp. nov.**

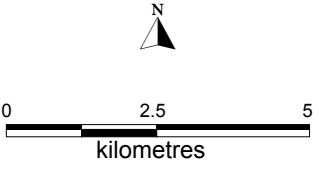
| EASTING_ (WGS84) | NORTHING_ (WGS84) | RECORDER | DATE    | NO_OF_INDS     | POPN_SIZE | SPECIMEN NO | COMMENTS                      |
|------------------|-------------------|----------|---------|----------------|-----------|-------------|-------------------------------|
| 406603           | 7597708           | BM       | 9/8/05  | scattered      | 6-20      | MATB-91     |                               |
| 406886           | 7597262           | MM       | 9/8/05  | 20             | 6-20      | MATRM-50    |                               |
| 407010           | 7596640           | MM       | 9/8/05  | scattered      | 6-20      |             |                               |
| 407056           | 7596278           | MM       | 9/8/05  | 1              | 1-5       |             |                               |
| 410196           | 7600772           | MM       | 8/8/05  | 1              | 1-5       | MATHM-61    |                               |
| 416156           | 7598761           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416158           | 7598729           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416168           | 7598788           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416195           | 7598808           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416197           | 7598839           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416209           | 7598881           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 416214           | 7593573           | MM       | 3/5/05  | scattered      | 6-20      |             |                               |
| 416237           | 7594257           | MM       | 3/5/05  | scattered      | 6-20      |             |                               |
| 416457           | 7594055           |          |         | 2-3%           | 21-99     |             |                               |
| 417261           | 7599323           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 417279           | 7599327           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 417428           | 7599314           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 417478           | 7599271           | MM       | 8/9/05  | scattered      | 6-20      |             |                               |
| 418328           | 7599126           | MM       | 10/8/05 | 10             | 6-20      |             |                               |
| 418362           | 7599016           | MM       | 10/8/05 | 3              | 1-5       |             |                               |
| 418407           | 7598970           | MM       | 10/8/05 | 10             | 6-20      |             |                               |
| 418496           | 7598579           | MM       | 10/8/05 | 5              | 1-5       |             |                               |
| 419556           | 7599032           | RO       | 4/7/05  | scattered      | 6-20      |             |                               |
| 420042           | 7594465           | RO       | 8/7/05  | scattered      | 6-20      |             |                               |
| 420302           | 7598832           |          |         | 2-10%          | 21-99     |             |                               |
| 420557           | 7594439           | RO       | 8/7/05  | scattered      | 6-20      |             |                               |
| 421098           | 7591272           | MM       | 28/4/05 | patch          | 6-20      |             |                               |
| 421300           | 7598924           | RO       | 6/7/05  | scattered      | 6-20      |             |                               |
| 421433           | 7591110           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 421497           | 7591075           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 421609           | 7591022           | MM       | 28/4/05 | scattered      | 6-20      | MAT-2       |                               |
| 421645           | 7590992           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 421997           | 7590812           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 422051           | 7590780           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 422244           | 7590807           | MM       | 28/4/05 | scattered      | 6-20      |             |                               |
| 422474           | 7591727           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 422613           | 7591671           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 422721           | 7591623           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 422781           | 7597816           | BM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 422789           | 7597872           | MyM      | 16/9/05 | 50+            | 21-99     |             |                               |
| 422902           | 7591539           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 423067           | 7591012           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 423162           | 7590998           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 423253           | 7598208           | MyM      | 16/9/05 | 1              | 1-5       |             |                               |
| 423276           | 7591112           | MM       | 30/4/05 | scattered      | 6-20      |             |                               |
| 423284           | 7598825           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423326           | 7598167           | MyM      | 16/9/05 | 50+            | 21-99     |             |                               |
| 423601           | 7598054           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423626           | 7597607           | BM       | 16/9/05 | scattered      | 6-20      |             | scattered around edge of mesa |
| 423638           | 7598070           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423689           | 7597643           | MyM      | 16/9/05 | 20+; scattered | 21-99     |             |                               |
| 423724           | 7597974           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423727           | 7597620           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423743           | 7597573           | BM       | 16/9/05 | scattered      | 6-20      |             | scattered around edge of mesa |
| 423759           | 7597485           | MyM      | 16/9/05 | 10+            | 6-20      |             |                               |
| 423767           | 7597270           | MyM      | 16/9/05 | 5+             | 6-20      |             |                               |
| 423773           | 7597566           | MyM      | 16/9/05 | 20+; scattered | 21-99     |             |                               |
| 423780           | 7597242           | MyM      | 16/9/05 | 10+            | 6-20      |             |                               |
| 423787           | 7597627           | MyM      | 16/9/05 | 20+; scattered | 21-99     |             |                               |
| 423810           | 7597683           | MyM      | 16/9/05 | 10+            | 6-20      |             |                               |
| 423823           | 7597649           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423835           | 7597215           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423855           | 7597712           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423869           | 7597325           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |
| 423896           | 7597212           | MM       | 16/9/05 | scattered      | 6-20      |             |                               |



**Weed Species**

-  *Acetosa vesicaria*
-  *Parkinsonia aculeata*
-  *Phoenix dactylifera*

-  Mesa A Transport Corridor survey area
-  Mesa deposit outlines
-  Gas Pipeline

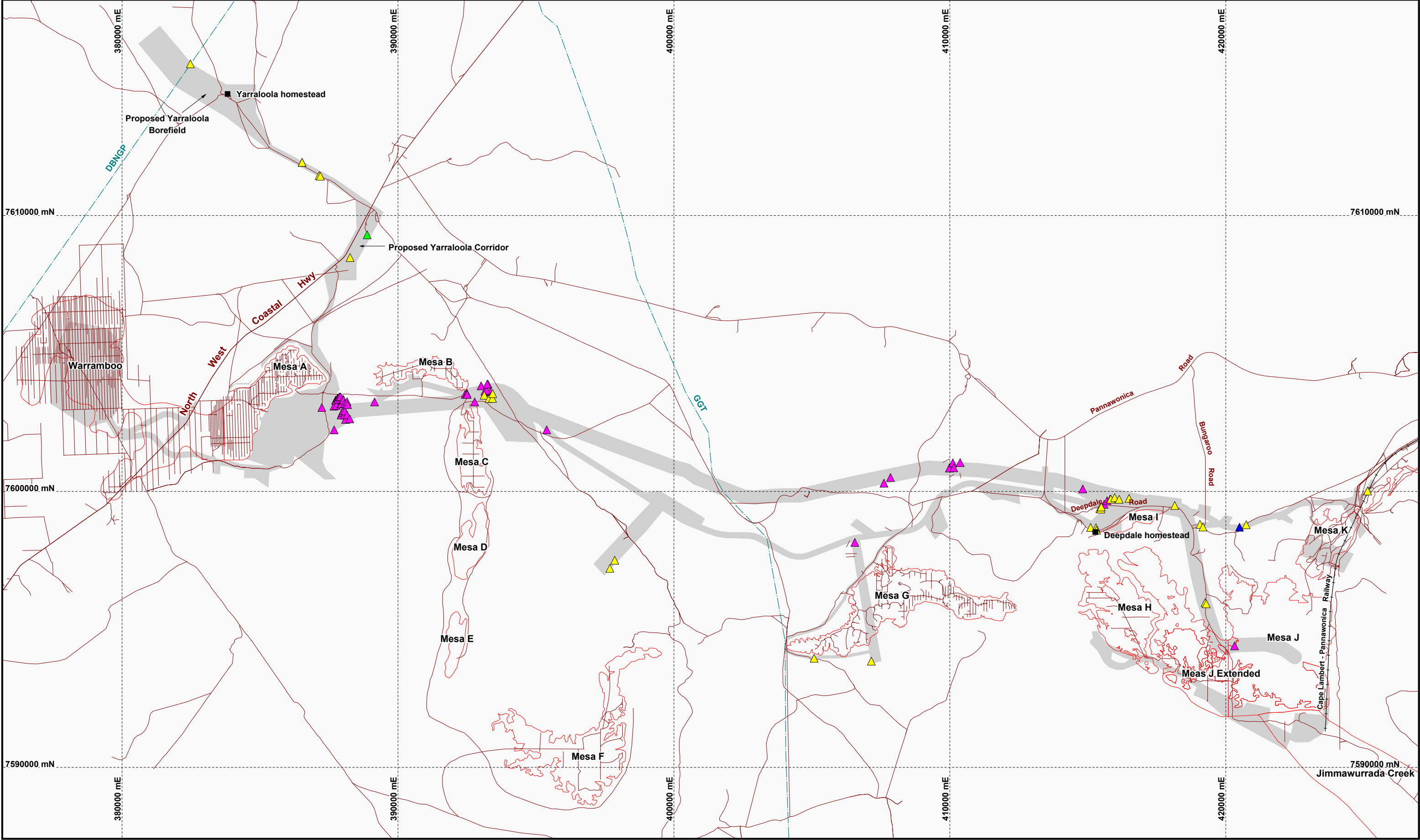




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**Mesa A Transport Corridor**  
*Acetosa vesicaria, Parkinsonia aculeata  
and Phoenix dactylifera*

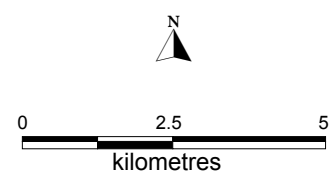
|                         |                          |
|-------------------------|--------------------------|
| Author: M Maier         | Date: 14/12/2005         |
| Drawn: P Sawers         | Revised: 30/01/2006      |
| Job No.: 308            | WS No.: WS 10205 Acetosa |
| Projection: MGA Zone 50 | Scale: 1 : 125,000       |



**Weed Species**

- Aerva javanica* (sparse)
- Aerva javanica* (dense)
- Ocimum bascilicum*
- Setaria verticillata*

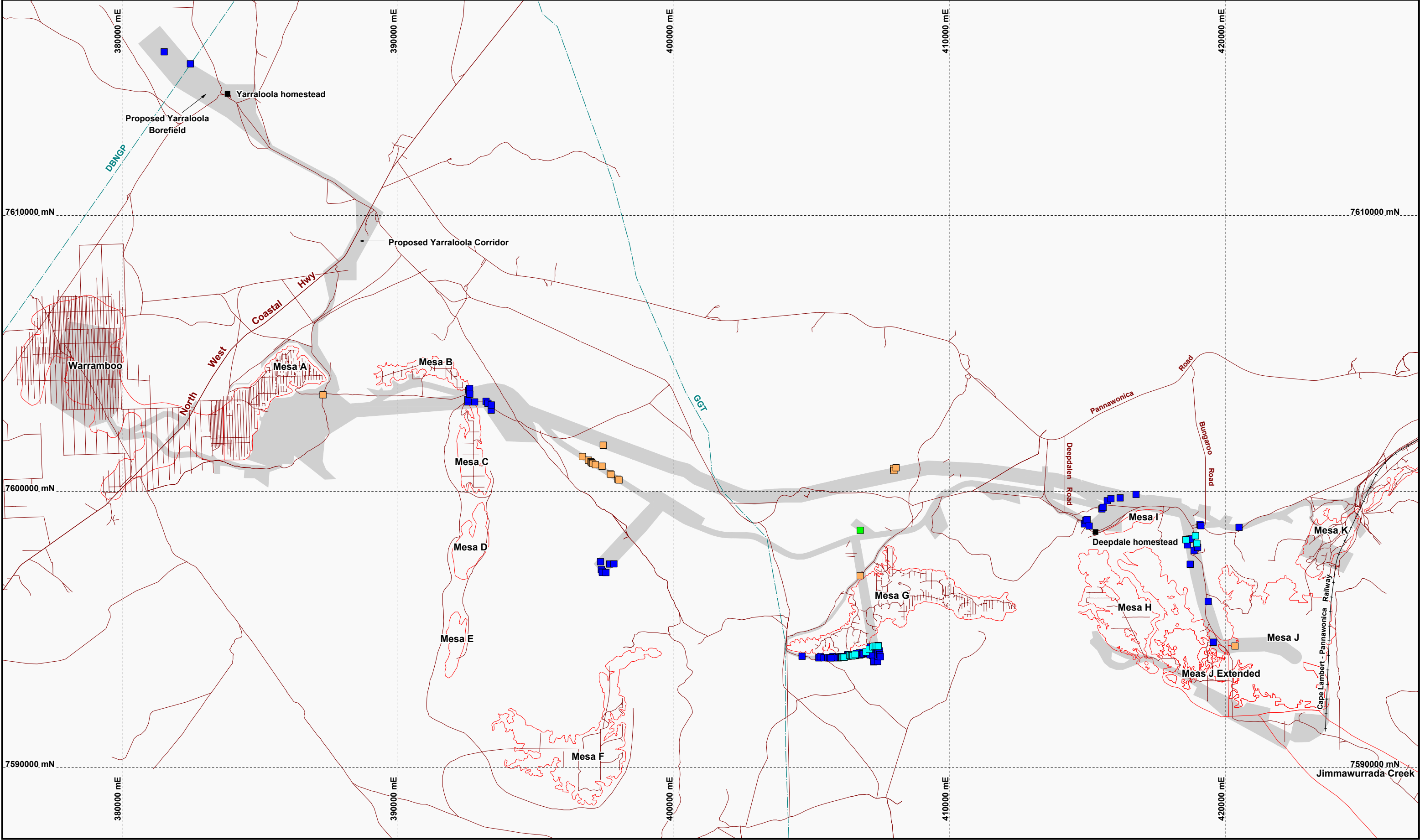
- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline



**BIOTA**  
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**Mesa A Transport Corridor**  
*Aerva javanica*, *Ocimum bascilicum*  
and *Setaria verticillata*

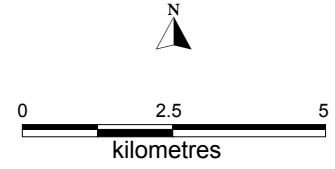
|                         |                        |
|-------------------------|------------------------|
| Author: M Maier         | Date: 14/12/2005       |
| Drawn: P Sawers         | Revised: 30/01/2006    |
| Job No.: 308            | WS No.: WS 10205 Aerva |
| Projection: MGA Zone 50 | Scale: 1 : 125,000     |



**Weed Species**

- *Argemone ochroleuca* subsp. *ochroleuca* (dense)
- *Argemone ochroleuca* subsp. *ochroleuca* (sparse)
- *Bidens bipinnata* (dense)
- *Bidens bipinnata* (sparse)

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline

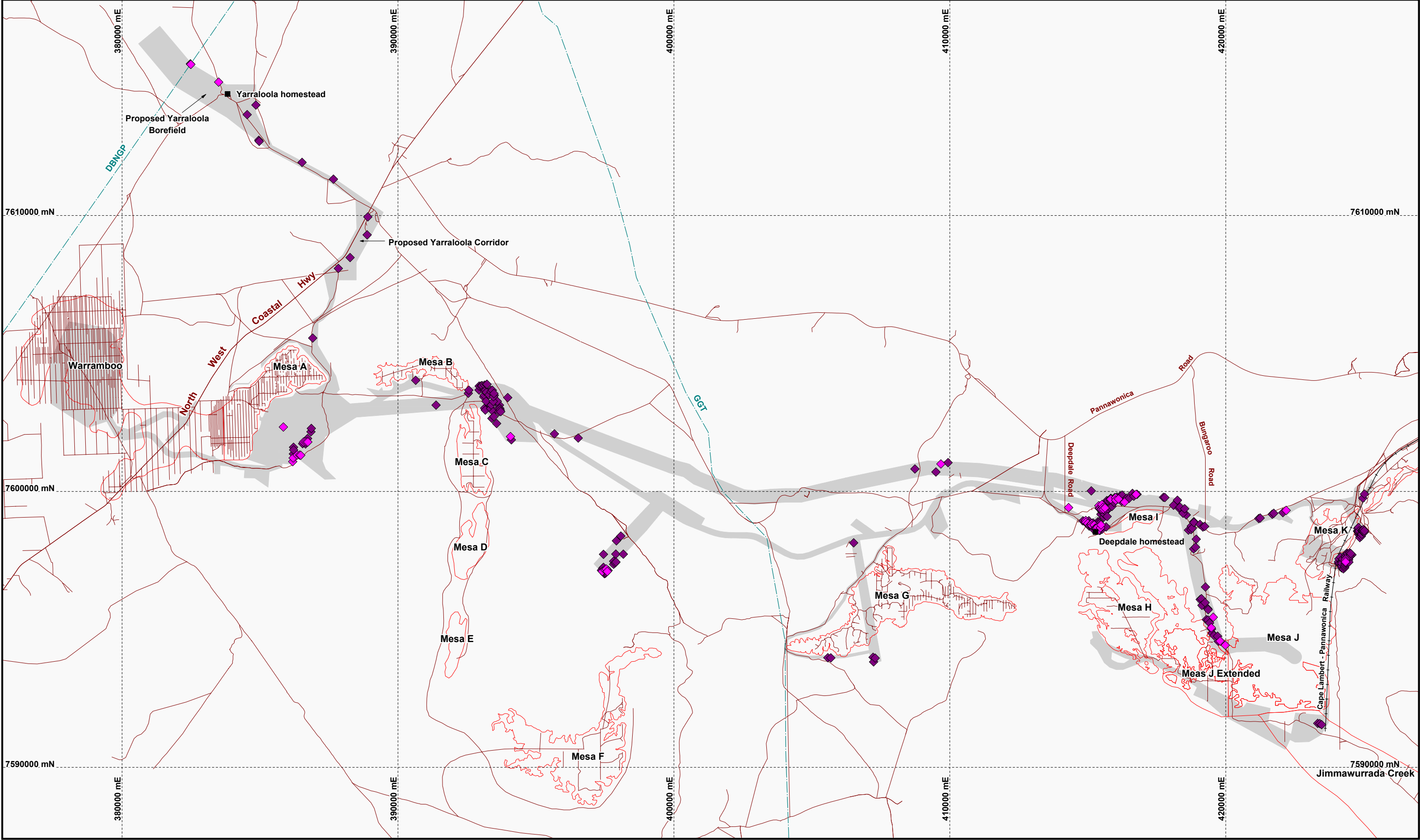




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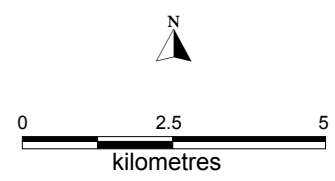
**Mesa A Transport Corridor**  
*Argemone ochroleuca* subsp. *ochroleuca*  
and *Bidens bipinnata*

|                         |                           |
|-------------------------|---------------------------|
| Author: M Maier         | Date: 14/12/2005          |
| Drawn: P Sawers         | Revised: 30/01/2006       |
| Job No.: 308            | WS No.: WS 10205 Argemone |
| Projection: MGA Zone 50 | Scale: 1 : 125,000        |



- Weed Species**
- ◆ *Cenchrus ciliaris* (dense)
  - ◆ *Cenchrus ciliaris* (sparse)

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline

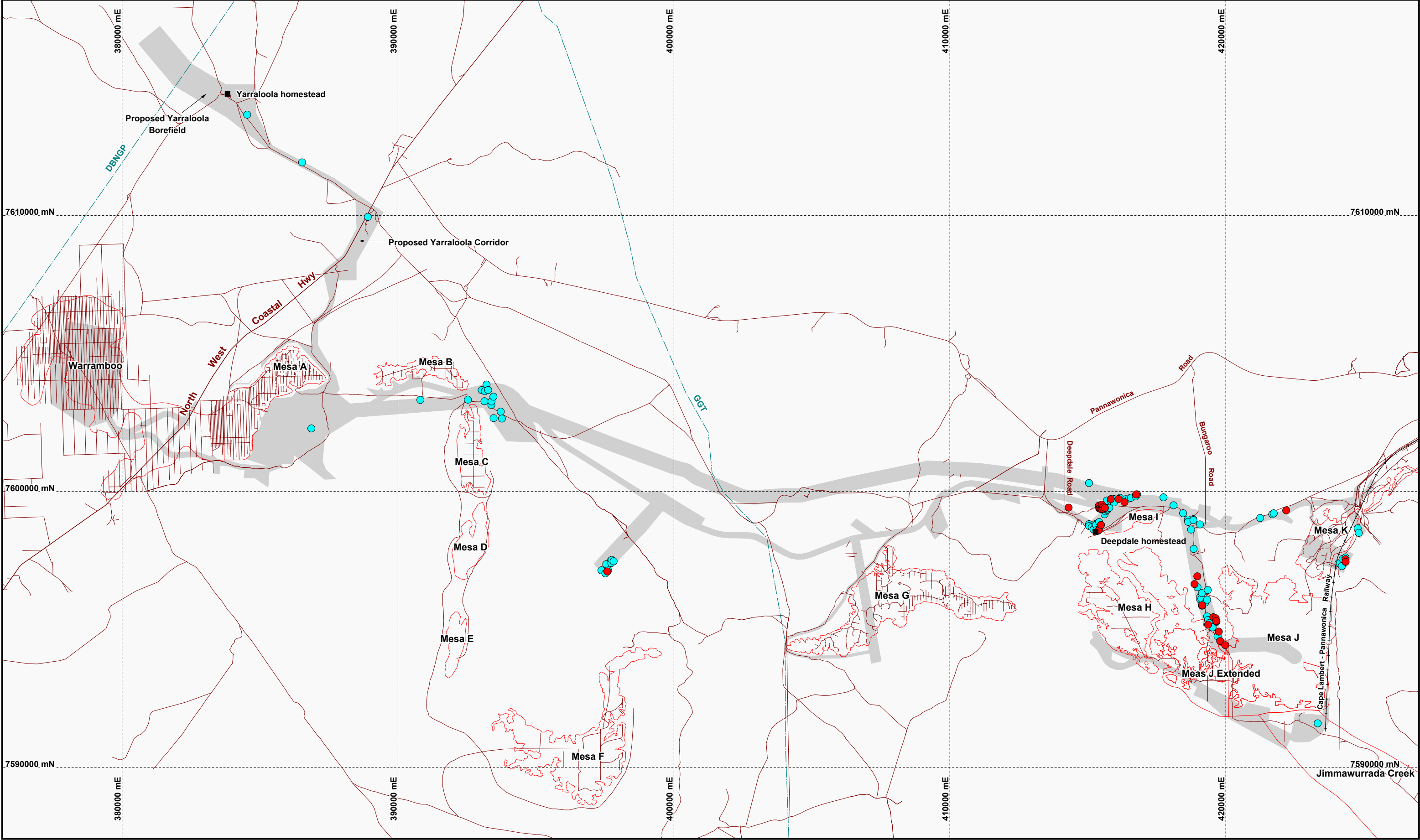




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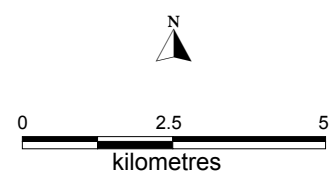
**Mesa A Transport Corridor**  
*Cenchrus ciliaris*

|                         |                               |
|-------------------------|-------------------------------|
| Author: M Maier         | Date: 14/12/2005              |
| Drawn: P Sawers         | Revised: 30/01/2006           |
| Job No.: 308            | WS No.: WS 10205 Cenchrus cil |
| Projection: MGA Zone 50 | Scale: 1 : 125,000            |



- Weed Species**
- *Cenchrus setigerus* (dense)
  - *Cenchrus setigerus* (sparse)

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline

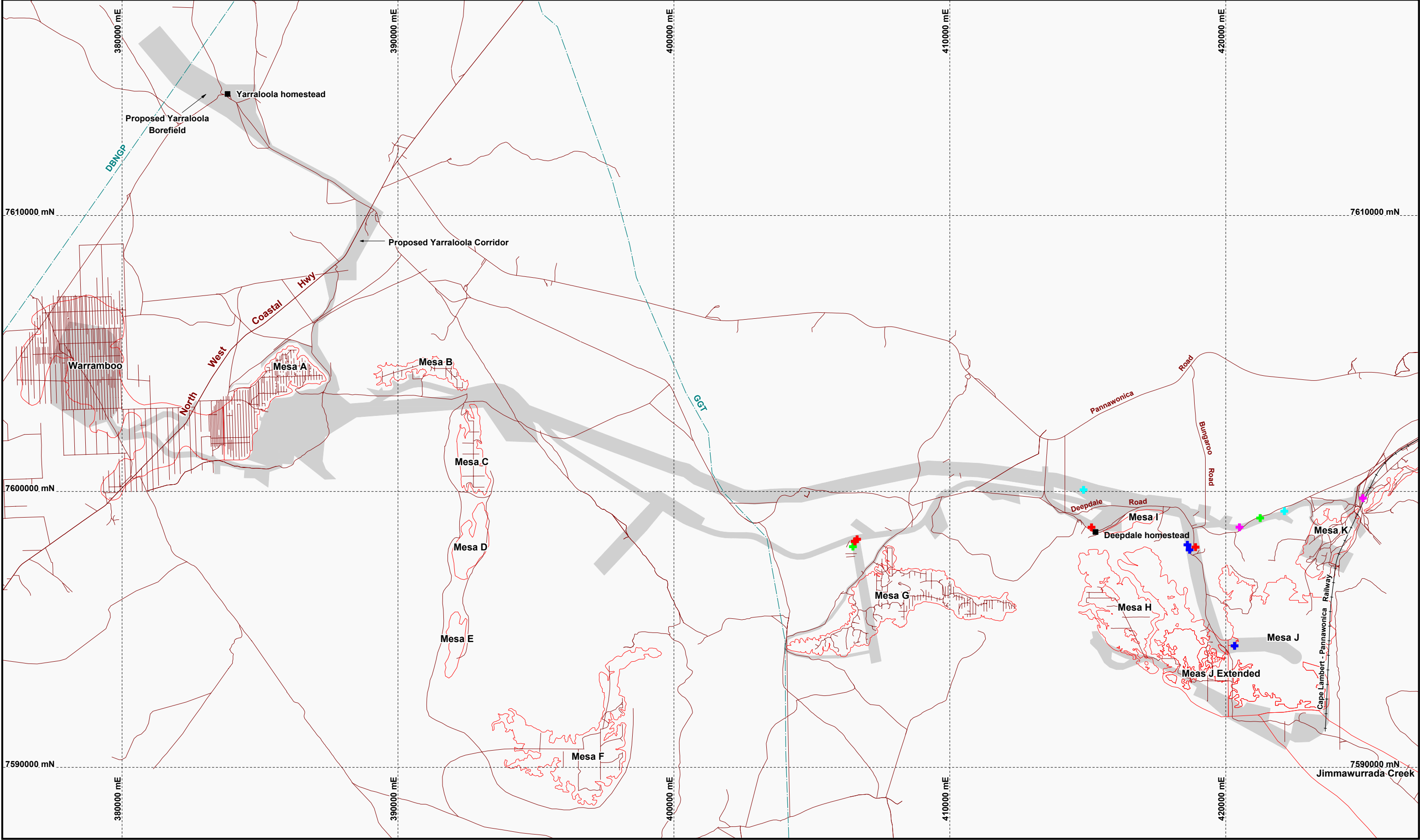




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**Mesa A Transport Corridor**  
*Cenchrus setigerus*

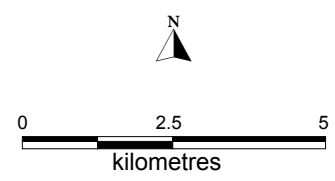
|                         |                               |
|-------------------------|-------------------------------|
| Author: M Maier         | Date: 14/12/2005              |
| Drawn: P Sawers         | Revised: 30/01/2006           |
| Job No.: 308            | WS No.: WS 10205 Cenchrus set |
| Projection: MGA Zone 50 | Scale: 1 : 125,000            |



**Weed Species**

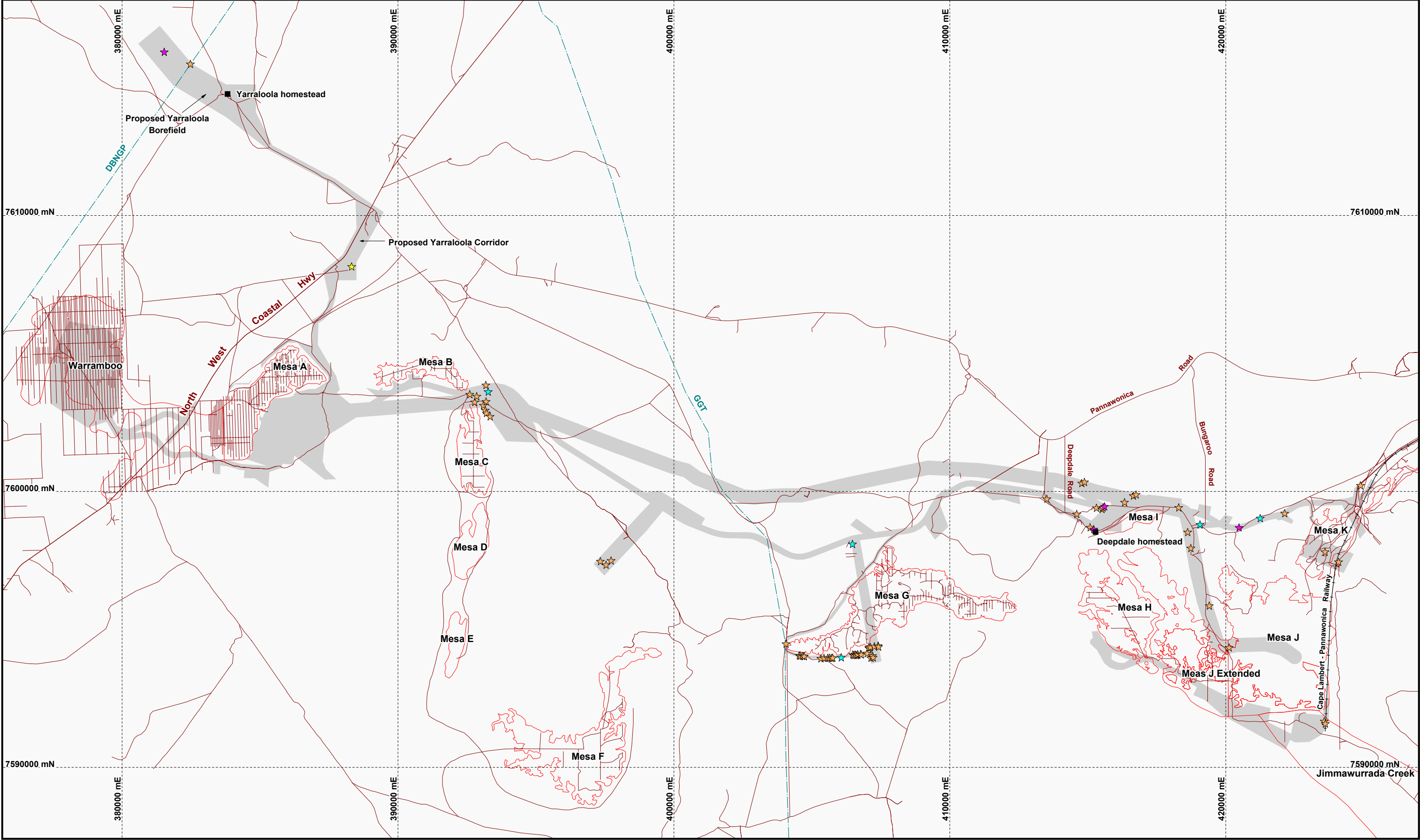
- + *Passiflora foetida*
- + *Melochia pyramidata*
- + *Echinochloa colona*
- + *Chloris barbata*
- + *Sonchus oleraceus*

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline



**Mesa A Transport Corridor**  
*Passiflora foetida, Melochia pyramidata, Echinochloa colona, Chloris barbata, Sonchus oleraceus*

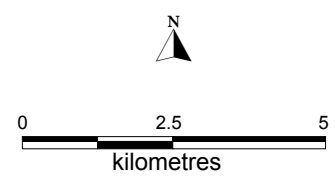
|                         |                          |
|-------------------------|--------------------------|
| Author: M Maier         | Date: 14/12/2005         |
| Drawn: P Sawers         | Revised: 30/01/2006      |
| Job No.: 308            | WS No.: WS 10205 Chloris |
| Projection: MGA Zone 50 | Scale: 1 : 125,000       |



**Weed Types**

- ★ *Euphorbia hirta*
- ★ *Datura leichhardtii*
- ★ *Citrullus colocynthis*
- ★ *Indigofera oblongifolia*

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline

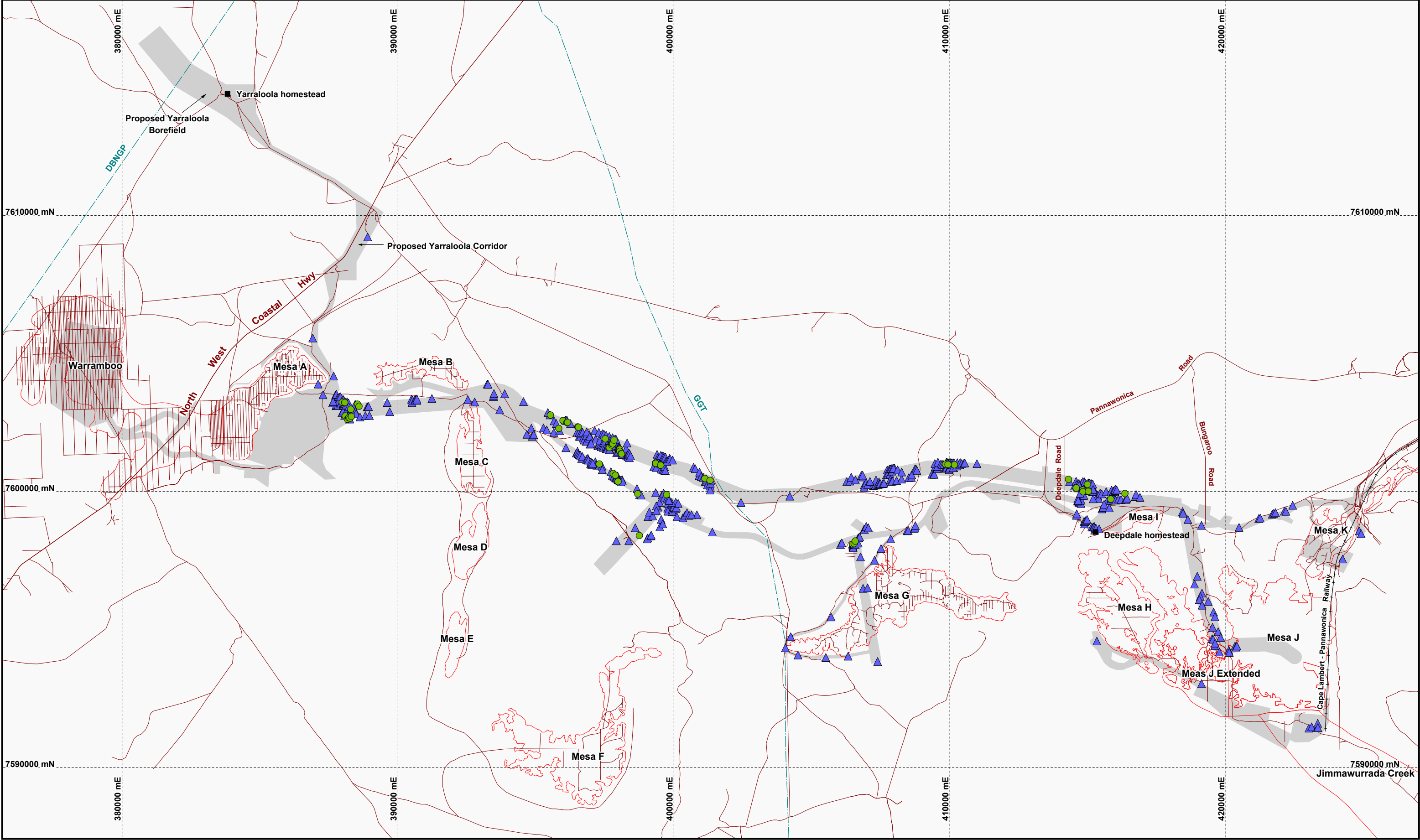




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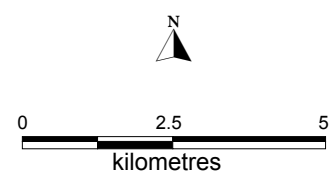
**Mesa A Transport Corridor**  
*Euphorbia hirta, Datura leichhardtii,  
Citrullus colocynthis, Indigofera oblongifolia*

|                         |                            |
|-------------------------|----------------------------|
| Author: M Maier         | Date: 14/12/2005           |
| Drawn: P Sawers         | Revised: 30/01/2006        |
| Job No.: 308            | WS No.: WS 10205 Citrullus |
| Projection: MGA Zone 50 | Scale: 1 : 125,000         |



- Weed Species**
- *Malvastrum americanum* (dense)
  - ▲ *Malvastrum americanum* (sparse)

- Mesa A Transport Corridor survey area
- Mesa deposit outlines
- Gas Pipeline





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**Mesa A Transport Corridor**  
*Malvastrum americanum*

|                         |                             |
|-------------------------|-----------------------------|
| Author: M Maier         | Date: 14/12/2005            |
| Drawn: P Sawers         | Revised: 30/01/2006         |
| Job No.: 308            | WS No.: WS 10205 Malvastrum |
| Projection: MGA Zone 50 | Scale: 1 : 125,000          |

## Locations of Weed Species

• *Acetosa vesicaria*

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE   | NO. OF INDS | DENSITY |
|-----------------|------------------|----------|--------|-------------|---------|
| 393418          | 7603669          | MM       | 4/8/05 | x2; removed | sparse  |

\* *Aerva javanica*

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | NO. OF INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|---------|
| 382475          | 7615498          | RO       | 2/4/05  |             | sparse  |
| 386522          | 7611926          |          |         | +           | sparse  |
| 387143          | 7611450          | BM       | 8/4/05  | 5           | sparse  |
| 387186          | 7611427          | BM       | 8/4/05  | 5           | sparse  |
| 388263          | 7608476          |          |         | +           | sparse  |
| 388882          | 7609300          | RO       | 6/4/05  | 80+         | dense   |
| 393125          | 7603487          | RO       | 4/8/05  | scattered   | sparse  |
| 393297          | 7603365          | BM       | 4/8/05  | 1           | sparse  |
| 393425          | 7603375          | BM       | 4/8/05  | 1           | sparse  |
| 393432          | 7603545          | BM       | 4/8/05  | 1           | sparse  |
| 397681          | 7597213          | MM       | 7/8/05  | scattered   | sparse  |
| 397856          | 7597508          | BM       | 7/8/05  | 1           | sparse  |
| 405081          | 7593955          | MM       | 14/9/05 | 1           | sparse  |
| 407155          | 7593848          | MM       | 14/9/05 | 1           | sparse  |
| 415101          | 7598695          | RO       | 12/8/05 | scattered   | sparse  |
| 415298          | 7598687          | MM       | 8/9/05  | 1           | sparse  |
| 415312          | 7598596          | RO       | 12/8/05 | scattered   | sparse  |
| 415433          | 7599382          | MM       | 12/9/05 | 10          | sparse  |
| 415476          | 7599361          | MM       | 12/9/05 | 10          | sparse  |
| 415490          | 7599438          | MM       | 12/9/05 | 5           | sparse  |
| 415808          | 7599722          | BM       | 6/9/05  | 1           | sparse  |
| 415834          | 7599722          | BM       | 9/9/05  | 1           | sparse  |
| 415975          | 7599777          | BM       | 7/9/05  | 1           | sparse  |
| 416137          | 7599715          | BM       | 7/9/05  | 1           | sparse  |
| 416494          | 7599749          | MM       | 7/9/05  | 1           | sparse  |
| 418150          | 7599492          | MM       | 7/9/05  | 1           | sparse  |
| 419066          | 7598806          |          |         | <1          | sparse  |
| 419172          | 7598711          | MyM      | 5/7/05  | 1           | sparse  |
| 419252          | 7595971          |          |         | +           | sparse  |
| 419294          | 7595929          | BM       | 9/7/05  | 1           | sparse  |
| 420741          | 7598792          | RO       | 6/7/05  | scattered   | sparse  |
| 425142          | 7600015          | MyM      | 7/7/05  | 15          | sparse  |

\* *Argemone ochroleuca* subsp. *ochroleuca*

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | NO. OF INDS | COMMENTS   | DENSITY |
|-----------------|------------------|----------|---------|-------------|------------|---------|
| 381527          | 7615933          | RO       | 2/4/05  |             |            | sparse  |
| 382475          | 7615498          | RO       | 2/4/05  |             |            | sparse  |
| 392530          | 7603244          | MM       | 4/8/05  | 1           |            | sparse  |
| 392534          | 7603327          | RO       | 4/8/05  | scattered   |            | sparse  |
| 392568          | 7603670          | RO       | 4/8/05  | scattered   |            | sparse  |
| 392592          | 7603554          | RO       | 4/8/05  | scattered   |            | sparse  |
| 392596          | 7603729          | MM       | 4/8/05  | scattered   |            | sparse  |
| 392603          | 7603526          | MM       | 4/8/05  | scattered   |            | sparse  |
| 392778          | 7603244          |          |         | <1%         |            | sparse  |
| 393193          | 7603267          |          |         | <1%         |            | sparse  |
| 393261          | 7603194          | MM       | 5/8/05  | scattered   |            | sparse  |
| 393378          | 7602949          | RO       | 5/8/05  | scattered   | seedlings  | sparse  |
| 393386          | 7603133          | MM       | 5/8/05  | scattered   |            | sparse  |
| 397338          | 7597452          | MM       | 7/8/05  | scattered   |            | sparse  |
| 397369          | 7597165          | RO       | 7/8/05  | scattered   | seedlings  | sparse  |
| 397405          | 7597103          | BM       | 7/8/05  | 20          |            | sparse  |
| 397406          | 7597065          | MM       | 7/8/05  | scattered   |            | sparse  |
| 397538          | 7597060          | MM       | 7/8/05  | scattered   |            | sparse  |
| 397671          | 7597370          | BM       | 7/8/05  | 1           |            | sparse  |
| 397827          | 7597374          | MM       | 7/8/05  | scattered   |            | sparse  |
| 404646          | 7594025          | MM       | 6/9/05  | 10          | Burnt area | sparse  |
| 405250          | 7593968          | MM       | 14/9/05 | 2           |            | sparse  |
| 405307          | 7594009          | MyM      | 14/9/05 | 3           |            | sparse  |
| 405438          | 7593970          | MM       | 14/9/05 | scattered   |            | sparse  |
| 405580          | 7593972          | MM       | 14/9/05 | scattered   |            | sparse  |
| 405645          | 7593976          | MM       | 14/9/05 | scattered   |            | sparse  |
| 405687          | 7593968          | MM       | 14/9/05 | scattered   |            | sparse  |
| 405717          | 7593967          | MM       | 14/9/05 | scattered   |            | sparse  |

**\*Argemone ochroleuca subsp. ochroleuca (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | COMMENTS | DENSITY |
|-----------------|------------------|----------|---------|------------|----------|---------|
| 405756          | 7593977          | MM       | 14/9/05 | scattered  |          | sparse  |
| 405765          | 7594019          | MyM      | 14/9/05 | 5          |          | sparse  |
| 405788          | 7593976          | MM       | 14/9/05 | scattered  |          | sparse  |
| 405873          | 7593978          | MM       | 14/9/05 | scattered  |          | sparse  |
| 405908          | 7593993          | MyM      | 14/9/05 | 1          |          | sparse  |
| 405957          | 7593969          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406032          | 7593987          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406045          | 7594013          | MyM      | 14/9/05 | 7          |          | sparse  |
| 406064          | 7593989          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406090          | 7594004          | MyM      | 14/9/05 | 20         |          | sparse  |
| 406110          | 7593980          | MM       | 14/9/05 | hundreds   |          | dense   |
| 406138          | 7594011          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 406147          | 7593987          | MM       | 14/9/05 | hundreds   |          | dense   |
| 406174          | 7593993          | MM       | 14/9/05 | 100+       |          | dense   |
| 406293          | 7594070          | MyM      | 14/9/05 | 10+        |          | sparse  |
| 406300          | 7594080          | BM       | 14/9/05 | 4          |          | sparse  |
| 406315          | 7594028          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406328          | 7594087          | BM       | 14/9/05 | 10         |          | sparse  |
| 406366          | 7594064          | MyM      | 14/9/05 | 100+       |          | dense   |
| 406395          | 7594045          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406396          | 7594072          | BM       | 14/9/05 | 30         |          | sparse  |
| 406427          | 7594056          | MyM      | 14/9/05 | 50+        |          | dense   |
| 406439          | 7594073          | BM       | 14/9/05 | 40         |          | sparse  |
| 406448          | 7594038          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406460          | 7594080          | BM       | 14/9/05 | 50         |          | dense   |
| 406480          | 7594049          | MM       | 14/9/05 | 100        |          | dense   |
| 406517          | 7594056          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406520          | 7594071          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 406569          | 7594093          | MyM      | 14/9/05 | 50+        |          | dense   |
| 406573          | 7594052          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406604          | 7594069          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406613          | 7594129          | BM       | 14/9/05 | 20         |          | sparse  |
| 406660          | 7594103          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 406715          | 7594149          | BM       | 14/9/05 | 20         |          | sparse  |
| 406736          | 7594075          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406764          | 7594111          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 406789          | 7594096          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406835          | 7594166          | BM       | 14/9/05 | 10         |          | sparse  |
| 406857          | 7594114          | MM       | 14/9/05 | scattered  |          | sparse  |
| 406893          | 7594120          | MyM      | 14/9/05 | 25         |          | sparse  |
| 406960          | 7594183          | BM       | 14/9/05 | 50         |          | dense   |
| 406999          | 7594136          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407028          | 7594153          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 407044          | 7594136          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407083          | 7594279          | MM       | 14/9/05 | 80         |          | dense   |
| 407107          | 7594080          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407120          | 7594361          | MyM      | 14/9/05 | 30+        |          | sparse  |
| 407148          | 7594137          | MyM      | 14/9/05 | 20+        |          | sparse  |
| 407199          | 7594052          | MyM      | 14/9/05 | 1          |          | sparse  |
| 407207          | 7594366          | BM       | 14/9/05 | 100        |          | dense   |
| 407238          | 7593822          | MyM      | 14/9/05 | 3          |          | sparse  |
| 407252          | 7593844          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407263          | 7594392          | BM       | 14/9/05 | 50         |          | dense   |
| 407332          | 7594397          | MyM      | 14/9/05 | 50+        |          | dense   |
| 407382          | 7593839          | MyM      | 14/9/05 | 10         |          | sparse  |
| 407390          | 7594143          | MyM      | 14/9/05 | 10+        |          | sparse  |
| 407402          | 7594027          | MyM      | 14/9/05 | 5          |          | sparse  |
| 407402          | 7594415          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407410          | 7594390          | MM       | 14/9/05 | hundreds   |          | dense   |
| 407415          | 7594376          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407445          | 7594167          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407449          | 7594221          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407460          | 7594085          | MM       | 14/9/05 | scattered  |          | sparse  |
| 407483          | 7594010          | MM       | 14/9/05 | scattered  |          | sparse  |
| 414880          | 7598824          | RO       | 12/8/05 | scattered  |          | sparse  |
| 414926          | 7598946          | BM       | 12/8/05 | 1          |          | sparse  |
| 414973          | 7598980          | RO       | 12/8/05 | scattered  |          | sparse  |
| 415050          | 7598744          | RO       | 12/8/05 | scattered  |          | sparse  |
| 415511          | 7599368          | MM       | 12/9/05 | scattered  |          | sparse  |
| 415555          | 7599421          | MM       | 12/9/05 | scattered  |          | sparse  |

**\*Argemone ochroleuca subsp. ochroleuca (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_IND | COMMENTS  | DENSITY |
|-----------------|------------------|----------|--------|------------|-----------|---------|
| 415708          | 7599663          | MM       | 9/9/05 | scattered  |           | sparse  |
| 415840          | 7599741          | MM       | 9/9/05 | scattered  |           | sparse  |
| 416172          | 7599766          | MM       | 7/9/05 | 1          |           | sparse  |
| 416749          | 7599894          | MM       | 7/9/05 | scattered  |           | sparse  |
| 418557          | 7598247          | MyM      | 9/7/05 | 50+        | seedlings | dense   |
| 418611          | 7598065          | MyM      | 9/7/05 | 20+        | seedlings | sparse  |
| 418674          | 7598271          | BM       | 9/7/05 | 15         | seedlings | sparse  |
| 418713          | 7597363          | MyM      | 9/7/05 | 1          |           | sparse  |
| 418748          | 7598282          | RO       | 9/7/05 | scattered  | seedlings | sparse  |
| 418852          | 7597861          | RO       | 9/7/05 | scattered  | seedlings | sparse  |
| 418902          | 7598393          | MyM      | 9/7/05 | 50+        |           | dense   |
| 418956          | 7598116          | MyM      | 9/7/05 | 50+        | seedlings | dense   |
| 418983          | 7597976          | MyM      | 9/7/05 | 20+        | seedlings | sparse  |
| 419066          | 7598806          |          |        | scattered  |           | sparse  |
| 419098          | 7598758          | RO       | 5/7/05 | scattered  |           | sparse  |
| 419366          | 7596012          | MyM      | 9/7/05 | 1          |           | sparse  |
| 419551          | 7594537          | RO       | 8/7/05 | scattered  |           | sparse  |
| 420483          | 7598698          | RO       | 6/7/05 | scattered  |           | sparse  |

**\*Bidens bipinnata**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|-------------|------------|---------|
| 387282          | 7603501          |          |         |             | scattered  | sparse  |
| 396684          | 7601264          | MM       | 14/9/05 |             | scattered  | sparse  |
| 396904          | 7601135          | MM       | 14/9/05 |             | scattered  | sparse  |
| 396990          | 7601074          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397022          | 7601040          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397059          | 7601015          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397155          | 7600969          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397396          | 7600915          | MyM      | 14/9/05 |             | 20+        | sparse  |
| 397440          | 7601675          | BM       | 12/9/05 |             | 10         | sparse  |
| 397691          | 7600636          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397722          | 7600616          | MM       | 14/9/05 |             | scattered  | sparse  |
| 397970          | 7600447          | MM       | 14/9/05 |             | scattered  | sparse  |
| 398011          | 7600413          | MM       | 14/9/05 |             | scattered  | sparse  |
| 406750          | 7596946          |          |         |             | scattered  | sparse  |
| 406754          | 7598592          | BM       | 13/9/05 |             | 300        | dense   |
| 407959          | 7600834          | MM       | 8/8/05  |             | scattered  | sparse  |
| 407977          | 7600757          | BM       | 8/8/05  | MATB-76     | scattered  | sparse  |
| 408053          | 7600858          | MM       | 8/8/05  |             | scattered  | sparse  |
| 420335          | 7594396          | RO       | 8/7/05  |             | scattered  | sparse  |

**\*Cenchrus ciliaris**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND           | COMMENTS           | DENSITY |
|-----------------|------------------|----------|---------|----------------------|--------------------|---------|
| 382475          | 7615498          | RO       | 2/4/05  | scattered            |                    | sparse  |
| 382492          | 7615476          | MM       | 16/9/05 | 70%                  |                    | dense   |
| 383500          | 7614835          | MM       | 16/9/05 | 70%                  |                    | dense   |
| 384534          | 7613655          |          |         | 5-6                  |                    | sparse  |
| 384851          | 7614004          | RO       | 3/4/05  | scattered            |                    | sparse  |
| 384955          | 7612727          | RO       | 5/4/05  | scattered            |                    | sparse  |
| 384969          | 7612688          | RO       | 5/4/05  | scattered            |                    | sparse  |
| 385845          | 7602334          | MM       | 1/5/05  | 30m patch            |                    | dense   |
| 386183          | 7601082          | MM       | 3/5/05  | dense along creek    |                    | dense   |
| 386201          | 7601213          | MM       | 3/5/05  | dense along creek    |                    | dense   |
| 386208          | 7601361          | MM       | 3/5/05  | scattered            | under Corymbia zyg | sparse  |
| 386213          | 7601602          | MM       | 3/5/05  | scattered            | under Corymbia zyg | sparse  |
| 386216          | 7601504          | MM       | 3/5/05  | scattered            | under Corymbia zyg | sparse  |
| 386345          | 7601319          | MM       | 3/5/05  | quite dense          |                    | dense   |
| 386433          | 7601319          | MM       | 3/5/05  | in patches near bore |                    | dense   |
| 386476          | 7601311          | MM       | 3/5/05  | in patches near bore |                    | dense   |
| 386522          | 7611926          |          |         | +                    |                    | sparse  |
| 386545          | 7601731          | MM       | 3/5/05  | scattered            |                    | sparse  |
| 386577          | 7601792          | MM       | 3/5/05  | quite dense          |                    | dense   |
| 386632          | 7601799          | MM       | 3/5/05  | quite dense          |                    | dense   |
| 386650          | 7601720          | MM       | 3/5/05  | scattered            |                    | sparse  |
| 386683          | 7601793          | MM       | 3/5/05  | quite dense          |                    | dense   |
| 386723          | 7601919          | MM       | 3/5/05  | scattered            |                    | sparse  |
| 386731          | 7601793          | MM       | 3/5/05  | quite dense          |                    | dense   |
| 386847          | 7602164          | MM       | 3/5/05  | scattered            |                    | sparse  |
| 386858          | 7602284          | MM       | 1/5/05  | scattered            |                    | sparse  |
| 386910          | 7605560          |          |         | +                    |                    | sparse  |

**\*Cenchrus ciliaris (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND   | DENSITY |
|-----------------|------------------|----------|---------|--------------|---------|
| 387659          | 7611318          |          |         | +            | sparse  |
| 387837          | 7608083          | RO       | 7/4/05  | scattered    | sparse  |
| 388263          | 7608476          |          |         | 1            | sparse  |
| 388882          | 7609300          | RO       | 6/4/05  | scattered    | sparse  |
| 388907          | 7609951          |          |         | +            | sparse  |
| 390642          | 7604028          |          |         | +            | sparse  |
| 391380          | 7603128          | RO       | 4/8/05  | 1            | sparse  |
| 392549          | 7603558          | RO       | 4/8/05  | 1            | sparse  |
| 392568          | 7603670          | RO       | 4/8/05  | scattered    | sparse  |
| 392937          | 7603677          | MM       | 4/8/05  | scattered    | sparse  |
| 392943          | 7603819          | MM       | 11/9/05 | scattered    | sparse  |
| 393011          | 7603826          | MM       | 11/9/05 | scattered    | sparse  |
| 393050          | 7603834          | MM       | 11/9/05 | scattered    | sparse  |
| 393108          | 7603428          | RO       | 4/8/05  | 1            | sparse  |
| 393125          | 7603487          | RO       | 4/8/05  | scattered    | sparse  |
| 393132          | 7603671          | MM       | 4/8/05  | scattered    | sparse  |
| 393136          | 7603854          | MM       | 11/9/05 | scattered    | sparse  |
| 393138          | 7603017          | BM       | 5/8/05  | 1            | sparse  |
| 393147          | 7603630          | MM       | 11/9/05 | scattered    | sparse  |
| 393164          | 7602948          | MM       | 5/8/05  | scattered    | sparse  |
| 393169          | 7603431          | RO       | 4/8/05  | 20           | sparse  |
| 393175          | 7603667          | MM       | 4/8/05  | scattered    | sparse  |
| 393193          | 7603267          |          |         | +            | sparse  |
| 393207          | 7603597          | MM       | 11/9/05 | scattered    | sparse  |
| 393210          | 7603873          | MM       | 11/9/05 | scattered    | sparse  |
| 393225          | 7603885          | MM       | 11/9/05 | scattered    | sparse  |
| 393299          | 7603498          | RO       | 4/8/05  | scattered    | sparse  |
| 393301          | 7603148          | MM       | 5/8/05  | scattered    | sparse  |
| 393344          | 7603134          | MM       | 5/8/05  | scattered    | sparse  |
| 393357          | 7603005          | BM       | 5/8/05  | 2            | sparse  |
| 393361          | 7603666          | MM       | 4/8/05  | scattered    | sparse  |
| 393373          | 7603610          | MM       | 11/9/05 | scattered    | sparse  |
| 393386          | 7603133          | MM       | 5/8/05  | scattered    | sparse  |
| 393404          | 7602647          | MM       | 5/8/05  | scattered    | sparse  |
| 393418          | 7603669          | MM       | 4/8/05  | scattered    | sparse  |
| 393453          | 7602893          | RO       | 5/8/05  | 5            | sparse  |
| 393453          | 7603264          | MM       | 4/8/05  | scattered    | sparse  |
| 393458          | 7603434          | RO       | 4/8/05  | scattered    | sparse  |
| 393478          | 7602713          | MM       | 5/8/05  | scattered    | sparse  |
| 393478          | 7603550          | BM       | 4/8/05  | 5            | sparse  |
| 393490          | 7603484          | RO       | 4/8/05  | scattered    | sparse  |
| 393575          | 7602462          | BM       | 5/8/05  | 2            | sparse  |
| 393598          | 7603265          | MM       | 4/8/05  | scattered    | sparse  |
| 393631          | 7603011          | BM       | 5/8/05  | 1            | sparse  |
| 393656          | 7602890          | RO       | 5/8/05  | 1            | sparse  |
| 393677          | 7603128          | MM       | 5/8/05  | scattered    | sparse  |
| 393692          | 7603010          | BM       | 5/8/05  | 1            | sparse  |
| 393708          | 7602948          | RO       | 5/8/05  | 1            | sparse  |
| 393722          | 7602892          | RO       | 5/8/05  | scattered    | sparse  |
| 393978          | 7603400          |          |         |              | sparse  |
| 394077          | 7601989          | BM       | 6/8/05  | 50+          | dense   |
| 394110          | 7601871          | MM       | 6/8/05  | scattered    | sparse  |
| 395669          | 7602086          |          |         | <2           | sparse  |
| 396531          | 7601934          | MM       | 12/9/05 | scattered    | sparse  |
| 397373          | 7597141          | MM       | 7/8/05  | scattered    | sparse  |
| 397405          | 7597103          | BM       | 7/8/05  | 2000+        | dense   |
| 397421          | 7597215          | RO       | 7/8/05  | scattered    | sparse  |
| 397447          | 7597721          | MM       | 7/8/05  | scattered    | sparse  |
| 397448          | 7597248          | RO       | 7/8/05  | 30           | sparse  |
| 397483          | 7597020          | MM       | 7/8/05  | scattered    | sparse  |
| 397500          | 7597158          | BM       | 7/8/05  | 2000+        | dense   |
| 397515          | 7597032          | MM       | 7/8/05  | scattered    | sparse  |
| 397538          | 7597060          | MM       | 7/8/05  | scattered    | sparse  |
| 397547          | 7597190          | BM       | 7/8/05  | 200+         | dense   |
| 397586          | 7597100          | MM       | 7/8/05  | dense 'lawn' | dense   |
| 397613          | 7597138          | MM       | 7/8/05  | scattered    | sparse  |
| 397814          | 7597471          | BM       | 7/8/05  | 3            | sparse  |
| 397816          | 7597363          | MM       | 7/8/05  | scattered    | sparse  |
| 397868          | 7597408          | MM       | 7/8/05  | scattered    | sparse  |
| 397894          | 7597730          | RO       | 7/8/05  | 1            | sparse  |
| 397900          | 7597440          | MM       | 7/8/05  | scattered    | sparse  |

**\*Cenchrus ciliaris (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 397916          | 7598211          | MM       | 7/8/05  | scattered  | sparse  |
| 398076          | 7598383          | MM       | 7/8/05  | scattered  | sparse  |
| 398167          | 7597727          | MM       | 7/8/05  | scattered  | sparse  |
| 405580          | 7593972          | MM       | 14/9/05 | scattered  | sparse  |
| 405687          | 7593968          | MM       | 14/9/05 | scattered  | sparse  |
| 406516          | 7598136          | BM       | 9/8/05  | 1          | sparse  |
| 407219          | 7593988          | MyM      | 14/9/05 | 1          | sparse  |
| 407238          | 7593822          | MyM      | 14/9/05 | 1          | sparse  |
| 407296          | 7593961          | BM       | 14/9/05 | 1          | sparse  |
| 408734          | 7600815          |          |         | +          | sparse  |
| 409497          | 7600705          | BM       | 8/8/05  | 1          | sparse  |
| 409677          | 7600996          | BM       | 8/8/05  | 50+        | dense   |
| 409937          | 7601043          | MM       | 8/8/05  | scattered  | sparse  |
| 414304          | 7599414          | MM       | 12/9/05 | 30-50%     | dense   |
| 414827          | 7598934          | BM       | 12/8/05 | 1          | sparse  |
| 414902          | 7598901          | BM       | 12/8/05 | 10% cover  | dense   |
| 414926          | 7598946          | BM       | 12/8/05 | 20% cover  | dense   |
| 414931          | 7598882          | BM       | 12/8/05 | 20% cover  | dense   |
| 414999          | 7598837          | BM       | 12/8/05 | 20% cover  | dense   |
| 415039          | 7598937          | RO       | 12/8/05 | scattered  | sparse  |
| 415045          | 7598814          | MM       | 8/9/05  | scattered  | sparse  |
| 415050          | 7598744          | RO       | 12/8/05 | scattered  | sparse  |
| 415090          | 7598790          | BM       | 12/8/05 | 90% cover  | dense   |
| 415117          | 7598807          | BM       | 8/9/05  | 30% cover  | dense   |
| 415128          | 7600020          | MM       | 9/9/05  | scattered  | sparse  |
| 415142          | 7598831          | BM       | 12/8/05 | 30% cover  | dense   |
| 415143          | 7598707          | RO       | 12/8/05 | scattered  | sparse  |
| 415148          | 7598760          | BM       | 12/8/05 | 50% cover  | dense   |
| 415189          | 7598858          | RO       | 12/8/05 | scattered  | sparse  |
| 415210          | 7598626          | RO       | 12/8/05 | scattered  | sparse  |
| 415228          | 7598779          | BM       | 12/8/05 | 30% cover  | dense   |
| 415230          | 7598781          | BM       | 8/9/05  | 30% cover  | dense   |
| 415271          | 7598668          | BM       | 12/8/05 | 30% cover  | dense   |
| 415272          | 7598814          | RO       | 12/8/05 | scattered  | sparse  |
| 415296          | 7598666          | BM       | 12/8/05 | 30% cover  | dense   |
| 415303          | 7598789          | MM       | 8/9/05  | scattered  | sparse  |
| 415325          | 7598659          | BM       | 12/8/05 | 50% cover  | dense   |
| 415347          | 7598695          | BM       | 8/9/05  | 10% cover  | dense   |
| 415369          | 7598901          | BM       | 8/9/05  | scattered  | sparse  |
| 415401          | 7599482          | MM       | 12/9/05 | 10-30%     | dense   |
| 415407          | 7598601          | MM       | 8/9/05  | 20%        | dense   |
| 415410          | 7598644          | BM       | 8/9/05  | 30% cover  | dense   |
| 415414          | 7598890          | MM       | 8/9/05  | scattered  | sparse  |
| 415417          | 7599383          | MM       | 12/9/05 | 30-50%     | dense   |
| 415425          | 7598587          | MM       | 8/9/05  | scattered  | sparse  |
| 415426          | 7598840          | MM       | 8/9/05  | scattered  | sparse  |
| 415433          | 7599382          | MM       | 12/9/05 | 30-50%     | dense   |
| 415452          | 7598595          | MM       | 8/9/05  | scattered  | sparse  |
| 415462          | 7598684          | BM       | 8/9/05  | 30% cover  | dense   |
| 415473          | 7599174          | MM       | 8/9/05  | scattered  | sparse  |
| 415476          | 7599361          | MM       | 12/9/05 | 30-50%     | dense   |
| 415480          | 7598788          | BM       | 8/9/05  | 30% cover  | dense   |
| 415494          | 7598639          | RO       | 12/8/05 | scattered  | sparse  |
| 415508          | 7599271          | MM       | 8/9/05  | 1          | sparse  |
| 415511          | 7599368          | MM       | 12/9/05 | 30-50%     | dense   |
| 415513          | 7599525          | MM       | 12/9/05 | 30-50%     | dense   |
| 415520          | 7598631          | MM       | 8/9/05  | scattered  | sparse  |
| 415555          | 7599421          | MM       | 12/9/05 | 30-50%     | dense   |
| 415568          | 7599362          | MM       | 12/9/05 | 30%        | dense   |
| 415582          | 7599071          | BM       | 8/9/05  | scattered  | sparse  |
| 415591          | 7599534          | MM       | 12/9/05 | scattered  | sparse  |
| 415610          | 7599171          | BM       | 8/9/05  | scattered  | sparse  |
| 415622          | 7599405          | MM       | 12/9/05 | 30-50%     | dense   |
| 415639          | 7599281          | MM       | 8/9/05  | scattered  | sparse  |
| 415665          | 7598713          | MM       | 8/9/05  | scattered  | sparse  |
| 415692          | 7599669          | MM       | 9/9/05  | scattered  | sparse  |
| 415701          | 7599093          | MM       | 8/9/05  | scattered  | sparse  |
| 415709          | 7599330          | MM       | 8/9/05  | scattered  | sparse  |
| 415724          | 7599351          | MM       | 8/9/05  | scattered  | sparse  |
| 415739          | 7599659          | MM       | 9/9/05  | scattered  | sparse  |
| 415781          | 7599403          | MM       | 8/9/05  | scattered  | sparse  |

**\*Cenchrus ciliaris (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_N | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|------------|---------|
| 415832          | 7599681          | MM       | 9/9/05  |            | scattered  | sparse  |
| 415834          | 7599722          | BM       | 9/9/05  |            | 15% cover  | dense   |
| 415835          | 7599658          | MM       | 9/9/05  |            | scattered  | sparse  |
| 415838          | 7599753          | MM       | 9/9/05  |            | scattered  | sparse  |
| 415840          | 7599741          | MM       | 9/9/05  |            | scattered  | sparse  |
| 415877          | 7599457          | MM       | 8/9/05  |            | scattered  | sparse  |
| 415933          | 7599659          | MM       | 7/9/05  |            | scattered  | sparse  |
| 415945          | 7599723          | MM       | 7/9/05  |            | scattered  | sparse  |
| 415951          | 7599601          | MM       | 7/9/05  |            | scattered  | sparse  |
| 415975          | 7599777          | BM       | 7/9/05  |            | scattered  | sparse  |
| 416005          | 7599768          | BM       | 7/9/05  |            | 20% cover  | dense   |
| 416013          | 7599683          | BM       | 7/9/05  |            | 200        | dense   |
| 416057          | 7599799          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416114          | 7599726          | BM       | 7/9/05  |            | 20% cover  | dense   |
| 416167          | 7599827          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416172          | 7599766          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416231          | 7599633          | BM       | 7/9/05  |            | 30         | sparse  |
| 416247          | 7599865          | BM       | 7/9/05  | MATHB-149  | 20         | sparse  |
| 416333          | 7599613          | BM       | 7/9/05  |            | 100        | dense   |
| 416369          | 7599717          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416422          | 7599759          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416494          | 7599749          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416619          | 7599929          | MM       | 7/9/05  |            | scattered  | sparse  |
| 416666          | 7599827          | BM       | 7/9/05  | MATHB-149  | 5          | sparse  |
| 416749          | 7599894          | MM       | 7/9/05  |            | 25%        | dense   |
| 416787          | 7599896          | MM       | 7/9/05  |            | scattered  | sparse  |
| 417744          | 7599787          | MM       | 7/9/05  |            | scattered  | sparse  |
| 417793          | 7599779          | MM       | 7/9/05  |            | scattered  | sparse  |
| 418110          | 7599500          | MM       | 7/9/05  |            | scattered  | sparse  |
| 418249          | 7599682          | BM       | 7/9/05  |            | 20         | sparse  |
| 418303          | 7599399          | MM       | 7/9/05  |            | scattered  | sparse  |
| 418340          | 7599434          | MM       | 7/9/05  |            | scattered  | sparse  |
| 418453          | 7599212          | RO       | 10/8/05 |            | scattered  | sparse  |
| 418512          | 7599373          | BM       | 10/8/05 |            | 2          | sparse  |
| 418570          | 7599150          | RO       | 10/8/05 |            | 1          | sparse  |
| 418647          | 7598598          | BM       | 10/8/05 |            | 20         | sparse  |
| 418743          | 7598618          | RO       | 9/7/05  |            | scattered  | sparse  |
| 418752          | 7598744          | BM       | 10/8/05 |            | 1          | sparse  |
| 418787          | 7598666          | RO       | 10/8/05 |            | 1          | sparse  |
| 418837          | 7597917          |          |         |            | +          | sparse  |
| 418844          | 7598902          | MM       | 10/8/05 |            | 1          | sparse  |
| 418848          | 7598874          | MM       | 10/8/05 |            | 1          | sparse  |
| 418905          | 7597980          | RO       | 9/7/05  |            | scattered  | sparse  |
| 418932          | 7598270          | MyM      | 9/7/05  |            | 1          | sparse  |
| 419066          | 7598806          |          |         |            | 2-3        | sparse  |
| 419074          | 7596083          | RO       | 9/7/05  |            | scattered  | sparse  |
| 419120          | 7596114          | RO       | 9/7/05  |            | scattered  | sparse  |
| 419137          | 7595870          | MyM      | 9/7/05  |            | 5          | sparse  |
| 419172          | 7598711          | MyM      | 5/7/05  |            | scattered  | sparse  |
| 419235          | 7598732          | RO       | 5/7/05  |            | scattered  | sparse  |
| 419252          | 7595971          |          |         |            | 1-2%       | sparse  |
| 419266          | 7596537          | MM       | 16/9/05 |            | scattered  | sparse  |
| 419297          | 7595353          | MyM      | 9/7/05  |            | 1          | sparse  |
| 419349          | 7595752          | MyM      | 9/7/05  |            | scattered  | sparse  |
| 419359          | 7595341          | MyM      | 9/7/05  |            | 10         | sparse  |
| 419364          | 7595713          | MyM      | 9/7/05  |            | scattered  | sparse  |
| 419417          | 7595235          | MyM      | 9/7/05  |            | 20+        | sparse  |
| 419476          | 7595060          | BM       | 8/7/05  |            | 30% cover  | dense   |
| 419487          | 7595013          | MM       | 16/9/05 |            | scattered  | sparse  |
| 419512          | 7594859          | MyM      | 8/7/05  |            | scattered  | sparse  |
| 419548          | 7595441          | BM       | 9/7/05  |            | 50% cover  | dense   |
| 419575          | 7594780          | BM       | 8/7/05  |            | scattered  | sparse  |
| 419705          | 7594753          |          |         |            | 1          | sparse  |
| 419727          | 7594571          | MM       | 16/9/05 |            | scattered  | sparse  |
| 419798          | 7594579          | RO       | 8/7/05  |            | 30% cover  | dense   |
| 419983          | 7594428          | RO       | 8/7/05  |            | 30% cover  | dense   |
| 421195          | 7599017          | RO       | 6/7/05  |            | scattered  | sparse  |
| 421249          | 7599037          |          |         |            | 2-3        | sparse  |
| 421686          | 7599173          | RO       | 6/7/05  |            | scattered  | sparse  |
| 421740          | 7599209          | BM       | 6/7/05  |            | scattered  | sparse  |
| 422071          | 7599233          | BM       | 6/7/05  |            | scattered  | sparse  |

**\*Cenchrus ciliaris (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 422190          | 7599314          | BM       | 6/7/05  | 30% cover  | dense   |
| 423332          | 7591594          | MM       | 30/4/05 | scattered  | sparse  |
| 423406          | 7591587          | MM       | 30/4/05 | scattered  | sparse  |
| 423477          | 7591548          | MM       | 30/4/05 | scattered  | sparse  |
| 424087          | 7597400          | MM       | 16/9/05 | scattered  | sparse  |
| 424088          | 7597451          | MM       | 16/9/05 | scattered  | sparse  |
| 424103          | 7597561          | MM       | 16/9/05 | scattered  | sparse  |
| 424136          | 7597397          | MM       | 16/9/05 | scattered  | sparse  |
| 424161          | 7597621          | MM       | 16/9/05 | scattered  | sparse  |
| 424202          | 7597229          | MM       | 16/9/05 | scattered  | sparse  |
| 424202          | 7597346          | MM       | 16/9/05 | scattered  | sparse  |
| 424203          | 7597436          | MM       | 16/9/05 | scattered  | sparse  |
| 424206          | 7597295          | MM       | 16/9/05 | scattered  | sparse  |
| 424210          | 7597398          | MM       | 16/9/05 | scattered  | sparse  |
| 424221          | 7597576          | MM       | 16/9/05 | scattered  | sparse  |
| 424238          | 7597551          |          |         | 5-10%      | sparse  |
| 424264          | 7597194          | MM       | 16/9/05 | scattered  | sparse  |
| 424312          | 7597235          | MM       | 16/9/05 | scattered  | sparse  |
| 424317          | 7597291          | MM       | 16/9/05 | scattered  | sparse  |
| 424325          | 7597353          | MM       | 16/9/05 | scattered  | sparse  |
| 424339          | 7597493          | MM       | 16/9/05 | 40%        | dense   |
| 424340          | 7597406          | MM       | 16/9/05 | scattered  | sparse  |
| 424340          | 7597544          | MM       | 16/9/05 | 25%        | dense   |
| 424340          | 7597608          | MM       | 16/9/05 | scattered  | sparse  |
| 424342          | 7597645          | MM       | 16/9/05 | scattered  | sparse  |
| 424343          | 7597447          | MM       | 16/9/05 | 20%        | dense   |
| 424354          | 7597716          | MM       | 16/9/05 | scattered  | sparse  |
| 424383          | 7597426          | MM       | 16/9/05 | scattered  | sparse  |
| 424386          | 7597759          | MM       | 16/9/05 | scattered  | sparse  |
| 424421          | 7597742          | MM       | 16/9/05 | scattered  | sparse  |
| 424444          | 7597568          | MM       | 16/9/05 | scattered  | sparse  |
| 424454          | 7597524          | MM       | 16/9/05 | scattered  | sparse  |
| 424463          | 7597438          | MM       | 16/9/05 | scattered  | sparse  |
| 424473          | 7597635          | MM       | 16/9/05 | scattered  | sparse  |
| 424490          | 7597773          | MM       | 16/9/05 | scattered  | sparse  |
| 424506          | 7597659          | MM       | 16/9/05 | scattered  | sparse  |
| 424531          | 7597748          | MM       | 16/9/05 | scattered  | sparse  |
| 424575          | 7597703          | MM       | 16/9/05 | scattered  | sparse  |
| 424772          | 7598563          | MM       | 16/9/05 | scattered  | sparse  |
| 424783          | 7598663          | MM       | 16/9/05 | scattered  | sparse  |
| 424798          | 7598554          | MM       | 16/9/05 | scattered  | sparse  |
| 424812          | 7598692          | MM       | 16/9/05 | scattered  | sparse  |
| 424820          | 7598442          | MM       | 16/9/05 | scattered  | sparse  |
| 424821          | 7598498          | MM       | 16/9/05 | scattered  | sparse  |
| 424824          | 7598529          | MM       | 16/9/05 | scattered  | sparse  |
| 424838          | 7598570          | MM       | 16/9/05 | scattered  | sparse  |
| 424859          | 7598327          | MM       | 16/9/05 | scattered  | sparse  |
| 424909          | 7598468          | MM       | 16/9/05 | scattered  | sparse  |
| 424915          | 7598375          | MM       | 16/9/05 | scattered  | sparse  |
| 424932          | 7598583          | MM       | 16/9/05 | scattered  | sparse  |
| 424933          | 7598448          | MM       | 16/9/05 | scattered  | sparse  |
| 424950          | 7598576          | MM       | 16/9/05 | scattered  | sparse  |
| 424971          | 7598548          | MM       | 16/9/05 | scattered  | sparse  |
| 424972          | 7599759          | RO       | 7/7/05  | 2          | sparse  |
| 424980          | 7598561          | MM       | 16/9/05 | scattered  | sparse  |
| 424990          | 7598619          | MM       | 16/9/05 | scattered  | sparse  |
| 425020          | 7598523          | MM       | 16/9/05 | scattered  | sparse  |
| 425022          | 7598574          | MM       | 16/9/05 | scattered  | sparse  |
| 425029          | 7599907          | MyM      | 7/7/05  | 3          | sparse  |

**\*Cenchrus setigerus**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 384534          | 7613655          |          |         | 5-6        | sparse  |
| 386522          | 7611926          |          |         | +          | sparse  |
| 386858          | 7602284          | MM       | 1/5/05  | scattered  | sparse  |
| 388907          | 7609951          |          |         | +          | sparse  |
| 390812          | 7603319          |          |         | +          | sparse  |
| 392534          | 7603327          | RO       | 4/8/05  | 1          | sparse  |
| 393033          | 7603674          | MM       | 4/8/05  | scattered  | sparse  |
| 393132          | 7603270          | MM       | 4/8/05  | scattered  | sparse  |
| 393147          | 7603630          | MM       | 11/9/05 | scattered  | sparse  |

**\*Cenchrus setigerus (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_IND   | DENSITY |
|-----------------|------------------|----------|---------|-------------|--------------|---------|
| 393210          | 7603873          | MM       | 11/9/05 |             | scattered    | sparse  |
| 393269          | 7603677          | MM       | 4/8/05  |             | scattered    | sparse  |
| 393386          | 7603133          | MM       | 5/8/05  |             | scattered    | sparse  |
| 393390          | 7603264          | MM       | 4/8/05  |             | scattered    | sparse  |
| 393458          | 7603434          | RO       | 4/8/05  |             | scattered    | sparse  |
| 393465          | 7602658          | MM       | 5/8/05  |             | scattered    | sparse  |
| 393722          | 7602892          | RO       | 5/8/05  |             | scattered    | sparse  |
| 393767          | 7602641          | MM       | 5/8/05  |             | scattered    | sparse  |
| 397373          | 7597141          | MM       | 7/8/05  |             | scattered    | sparse  |
| 397515          | 7597032          | MM       | 7/8/05  |             | scattered    | sparse  |
| 397549          | 7597361          | RO       | 7/8/05  |             | scattered    | sparse  |
| 397586          | 7597100          | MM       | 7/8/05  |             | dense 'lawn' | dense   |
| 397613          | 7597138          | MM       | 7/8/05  |             | scattered    | sparse  |
| 397723          | 7597503          | RO       | 7/8/05  |             | 2            | sparse  |
| 397732          | 7597404          | BM       | 7/8/05  |             | 1            | sparse  |
| 397743          | 7597517          | RO       | 7/8/05  |             | 1            | sparse  |
| 397814          | 7597471          | BM       | 7/8/05  | MATB-68     | 1            | sparse  |
| 414304          | 7599414          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415045          | 7598814          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415046          | 7600306          | MM       | 9/9/05  |             | scattered    | sparse  |
| 415050          | 7598744          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415143          | 7598707          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415210          | 7598626          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415272          | 7598814          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415303          | 7598789          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415312          | 7598596          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415366          | 7598572          | RO       | 12/8/05 |             | scattered    | sparse  |
| 415401          | 7599482          | MM       | 12/9/05 |             | 10-30%       | dense   |
| 415407          | 7598601          | MM       | 8/9/05  |             | 20%          | dense   |
| 415414          | 7598890          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415417          | 7599383          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415426          | 7598840          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415433          | 7599382          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415476          | 7599361          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415480          | 7598788          | BM       | 8/9/05  |             | 20% cover    | dense   |
| 415511          | 7599368          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415513          | 7599525          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415555          | 7599421          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415568          | 7599362          | MM       | 12/9/05 |             | 30%          | dense   |
| 415591          | 7599534          | MM       | 12/9/05 |             | scattered    | sparse  |
| 415610          | 7599171          | BM       | 8/9/05  |             | scattered    | sparse  |
| 415622          | 7599405          | MM       | 12/9/05 |             | 30-50%       | dense   |
| 415639          | 7599281          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415692          | 7599669          | MM       | 9/9/05  |             | scattered    | sparse  |
| 415709          | 7599330          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415724          | 7599351          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415781          | 7599403          | MM       | 8/9/05  |             | scattered    | sparse  |
| 415832          | 7599681          | MM       | 9/9/05  |             | scattered    | sparse  |
| 415834          | 7599722          | BM       | 9/9/05  |             | 15% cover    | dense   |
| 415835          | 7599658          | MM       | 9/9/05  |             | scattered    | sparse  |
| 415933          | 7599659          | MM       | 7/9/05  |             | scattered    | sparse  |
| 415945          | 7599723          | MM       | 7/9/05  |             | scattered    | sparse  |
| 415951          | 7599601          | MM       | 7/9/05  |             | scattered    | sparse  |
| 416114          | 7599726          | BM       | 7/9/05  |             | 20% cover    | dense   |
| 416172          | 7599766          | MM       | 7/9/05  |             | scattered    | sparse  |
| 416333          | 7599613          | BM       | 7/9/05  |             | 50           | dense   |
| 416369          | 7599717          | MM       | 7/9/05  |             | scattered    | sparse  |
| 416494          | 7599749          | MM       | 7/9/05  |             | scattered    | sparse  |
| 416568          | 7599771          | BM       | 7/9/05  | MATHB-147   | 2            | sparse  |
| 416741          | 7599818          | BM       | 7/9/05  |             | 2            | sparse  |
| 416749          | 7599894          | MM       | 7/9/05  |             | 25%          | dense   |
| 416787          | 7599896          | MM       | 7/9/05  |             | scattered    | sparse  |
| 417744          | 7599787          | MM       | 7/9/05  |             | scattered    | sparse  |
| 418110          | 7599500          | MM       | 7/9/05  |             | scattered    | sparse  |
| 418453          | 7599212          | RO       | 10/8/05 |             | scattered    | sparse  |
| 418626          | 7598981          | RO       | 10/8/05 |             | scattered    | sparse  |
| 418639          | 7598895          | RO       | 10/8/05 |             | scattered    | sparse  |
| 418743          | 7598618          | RO       | 9/7/05  |             | scattered    | sparse  |
| 418825          | 7598997          | MM       | 10/8/05 |             | scattered    | sparse  |
| 418828          | 7598963          | MM       | 10/8/05 |             | scattered    | sparse  |
| 418837          | 7597917          |          |         |             | +            | sparse  |

**\*Cenchrus setigerus (continued)**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | NO. OF INDS         | DENSITY |
|-----------------|------------------|----------|---------|---------------------|---------|
| 418867          | 7596641          | RO       | 9/7/05  | 10 m diameter patch | dense   |
| 418968          | 7596926          | RO       | 9/7/05  | 30% cover           | dense   |
| 418975          | 7596532          | RO       | 9/7/05  | scattered           | sparse  |
| 419066          | 7598806          |          |         | 1                   | sparse  |
| 419074          | 7596083          | RO       | 9/7/05  | scattered           | sparse  |
| 419078          | 7596193          | MyM      | 9/7/05  | scattered           | sparse  |
| 419120          | 7596114          | RO       | 9/7/05  | scattered           | sparse  |
| 419137          | 7595870          | MyM      | 9/7/05  | 50+                 | dense   |
| 419138          | 7596314          | RO       | 9/7/05  | scattered           | sparse  |
| 419142          | 7595859          | MyM      | 9/7/05  | 1                   | sparse  |
| 419143          | 7595876          | MyM      | 9/7/05  | 30% cover           | dense   |
| 419252          | 7595971          |          |         | 3-4 %               | sparse  |
| 419324          | 7596078          | RO       | 9/7/05  | 30                  | sparse  |
| 419326          | 7595471          | MyM      | 9/7/05  | 5                   | sparse  |
| 419347          | 7596429          | MyM      | 9/7/05  | 1                   | sparse  |
| 419359          | 7595341          | MyM      | 9/7/05  | 10                  | sparse  |
| 419361          | 7595175          | MyM      | 9/7/05  | 100                 | dense   |
| 419417          | 7595235          | MyM      | 9/7/05  | 20+                 | sparse  |
| 419521          | 7595075          | BM       | 8/7/05  | scattered           | sparse  |
| 419548          | 7595441          | BM       | 9/7/05  | 30% cover           | dense   |
| 419634          | 7595406          | MyM      | 9/7/05  | 30% cover           | dense   |
| 419654          | 7595302          | MyM      | 9/7/05  | 30% cover           | dense   |
| 419664          | 7595278          | MyM      | 9/7/05  | 2                   | sparse  |
| 419705          | 7594753          |          |         | 7-8                 | sparse  |
| 419748          | 7594917          | MyM      | 8/7/05  | 30% cover           | dense   |
| 419798          | 7594579          | RO       | 8/7/05  | 2-10% cover         | dense   |
| 419983          | 7594428          | RO       | 8/7/05  | 2-10% cover         | dense   |
| 421249          | 7599037          |          |         | 1-2                 | sparse  |
| 421686          | 7599173          | RO       | 6/7/05  | scattered           | sparse  |
| 421740          | 7599209          | BM       | 6/7/05  | scattered           | sparse  |
| 422190          | 7599314          | BM       | 6/7/05  | 30% cover           | dense   |
| 423332          | 7591594          | MM       | 30/4/05 | few                 | sparse  |
| 424087          | 7597400          | MM       | 16/9/05 | scattered           | sparse  |
| 424136          | 7597397          | MM       | 16/9/05 | scattered           | sparse  |
| 424206          | 7597295          | MM       | 16/9/05 | scattered           | sparse  |
| 424238          | 7597551          |          |         | +                   | sparse  |
| 424340          | 7597544          | MM       | 16/9/05 | 25%                 | dense   |
| 424340          | 7597608          | MM       | 16/9/05 | scattered           | sparse  |
| 424343          | 7597447          | MM       | 16/9/05 | 20%                 | dense   |
| 424783          | 7598663          | MM       | 16/9/05 | scattered           | sparse  |
| 424821          | 7598498          | MM       | 16/9/05 | scattered           | sparse  |

**\*Chloris barbata**

| EASTING (WGS84) | NORTHING (WGS84) | SPECIMEN NO | NO. OF INDS | COMMENTS                  | DENSITY |
|-----------------|------------------|-------------|-------------|---------------------------|---------|
| 420496          | 7598702          | 2MATC-70    | scattered   | location approximate only | sparse  |
| 424972          | 7599759          | 2MATC-130   | scattered   | location approximate only | sparse  |

**\*Citrullus colocynthis**

| EASTING (WGS84) | NORTHING (WGS84) | RECORDER | DATE    | SPECIMEN NO | NO. OF INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|-------------|---------|
| 382475          | 7615498          | RO       | 2/4/05  |             | scattered   | sparse  |
| 392603          | 7603526          | MM       | 4/8/05  |             | scattered   | sparse  |
| 392778          | 7603244          |          |         |             | scattered   | sparse  |
| 392852          | 7603454          | MM       | 4/8/05  |             | scattered   | sparse  |
| 393094          | 7603127          | MM       | 5/8/05  |             | scattered   | sparse  |
| 393164          | 7602948          | MM       | 5/8/05  |             | scattered   | sparse  |
| 393183          | 7603860          | MM       | 11/9/05 |             | scattered   | sparse  |
| 393193          | 7603267          |          |         |             | scattered   | sparse  |
| 393203          | 7602848          | BM       | 5/8/05  |             | 1           | sparse  |
| 393336          | 7602723          | MM       | 5/8/05  |             | scattered   | sparse  |
| 397334          | 7597476          | BM       | 7/8/05  |             | 1           | sparse  |
| 397541          | 7597346          | RO       | 7/8/05  |             | 1           | sparse  |
| 397723          | 7597503          | RO       | 7/8/05  |             | 1           | sparse  |
| 404061          | 7594484          | HE       | 6/9/05  |             | 1           | sparse  |
| 404540          | 7594061          | MM       | 6/9/05  |             | 1           | sparse  |
| 404577          | 7594048          | MM       | 6/9/05  |             | 1           | sparse  |
| 404652          | 7594045          | MM       | 6/9/05  |             | 1           | sparse  |
| 404709          | 7594042          | MM       | 6/9/05  |             | 1           | sparse  |
| 404721          | 7594032          | MM       | 6/9/05  |             | 1           | sparse  |
| 405326          | 7593955          | MM       | 14/9/05 |             | 1           | sparse  |
| 405438          | 7593970          | MM       | 14/9/05 |             | 2           | sparse  |
| 405580          | 7593972          | MM       | 14/9/05 |             | 1           | sparse  |

**\*Citrullus colocynthis (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|-------------|---------|
| 405645          | 7593976          | MM       | 14/9/05 |             | 4           | sparse  |
| 405717          | 7593967          | MM       | 14/9/05 |             | 2           | sparse  |
| 405756          | 7593977          | MM       | 14/9/05 |             | 1           | sparse  |
| 406480          | 7594094          | BM       | 14/9/05 |             | 1           | sparse  |
| 406520          | 7594071          | MyM      | 14/9/05 |             | 3           | sparse  |
| 406569          | 7594093          | MyM      | 14/9/05 |             | 2           | sparse  |
| 406604          | 7594069          | MM       | 14/9/05 |             | 1           | sparse  |
| 406660          | 7594083          | MM       | 14/9/05 |             | 1           | sparse  |
| 406660          | 7594103          | MyM      | 14/9/05 |             | 1           | sparse  |
| 406764          | 7594111          | MyM      | 14/9/05 |             | 2           | sparse  |
| 406789          | 7594096          | MM       | 14/9/05 |             | 2           | sparse  |
| 406999          | 7594136          | MM       | 14/9/05 |             | 1           | sparse  |
| 407066          | 7594353          | MM       | 14/9/05 |             | 1           | sparse  |
| 407070          | 7594320          | MM       | 14/9/05 |             | 1           | sparse  |
| 407120          | 7594361          | MyM      | 14/9/05 |             | 1           | sparse  |
| 407140          | 7593974          | MM       | 14/9/05 |             | 1           | sparse  |
| 407199          | 7594052          | MyM      | 14/9/05 |             | 2           | sparse  |
| 407219          | 7593988          | MyM      | 14/9/05 |             | 2           | sparse  |
| 407263          | 7594392          | BM       | 14/9/05 |             | 5           | sparse  |
| 407402          | 7594415          | MM       | 14/9/05 |             | scattered   | sparse  |
| 407415          | 7594376          | MM       | 14/9/05 |             | scattered   | sparse  |
| 413514          | 7599738          | BM       | 13/8/05 |             | 1           | sparse  |
| 414598          | 7599187          | RO       | 12/8/05 |             | 2           | sparse  |
| 414780          | 7600306          | BM       | 9/9/05  |             | 1           | sparse  |
| 414880          | 7600348          | MM       | 9/9/05  |             | scattered   | sparse  |
| 415084          | 7598706          | RO       | 12/8/05 |             | 2           | sparse  |
| 415314          | 7599409          | MM       | 12/9/05 |             | scattered   | sparse  |
| 415511          | 7599368          | MM       | 12/9/05 |             | scattered   | sparse  |
| 415555          | 7599421          | MM       | 12/9/05 |             | scattered   | sparse  |
| 416333          | 7599613          | BM       | 7/9/05  |             | 1           | sparse  |
| 416650          | 7599851          | BM       | 7/9/05  |             | 1           | sparse  |
| 416749          | 7599894          | MM       | 7/9/05  |             | scattered   | sparse  |
| 418294          | 7599421          | MM       | 7/9/05  |             | 1           | sparse  |
| 418619          | 7598530          | BM       | 9/7/05  |             | 1           | sparse  |
| 418733          | 7597951          | BM       | 9/7/05  |             | 2           | sparse  |
| 419402          | 7595864          | BM       | 9/7/05  |             | 1           | sparse  |
| 420123          | 7594348          | RO       | 8/7/05  |             | 1           | sparse  |
| 422135          | 7599214          | BM       | 6/7/05  | 2MATC-97    | 1           | sparse  |
| 423570          | 7591679          | MM       | 30/4/05 |             | scattered   | sparse  |
| 423596          | 7597818          | MyM      | 16/9/05 |             | 1           | sparse  |
| 423609          | 7591589          | MM       | 30/4/05 |             | scattered   | sparse  |
| 424088          | 7597451          | MM       | 16/9/05 |             | scattered   | sparse  |
| 424881          | 7600224          | RO       | 7/7/05  |             | 1           | sparse  |

**\*Datura leichhardtii**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|-------------|---------|
| 381527          | 7615933          | RO       | 2/4/05  |             | scattered   | sparse  |
| 415215          | 7598638          | RO       | 12/8/05 | MATHB-139   | scattered   | sparse  |
| 415607          | 7599463          | MM       | 12/9/05 |             | scattered   | sparse  |
| 420483          | 7598698          | RO       | 6/7/05  | 2MATC-61    | scattered   | sparse  |

**\*Echinochloa colona**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|--------|-------------|-------------|---------|
| 406488          | 7598000          | MM       | 9/8/05 | MATRM-42    | scattered   | sparse  |
| 406552          | 7598186          | MM       | 9/8/05 |             | scattered   | sparse  |
| 421249          | 7599037          |          |        |             | scattered   | sparse  |

**\*Euphorbia hirta**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|-------------|---------|
| 393268          | 7603620          | MM       | 11/9/05 |             | scattered   | sparse  |
| 406064          | 7593989          | MM       | 14/9/05 |             | scattered   | sparse  |
| 406471          | 7598101          | MM       | 9/8/05  | MATRM-48    | scattered   | sparse  |
| 419066          | 7598806          |          |         |             | scattered   | sparse  |
| 421249          | 7599037          |          |         |             | scattered   | sparse  |

**\*Indigofera oblongifolia**

| EASTING_(WGS84) | NORTHING_(WGS84) | SPECIMEN_NO | NO._OF_INDS | COMMENTS                                                         | DENSITY |
|-----------------|------------------|-------------|-------------|------------------------------------------------------------------|---------|
| 388318          | 7608156          | YAR-PL      | scattered   | location approximate; no GPS recorded; nearest GPS location used | sparse  |

**\*Malvastrum americanum**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 386910          | 7605560          |          |         | +          | sparse  |
| 387104          | 7603891          | MM       | 28/4/05 | 1          | sparse  |
| 387282          | 7603501          |          |         | +          | sparse  |
| 387628          | 7603210          | BM       | 5/8/05  | 10         | sparse  |
| 387650          | 7603256          | BM       | 5/8/05  | 10         | sparse  |
| 387667          | 7604180          | MM       | 28/4/05 | 5          | sparse  |
| 387725          | 7603292          | MM       | 5/8/05  | scattered  | sparse  |
| 387732          | 7603219          | BM       | 5/8/05  | 20         | sparse  |
| 387732          | 7603486          | MM       | 5/8/05  | scattered  | sparse  |
| 387737          | 7603303          | MM       | 5/8/05  | scattered  | sparse  |
| 387751          | 7603306          | MM       | 5/8/05  | scattered  | sparse  |
| 387756          | 7603110          | MM       | 1/8/05  | 15         | sparse  |
| 387762          | 7603330          | MM       | 5/8/05  | scattered  | sparse  |
| 387767          | 7603118          | MM       | 1/8/05  | scattered  | sparse  |
| 387769          | 7603520          | MM       | 5/8/05  | scattered  | sparse  |
| 387771          | 7603163          | MM       | 5/8/05  | scattered  | sparse  |
| 387814          | 7603381          | MM       | 5/8/05  | scattered  | sparse  |
| 387821          | 7603111          | MM       | 1/8/05  | scattered  | sparse  |
| 387857          | 7603276          | BM       | 5/8/05  | 20         | sparse  |
| 387873          | 7603424          |          |         | 2-3        | sparse  |
| 387914          | 7603429          | MM       | 5/8/05  | scattered  | sparse  |
| 387928          | 7603173          | MM       | 5/8/05  | scattered  | sparse  |
| 387968          | 7602852          | MM       | 1/8/05  | scattered  | sparse  |
| 387980          | 7603235          | BM       | 5/8/05  | 100        | dense   |
| 387987          | 7603307          | BM       | 5/8/05  | 20         | sparse  |
| 388003          | 7603342          | MM       | 5/8/05  | scattered  | sparse  |
| 388011          | 7603185          | MM       | 5/8/05  | scattered  | sparse  |
| 388013          | 7602916          | RO       | 1/8/05  | 20         | sparse  |
| 388022          | 7603137          | MM       | 1/8/05  | scattered  | sparse  |
| 388032          | 7603316          | MM       | 5/8/05  | scattered  | sparse  |
| 388039          | 7603123          | MM       | 1/8/05  | scattered  | sparse  |
| 388064          | 7602760          | MM       | 2/8/05  | scattered  | sparse  |
| 388067          | 7603224          | BM       | 5/8/05  | 250        | dense   |
| 388068          | 7603186          | MM       | 5/8/05  | scattered  | sparse  |
| 388082          | 7603255          | BM       | 5/8/05  | 10         | sparse  |
| 388089          | 7602737          | BM       | 2/8/05  | 50+        | dense   |
| 388103          | 7602851          | MM       | 1/8/05  | scattered  | sparse  |
| 388122          | 7603137          | MM       | 1/8/05  | scattered  | sparse  |
| 388154          | 7602776          | MM       | 2/8/05  | scattered  | sparse  |
| 388156          | 7603250          | MM       | 5/8/05  | scattered  | sparse  |
| 388172          | 7602613          | RO       | 2/8/05  | 200+       | dense   |
| 388198          | 7602732          | BM       | 2/8/05  | 20+        | sparse  |
| 388207          | 7603204          | MM       | 5/8/05  | scattered  | sparse  |
| 388214          | 7603072          | RO       | 1/8/05  | scattered  | sparse  |
| 388217          | 7602674          | RO       | 2/8/05  | 150        | dense   |
| 388241          | 7602799          | MM       | 2/8/05  | scattered  | sparse  |
| 388242          | 7602620          | MM       | 2/8/05  | scattered  | sparse  |
| 388254          | 7602628          | MM       | 2/8/05  | scattered  | sparse  |
| 388261          | 7602654          | BM       | 2/8/05  | 50+        | dense   |
| 388291          | 7602977          | BM       | 1/8/05  | 200        | dense   |
| 388312          | 7602717          | RO       | 2/8/05  | 150        | dense   |
| 388448          | 7603159          | MM       | 1/8/05  | scattered  | sparse  |
| 388459          | 7602899          | MM       | 1/8/05  | scattered  | sparse  |
| 388482          | 7602817          | MM       | 2/8/05  | scattered  | sparse  |
| 388531          | 7603165          | RO       | 1/8/05  | 200+       | dense   |
| 388587          | 7603086          | BM       | 1/8/05  | 50         | dense   |
| 388623          | 7602699          | MM       | 2/8/05  | scattered  | sparse  |
| 388817          | 7602747          | MM       | 2/8/05  | scattered  | sparse  |
| 388881          | 7603066          | MM       | 2/8/05  | scattered  | sparse  |
| 388901          | 7609225          | RO       | 7/4/05  | scattered  | sparse  |
| 388912          | 7603070          | MM       | 2/8/05  | scattered  | sparse  |
| 388930          | 7603078          | MM       | 2/8/05  | scattered  | sparse  |
| 388965          | 7602749          | MM       | 2/8/05  | scattered  | sparse  |
| 389611          | 7603224          | BM       | 3/8/05  | 10         | sparse  |
| 389700          | 7602890          | BM       | 3/8/05  | 1          | sparse  |
| 390491          | 7603343          | MM       | 2/8/05  | scattered  | sparse  |
| 390506          | 7603218          | MM       | 2/8/05  | scattered  | sparse  |
| 390529          | 7603312          | BM       | 3/8/05  | 10         | sparse  |
| 390621          | 7603346          | MM       | 2/8/05  | scattered  | sparse  |
| 390635          | 7603310          | BM       | 3/8/05  | 30         | sparse  |
| 390685          | 7603301          | BM       | 3/8/05  | 40         | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 390685          | 7603351          | MM       | 2/8/05  | scattered  | sparse  |
| 391229          | 7603370          | MM       | 4/8/05  | scattered  | sparse  |
| 392534          | 7603327          | RO       | 4/8/05  | scattered  | sparse  |
| 392778          | 7603244          |          |         | +          | sparse  |
| 393234          | 7603890          | MM       | 11/9/05 | scattered  | sparse  |
| 393264          | 7603883          | MM       | 11/9/05 | scattered  | sparse  |
| 393458          | 7603434          | RO       | 4/8/05  | scattered  | sparse  |
| 393464          | 7603483          | RO       | 4/8/05  | scattered  | sparse  |
| 393478          | 7603550          | BM       | 4/8/05  | 1          | sparse  |
| 393686          | 7602957          | RO       | 5/8/05  | 10         | sparse  |
| 393867          | 7603542          | BM       | 4/8/05  | 1          | sparse  |
| 394549          | 7603258          | MM       | 4/8/05  | scattered  | sparse  |
| 394671          | 7602070          | RO       | 6/8/05  | scattered  | sparse  |
| 394831          | 7602291          | MM       | 6/8/05  | scattered  | sparse  |
| 394866          | 7601996          | BM       | 6/8/05  | 5          | sparse  |
| 394916          | 7602060          | RO       | 6/8/05  | scattered  | sparse  |
| 395271          | 7602302          | BM       | 6/8/05  | 5          | sparse  |
| 395389          | 7602232          | RO       | 6/8/05  | scattered  | sparse  |
| 395433          | 7602862          | MM       | 7/8/05  | scattered  | sparse  |
| 395508          | 7602770          | BM       | 7/8/05  | 2          | sparse  |
| 395524          | 7602768          | BM       | 7/8/05  | 50+        | dense   |
| 395646          | 7602140          | MM       | 6/8/05  | scattered  | sparse  |
| 395657          | 7602553          | RO       | 7/8/05  | scattered  | sparse  |
| 395739          | 7602461          | RO       | 7/8/05  | scattered  | sparse  |
| 395825          | 7602284          | BM       | 7/8/05  | 200+       | dense   |
| 395854          | 7602199          | MM       | 7/8/05  | scattered  | sparse  |
| 395981          | 7602567          | BM       | 7/8/05  | 50         | dense   |
| 396065          | 7602586          | MM       | 7/8/05  | scattered  | sparse  |
| 396085          | 7601584          |          |         | +          | sparse  |
| 396097          | 7602577          | MM       | 7/8/05  | scattered  | sparse  |
| 396121          | 7602499          | BM       | 7/8/05  | 100        | dense   |
| 396127          | 7602574          | MM       | 7/8/05  | scattered  | sparse  |
| 396144          | 7602503          | BM       | 7/8/05  | 100        | dense   |
| 396253          | 7602458          | BM       | 7/8/05  | 40         | sparse  |
| 396465          | 7601394          | MM       | 14/9/05 | scattered  | sparse  |
| 396489          | 7602146          |          |         | +          | sparse  |
| 396506          | 7601454          | MyM      | 14/9/05 | 20+        | sparse  |
| 396517          | 7602340          | BM       | 7/8/05  | 100        | dense   |
| 396528          | 7601373          | MM       | 14/9/05 | scattered  | sparse  |
| 396539          | 7602326          | BM       | 7/8/05  | 100        | dense   |
| 396562          | 7601330          | MM       | 14/9/05 | scattered  | sparse  |
| 396562          | 7602133          | MM       | 12/9/05 | scattered  | sparse  |
| 396572          | 7602001          | BM       | 12/9/05 | 10         | sparse  |
| 396611          | 7601990          | BM       | 12/9/05 | 30         | sparse  |
| 396612          | 7601311          | MM       | 14/9/05 | scattered  | sparse  |
| 396628          | 7602111          | MM       | 12/9/05 | scattered  | sparse  |
| 396649          | 7602195          | MM       | 11/9/05 | scattered  | sparse  |
| 396654          | 7601194          | BM       | 14/9/05 | 30         | sparse  |
| 396684          | 7601264          | MM       | 14/9/05 | scattered  | sparse  |
| 396695          | 7602136          | MM       | 11/9/05 | scattered  | sparse  |
| 396712          | 7601930          | MM       | 14/9/05 | scattered  | sparse  |
| 396744          | 7601862          | MM       | 12/9/05 | scattered  | sparse  |
| 396824          | 7601818          | MM       | 14/9/05 | scattered  | sparse  |
| 396829          | 7602023          | MM       | 12/9/05 | scattered  | sparse  |
| 396831          | 7601819          | MM       | 12/9/05 | scattered  | sparse  |
| 396835          | 7601160          | MM       | 14/9/05 | scattered  | sparse  |
| 396839          | 7602157          | BM       | 11/9/05 | 1          | sparse  |
| 396881          | 7601201          | MyM      | 14/9/05 | 10         | sparse  |
| 396904          | 7601135          | MM       | 14/9/05 | scattered  | sparse  |
| 396928          | 7602065          | MM       | 11/9/05 | scattered  | sparse  |
| 396938          | 7601930          | BM       | 12/9/05 | 1          | sparse  |
| 396949          | 7601986          | MM       | 12/9/05 | scattered  | sparse  |
| 396962          | 7601714          | MM       | 14/9/05 | scattered  | sparse  |
| 396980          | 7601003          | BM       | 14/9/05 | 10         | sparse  |
| 396990          | 7601074          | MM       | 14/9/05 | scattered  | sparse  |
| 396999          | 7601751          | MM       | 12/9/05 | scattered  | sparse  |
| 397022          | 7600967          | BM       | 14/9/05 | 1          | sparse  |
| 397022          | 7601040          | MM       | 14/9/05 | scattered  | sparse  |
| 397059          | 7601015          | MM       | 14/9/05 | scattered  | sparse  |
| 397128          | 7602207          | MM       | 11/9/05 | scattered  | sparse  |
| 397151          | 7601076          | MyM      | 14/9/05 | 10+        | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 397155          | 7600969          | MM       | 14/9/05 | scattered  | sparse  |
| 397164          | 7601896          | MM       | 12/9/05 | scattered  | sparse  |
| 397174          | 7600959          | MM       | 14/9/05 | scattered  | sparse  |
| 397203          | 7600949          | MM       | 14/9/05 | scattered  | sparse  |
| 397244          | 7601672          | MM       | 12/9/05 | scattered  | sparse  |
| 397266          | 7601658          | MM       | 12/9/05 | scattered  | sparse  |
| 397279          | 7602141          | MM       | 11/9/05 | scattered  | sparse  |
| 397294          | 7600996          | MyM      | 14/9/05 | 50+        | dense   |
| 397314          | 7601841          | MM       | 12/9/05 | scattered  | sparse  |
| 397343          | 7601702          | BM       | 12/9/05 | 20         | sparse  |
| 397359          | 7601618          | MM       | 12/9/05 | scattered  | sparse  |
| 397396          | 7600915          | MyM      | 14/9/05 | 20+        | sparse  |
| 397406          | 7600790          | MM       | 14/9/05 | scattered  | sparse  |
| 397410          | 7602094          | MM       | 11/9/05 | scattered  | sparse  |
| 397440          | 7601675          | BM       | 12/9/05 | 5          | sparse  |
| 397446          | 7601594          | MM       | 12/9/05 | scattered  | sparse  |
| 397451          | 7601788          | MM       | 12/9/05 | scattered  | sparse  |
| 397462          | 7602076          | MM       | 11/9/05 | scattered  | sparse  |
| 397475          | 7601841          | MM       | 11/9/05 | scattered  | sparse  |
| 397512          | 7601833          | MM       | 11/9/05 | scattered  | sparse  |
| 397512          | 7601908          | BM       | 11/9/05 | 50         | dense   |
| 397528          | 7601975          | BM       | 11/9/05 | 20         | sparse  |
| 397536          | 7601638          | BM       | 12/9/05 | 1          | sparse  |
| 397542          | 7602042          | MM       | 11/9/05 | scattered  | sparse  |
| 397550          | 7601556          | MM       | 12/9/05 | scattered  | sparse  |
| 397558          | 7601547          | MM       | 12/9/05 | scattered  | sparse  |
| 397588          | 7601539          | MM       | 12/9/05 | scattered  | sparse  |
| 397630          | 7601723          | MM       | 12/9/05 | scattered  | sparse  |
| 397639          | 7601658          | BM       | 12/9/05 | 5          | sparse  |
| 397652          | 7601854          | BM       | 11/9/05 | 10         | sparse  |
| 397656          | 7601999          | MM       | 11/9/05 | scattered  | sparse  |
| 397662          | 7601590          | BM       | 12/9/05 | 100        | dense   |
| 397666          | 7601513          | MM       | 12/9/05 | scattered  | sparse  |
| 397677          | 7601708          | MM       | 12/9/05 | scattered  | sparse  |
| 397693          | 7601504          | MM       | 12/9/05 | scattered  | sparse  |
| 397706          | 7601635          | BM       | 12/9/05 | 40         | sparse  |
| 397710          | 7601747          | MM       | 11/9/05 | scattered  | sparse  |
| 397710          | 7601907          | BM       | 11/9/05 | 1          | sparse  |
| 397711          | 7601695          | MM       | 12/9/05 | scattered  | sparse  |
| 397718          | 7600715          | MyM      | 14/9/05 | 20+        | sparse  |
| 397721          | 7601823          | BM       | 11/9/05 | 15         | sparse  |
| 397749          | 7601684          | MM       | 12/9/05 | 2-10%      | dense   |
| 397759          | 7601738          | MM       | 11/9/05 | 2-10%      | dense   |
| 397765          | 7600583          | MM       | 14/9/05 | scattered  | sparse  |
| 397767          | 7601675          | MM       | 12/9/05 | scattered  | sparse  |
| 397772          | 7601876          | BM       | 11/9/05 | 30         | sparse  |
| 397778          | 7601952          | MM       | 11/9/05 | scattered  | sparse  |
| 397784          | 7601725          | MM       | 11/9/05 | 2-10%      | dense   |
| 397788          | 7601812          | BM       | 11/9/05 | 40         | sparse  |
| 397801          | 7600653          | MyM      | 14/9/05 | 50+        | dense   |
| 397810          | 7601796          | BM       | 11/9/05 | 4          | sparse  |
| 397823          | 7600530          | MM       | 14/9/05 | scattered  | sparse  |
| 397829          | 7601861          | BM       | 11/9/05 | 50         | dense   |
| 397869          | 7601907          | MM       | 11/9/05 | scattered  | sparse  |
| 397877          | 7600589          | MyM      | 14/9/05 | 50         | dense   |
| 397885          | 7600493          | MM       | 14/9/05 | scattered  | sparse  |
| 397899          | 7601897          | MM       | 11/9/05 | scattered  | sparse  |
| 397905          | 7600485          | MM       | 14/9/05 | scattered  | sparse  |
| 397916          | 7598211          | MM       | 7/8/05  | scattered  | sparse  |
| 397923          | 7601406          | MM       | 12/9/05 | scattered  | sparse  |
| 397936          | 7600474          | MM       | 14/9/05 | scattered  | sparse  |
| 397961          | 7600561          | MyM      | 14/9/05 | 10+        | sparse  |
| 397970          | 7600447          | MM       | 14/9/05 | scattered  | sparse  |
| 397978          | 7600360          | BM       | 14/9/05 | 200        | dense   |
| 397981          | 7600425          | MM       | 14/9/05 | scattered  | sparse  |
| 397983          | 7601661          | MM       | 11/9/05 | scattered  | sparse  |
| 397986          | 7601460          | BM       | 12/9/05 | 10         | sparse  |
| 397995          | 7601598          | MM       | 12/9/05 | scattered  | sparse  |
| 398006          | 7601637          | MM       | 11/9/05 | scattered  | sparse  |
| 398011          | 7600413          | MM       | 14/9/05 | scattered  | sparse  |
| 398021          | 7601627          | MM       | 11/9/05 | scattered  | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 398023          | 7601575          | MM       | 12/9/05 | scattered  | sparse  |
| 398033          | 7601526          | BM       | 12/9/05 | 200        | dense   |
| 398036          | 7600403          | MM       | 14/9/05 | scattered  | sparse  |
| 398041          | 7601454          | BM       | 12/9/05 | 300        | dense   |
| 398043          | 7601565          | MM       | 12/9/05 | scattered  | sparse  |
| 398060          | 7600401          | MM       | 14/9/05 | scattered  | sparse  |
| 398080          | 7600347          | BM       | 14/9/05 | 20         | sparse  |
| 398083          | 7601364          | MM       | 12/9/05 | 10-30%     | dense   |
| 398102          | 7601360          | MM       | 12/9/05 | 2-10%      | dense   |
| 398118          | 7601337          | MM       | 12/9/05 | scattered  | sparse  |
| 398119          | 7600432          | MyM      | 14/9/05 | 10+        | sparse  |
| 398136          | 7600379          | MM       | 14/9/05 | scattered  | sparse  |
| 398270          | 7601544          | MM       | 11/9/05 | scattered  | sparse  |
| 398284          | 7601286          | MM       | 12/9/05 | scattered  | sparse  |
| 398301          | 7601755          | MM       | 11/9/05 | scattered  | sparse  |
| 398333          | 7601332          | BM       | 12/9/05 | 10         | sparse  |
| 398334          | 7601255          | MM       | 12/9/05 | scattered  | sparse  |
| 398345          | 7601347          | MM       | 12/8/05 | scattered  | sparse  |
| 398364          | 7601399          | BM       | 12/9/05 | 10         | sparse  |
| 398365          | 7598211          | RO       | 7/8/05  | 30         | sparse  |
| 398387          | 7601221          | MM       | 12/9/05 | scattered  | sparse  |
| 398394          | 7601363          | BM       | 12/8/05 | 10         | sparse  |
| 398431          | 7601289          | BM       | 12/9/05 | 10         | sparse  |
| 398599          | 7598684          | MyM      | 14/9/05 | 1          | sparse  |
| 398663          | 7600104          | MyM      | 14/9/05 | 1          | sparse  |
| 398687          | 7599915          | BM       | 14/9/05 | 100        | dense   |
| 398750          | 7598402          | BM       | 15/9/05 | 50         | dense   |
| 398756          | 7599888          | BM       | 14/9/05 | 10         | sparse  |
| 398813          | 7599866          | BM       | 14/9/05 | 5          | sparse  |
| 399027          | 7598279          | MM       | 14/9/05 | scattered  | sparse  |
| 399053          | 7598315          | MM       | 14/9/05 | scattered  | sparse  |
| 399059          | 7599086          | MyM      | 15/9/05 | 3          | sparse  |
| 399109          | 7599250          | MyM      | 14/9/05 | 20+        | sparse  |
| 399160          | 7598389          | MM       | 14/9/05 | scattered  | sparse  |
| 399178          | 7598416          | MM       | 14/9/05 | scattered  | sparse  |
| 399230          | 7599111          | MM       | 15/9/05 | scattered  | sparse  |
| 399269          | 7600898          | MM       | 12/8/05 | scattered  | sparse  |
| 399326          | 7601022          | BM       | 12/8/05 | 50         | dense   |
| 399339          | 7601016          | BM       | 12/8/05 | 100        | dense   |
| 399340          | 7599955          | MyM      | 14/9/05 | 1          | sparse  |
| 399350          | 7601110          | RO       | 12/8/05 | scattered  | sparse  |
| 399362          | 7599476          | MyM      | 15/9/05 | 20+        | sparse  |
| 399364          | 7600868          | MM       | 12/8/05 | scattered  | sparse  |
| 399365          | 7601133          | RO       | 12/8/05 | scattered  | sparse  |
| 399366          | 7599300          | MM       | 15/9/05 | scattered  | sparse  |
| 399390          | 7601346          | MM       | 12/8/05 | scattered  | sparse  |
| 399415          | 7601216          | BM       | 12/8/05 | 10         | sparse  |
| 399430          | 7599430          | MyM      | 14/9/05 | 20+        | sparse  |
| 399449          | 7600972          | BM       | 12/8/05 | 50         | dense   |
| 399455          | 7601198          | BM       | 12/8/05 | 10         | sparse  |
| 399482          | 7599602          | MyM      | 14/9/05 | 1          | sparse  |
| 399489          | 7598714          | MM       | 14/9/05 | scattered  | sparse  |
| 399518          | 7600948          | BM       | 12/8/05 | 50         | dense   |
| 399521          | 7601309          | MM       | 12/8/05 | scattered  | sparse  |
| 399532          | 7600809          | MM       | 12/8/05 | scattered  | sparse  |
| 399539          | 7598988          | MM       | 14/9/05 | scattered  | sparse  |
| 399563          | 7601151          | BM       | 12/8/05 | 10         | sparse  |
| 399572          | 7599876          | BM       | 14/9/05 | 5          | sparse  |
| 399572          | 7601292          | MM       | 12/8/05 | scattered  | sparse  |
| 399595          | 7598825          | MM       | 14/9/05 | scattered  | sparse  |
| 399596          | 7600786          | MM       | 12/8/05 | scattered  | sparse  |
| 399601          | 7601007          | RO       | 12/8/05 | scattered  | sparse  |
| 399620          | 7601269          | MM       | 12/8/05 | scattered  | sparse  |
| 399622          | 7601124          | BM       | 12/8/05 | 20         | sparse  |
| 399628          | 7599939          | BM       | 14/9/05 | 20         | sparse  |
| 399640          | 7600768          | MM       | 12/8/05 | scattered  | sparse  |
| 399650          | 7599765          | MyM      | 14/9/05 | 10+        | sparse  |
| 399651          | 7601250          | MM       | 12/8/05 | scattered  | sparse  |
| 399655          | 7601124          | BM       | 12/8/05 | 20         | sparse  |
| 399659          | 7600904          | BM       | 12/8/05 | 10         | sparse  |
| 399687          | 7600758          | MM       | 12/8/05 | scattered  | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 399696          | 7601245          | MM       | 12/8/05 | scattered  | sparse  |
| 399716          | 7601097          | BM       | 12/8/05 | 20         | sparse  |
| 399732          | 7599886          | MyM      | 14/9/05 | 50         | dense   |
| 399738          | 7599719          | BM       | 15/9/05 | 2          | sparse  |
| 399749          | 7601086          | BM       | 12/8/05 | 5          | sparse  |
| 399773          | 7599392          | BM       | 15/9/05 | 1          | sparse  |
| 399774          | 7599556          | MM       | 15/9/05 | scattered  | sparse  |
| 399781          | 7599283          | MM       | 15/9/05 | scattered  | sparse  |
| 399806          | 7599735          | MM       | 15/9/05 | scattered  | sparse  |
| 399817          | 7599667          | MyM      | 15/9/05 | 3          | sparse  |
| 399839          | 7601194          | MM       | 12/8/05 | scattered  | sparse  |
| 399865          | 7601175          | MM       | 12/8/05 | scattered  | sparse  |
| 399917          | 7599600          | MyM      | 15/9/05 | 1          | sparse  |
| 399933          | 7599348          | BM       | 15/9/05 | 1          | sparse  |
| 399947          | 7599274          | BM       | 15/9/05 | 5          | sparse  |
| 399953          | 7601137          | MM       | 12/8/05 | scattered  | sparse  |
| 399971          | 7599446          | MM       | 15/9/05 | scattered  | sparse  |
| 400002          | 7599421          | MM       | 15/9/05 | scattered  | sparse  |
| 400017          | 7599469          | MyM      | 15/9/05 | 3          | sparse  |
| 400058          | 7599373          | MM       | 15/9/05 | scattered  | sparse  |
| 400066          | 7599611          | BM       | 15/9/05 | 5          | sparse  |
| 400091          | 7599427          | MyM      | 15/9/05 | 4          | sparse  |
| 400109          | 7599081          | MM       | 15/9/05 | scattered  | sparse  |
| 400153          | 7599569          | BM       | 15/9/05 | 1          | sparse  |
| 400326          | 7599044          | BM       | 15/9/05 | 30         | sparse  |
| 400406          | 7599145          | MM       | 15/9/05 | scattered  | sparse  |
| 400473          | 7599229          | MyM      | 15/9/05 | 6          | sparse  |
| 400552          | 7599130          | MyM      | 15/9/05 | 2          | sparse  |
| 400637          | 7599152          | MyM      | 15/9/05 | 20         | sparse  |
| 400711          | 7600874          | MM       | 12/8/05 | scattered  | sparse  |
| 400773          | 7600825          | MM       | 12/8/05 | scattered  | sparse  |
| 400834          | 7599155          | BM       | 15/9/05 | 1          | sparse  |
| 400910          | 7600570          | BM       | 12/8/05 | 30         | sparse  |
| 400930          | 7600699          | MM       | 12/8/05 | scattered  | sparse  |
| 400989          | 7600540          | BM       | 12/8/05 | 20         | sparse  |
| 401067          | 7600510          | BM       | 12/8/05 | 20         | sparse  |
| 401124          | 7600469          | BM       | 12/8/05 | 100        | dense   |
| 401132          | 7600366          | RO       | 12/8/05 | scattered  | sparse  |
| 401172          | 7600359          | RO       | 12/8/05 | scattered  | sparse  |
| 401178          | 7600448          | BM       | 12/8/05 | 1          | sparse  |
| 401215          | 7600238          | BM       | 12/8/05 | 10         | sparse  |
| 401310          | 7600401          | BM       | 12/8/05 | 100        | dense   |
| 401315          | 7600049          | MM       | 12/8/05 | scattered  | sparse  |
| 401317          | 7600191          | BM       | 12/8/05 | 20         | sparse  |
| 401323          | 7600299          | RO       | 12/8/05 | scattered  | sparse  |
| 401349          | 7600385          | BM       | 12/8/05 | 30         | sparse  |
| 401394          | 7598527          | MM       | 15/9/05 | scattered  | sparse  |
| 402432          | 7599603          | MM       | 11/9/05 | scattered  | sparse  |
| 404043          | 7594332          | BM       | 6/9/05  | 2          | sparse  |
| 404199          | 7599827          | RO       | 11/8/05 | 1          | sparse  |
| 404232          | 7594734          | MM       | 6/9/05  | 4          | sparse  |
| 404498          | 7594070          | MM       | 6/9/05  | 1          | sparse  |
| 405505          | 7593983          | MM       | 14/9/05 | scattered  | sparse  |
| 405697          | 7595453          | MM       | 6/9/05  | 1          | sparse  |
| 406038          | 7598073          | MyM      | 13/9/05 | 20         | sparse  |
| 406085          | 7598138          | MM       | 13/9/05 | scattered  | sparse  |
| 406265          | 7600358          | BM       | 11/8/05 | 20         | sparse  |
| 406315          | 7594028          | MM       | 14/9/05 | scattered  | sparse  |
| 406376          | 7600374          | BM       | 11/8/05 | 1          | sparse  |
| 406429          | 7600514          | MM       | 11/8/05 | scattered  | sparse  |
| 406473          | 7598095          | MM       | 9/8/05  | scattered  | sparse  |
| 406475          | 7598089          | MM       | 9/8/05  | scattered  | sparse  |
| 406481          | 7598094          | BM       | 9/8/05  | 300        | dense   |
| 406487          | 7598046          | MM       | 9/8/05  | scattered  | sparse  |
| 406488          | 7598000          | MM       | 9/8/05  | scattered  | sparse  |
| 406489          | 7598121          | MM       | 9/8/05  | scattered  | sparse  |
| 406492          | 7597970          | MM       | 9/8/05  | scattered  | sparse  |
| 406494          | 7597959          | MM       | 9/8/05  | scattered  | sparse  |
| 406516          | 7598136          | BM       | 9/8/05  | 20         | sparse  |
| 406535          | 7598110          | BM       | 9/8/05  | 200        | dense   |
| 406538          | 7598181          | MM       | 9/8/05  | scattered  | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 406539          | 7598072          | BM       | 9/8/05  | 10         | sparse  |
| 406566          | 7598194          | MM       | 9/8/05  | scattered  | sparse  |
| 406570          | 7598201          | BM       | 9/8/05  | 200        | dense   |
| 406577          | 7598073          | RO       | 9/8/05  | scattered  | sparse  |
| 406578          | 7600419          | BM       | 11/8/05 | 20         | sparse  |
| 406679          | 7598312          | MM       | 13/9/05 | scattered  | sparse  |
| 406680          | 7598128          | BM       | 9/8/05  | 10         | sparse  |
| 406699          | 7598322          | MM       | 13/9/05 | scattered  | sparse  |
| 406733          | 7598352          | MM       | 13/9/05 | scattered  | sparse  |
| 406763          | 7597630          | BM       | 9/8/05  | 5          | sparse  |
| 406793          | 7600581          | MM       | 8/8/05  | scattered  | sparse  |
| 406842          | 7600523          | BM       | 8/8/05  | 10         | sparse  |
| 406842          | 7600589          | MM       | 8/8/05  | scattered  | sparse  |
| 406858          | 7596486          | BM       | 9/8/05  | 1          | sparse  |
| 406892          | 7598631          | MyM      | 13/9/05 | 7          | sparse  |
| 406894          | 7600226          | BM       | 8/8/05  | 10         | sparse  |
| 406899          | 7600149          | MM       | 8/8/05  | scattered  | sparse  |
| 406904          | 7598617          | MM       | 13/9/05 | scattered  | sparse  |
| 406968          | 7600317          | RO       | 8/8/05  | scattered  | sparse  |
| 406971          | 7598731          | MM       | 13/9/05 | scattered  | sparse  |
| 407021          | 7596507          | MM       | 9/8/05  | scattered  | sparse  |
| 407021          | 7600245          | BM       | 8/8/05  | 10         | sparse  |
| 407048          | 7598683          | MM       | 13/9/05 | scattered  | sparse  |
| 407105          | 7600362          | RO       | 8/8/05  | scattered  | sparse  |
| 407230          | 7600217          | MM       | 8/8/05  | scattered  | sparse  |
| 407272          | 7597506          | MM       | 6/9/05  | 1          | sparse  |
| 407307          | 7600229          | MM       | 8/8/05  | scattered  | sparse  |
| 407325          | 7600418          | RO       | 8/8/05  | scattered  | sparse  |
| 407382          | 7593839          | MyM      | 14/9/05 | 10         | sparse  |
| 407386          | 7600254          | MM       | 8/8/05  | scattered  | sparse  |
| 407435          | 7600343          | BM       | 8/8/05  | 20         | sparse  |
| 407444          | 7600263          | MM       | 8/8/05  | scattered  | sparse  |
| 407480          | 7600281          | MM       | 8/8/05  | scattered  | sparse  |
| 407508          | 7597931          | HE       | 6/9/05  | 1          | sparse  |
| 407572          | 7600283          | MM       | 8/8/05  | scattered  | sparse  |
| 407613          | 7600300          | MM       | 8/8/05  | scattered  | sparse  |
| 407704          | 7600603          | RO       | 8/8/05  | scattered  | sparse  |
| 407730          | 7600777          | MM       | 8/8/05  | scattered  | sparse  |
| 407747          | 7600608          | RO       | 8/8/05  | 2          | sparse  |
| 407780          | 7600686          | BM       | 8/8/05  | 5          | sparse  |
| 407809          | 7600812          | MM       | 8/8/05  | scattered  | sparse  |
| 407836          | 7600625          | RO       | 8/8/05  | scattered  | sparse  |
| 407846          | 7600433          | BM       | 8/8/05  | 20         | sparse  |
| 407847          | 7600817          | MM       | 8/8/05  | scattered  | sparse  |
| 407855          | 7598282          | BM       | 6/9/05  | 3          | sparse  |
| 407876          | 7600829          | MM       | 8/8/05  | scattered  | sparse  |
| 407877          | 7600359          | MM       | 8/8/05  | scattered  | sparse  |
| 407909          | 7600733          | BM       | 8/8/05  | 20         | sparse  |
| 407917          | 7600372          | MM       | 8/8/05  | scattered  | sparse  |
| 407929          | 7600826          | MM       | 8/8/05  | scattered  | sparse  |
| 407959          | 7600834          | MM       | 8/8/05  | scattered  | sparse  |
| 407997          | 7600843          | MM       | 8/8/05  | scattered  | sparse  |
| 408072          | 7600393          | MM       | 8/8/05  | scattered  | sparse  |
| 408106          | 7600781          | BM       | 8/8/05  | 2          | sparse  |
| 408252          | 7600450          | MM       | 8/8/05  | scattered  | sparse  |
| 408255          | 7600703          | RO       | 8/8/05  | 10         | sparse  |
| 408446          | 7598573          | MM       | 13/9/05 | scattered  | sparse  |
| 408493          | 7598583          | MM       | 13/9/05 | scattered  | sparse  |
| 408512          | 7600498          | MM       | 8/8/05  | scattered  | sparse  |
| 408607          | 7600504          | MM       | 8/8/05  | scattered  | sparse  |
| 408617          | 7600603          | BM       | 8/8/05  | 20         | sparse  |
| 408707          | 7598656          | MM       | 13/9/05 | scattered  | sparse  |
| 408734          | 7600815          |          |         | <2%        | sparse  |
| 408736          | 7598678          | MM       | 13/9/05 | scattered  | sparse  |
| 408751          | 7598760          | MyM      | 13/9/05 | 2          | sparse  |
| 408770          | 7600816          | MM       | 8/8/05  | scattered  | sparse  |
| 408805          | 7600763          | BM       | 8/8/05  | 3          | sparse  |
| 409349          | 7600621          | MM       | 8/8/05  | scattered  | sparse  |
| 409412          | 7600620          | MM       | 8/8/05  | scattered  | sparse  |
| 409430          | 7600621          | MM       | 8/8/05  | scattered  | sparse  |
| 409459          | 7601013          | BM       | 8/8/05  | 20         | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 409475          | 7600897          | RO       | 8/8/05  | scattered  | sparse  |
| 409547          | 7600829          | RO       | 8/8/05  | scattered  | sparse  |
| 409551          | 7600906          | RO       | 8/8/05  | scattered  | sparse  |
| 409567          | 7601062          | MM       | 8/8/05  | scattered  | sparse  |
| 409677          | 7600996          | BM       | 8/8/05  | 10         | sparse  |
| 409724          | 7600984          | BM       | 8/8/05  | 1          | sparse  |
| 409779          | 7600976          | BM       | 8/8/05  | 1          | sparse  |
| 409838          | 7600857          | RO       | 8/8/05  | scattered  | sparse  |
| 409842          | 7600988          | BM       | 8/8/05  | 50         | dense   |
| 409853          | 7600838          | RO       | 8/8/05  | scattered  | sparse  |
| 409876          | 7601064          | MM       | 8/8/05  | scattered  | sparse  |
| 409882          | 7600852          | RO       | 8/8/05  | scattered  | sparse  |
| 409890          | 7601059          | MM       | 8/8/05  | scattered  | sparse  |
| 409917          | 7601040          | MM       | 8/8/05  | scattered  | sparse  |
| 409933          | 7600978          | BM       | 8/8/05  | 100        | dense   |
| 409937          | 7601043          | MM       | 8/8/05  | scattered  | sparse  |
| 409971          | 7600788          | RO       | 8/8/05  | scattered  | sparse  |
| 409973          | 7600849          | RO       | 8/8/05  | scattered  | sparse  |
| 409979          | 7601038          | MM       | 8/8/05  | scattered  | sparse  |
| 409983          | 7600849          | RO       | 8/8/05  | scattered  | sparse  |
| 409995          | 7600847          | RO       | 8/8/05  | scattered  | sparse  |
| 410003          | 7601057          | MM       | 8/8/05  | scattered  | sparse  |
| 410040          | 7601045          | MM       | 8/8/05  | scattered  | sparse  |
| 410054          | 7600972          | BM       | 8/8/05  | 30         | sparse  |
| 410065          | 7601031          | MM       | 8/8/05  | scattered  | sparse  |
| 410087          | 7600967          | BM       | 8/8/05  | 30         | sparse  |
| 410110          | 7601035          | MM       | 8/8/05  | scattered  | sparse  |
| 410121          | 7600861          | RO       | 8/8/05  | scattered  | sparse  |
| 410139          | 7600860          | RO       | 8/8/05  | scattered  | sparse  |
| 410149          | 7601044          | MM       | 8/8/05  | scattered  | sparse  |
| 410167          | 7600966          | BM       | 8/8/05  | 50         | dense   |
| 410244          | 7600921          | BM       | 8/8/05  | 10         | sparse  |
| 410270          | 7601045          | MM       | 8/8/05  | scattered  | sparse  |
| 410358          | 7600966          | BM       | 8/8/05  | 10         | sparse  |
| 410374          | 7601047          | MM       | 8/8/05  | scattered  | sparse  |
| 410432          | 7601014          | MM       | 8/8/05  | scattered  | sparse  |
| 410518          | 7601027          | MM       | 8/8/05  | scattered  | sparse  |
| 410540          | 7601032          | MM       | 8/8/05  | scattered  | sparse  |
| 410984          | 7601006          | MM       | 10/9/05 | scattered  | sparse  |
| 414299          | 7600439          | BM       | 9/9/05  | 50         | dense   |
| 414338          | 7600355          | BM       | 9/9/05  | 10         | sparse  |
| 414517          | 7600198          | MM       | 9/9/05  | scattered  | sparse  |
| 414578          | 7600369          | BM       | 9/9/05  | 5          | sparse  |
| 414580          | 7600126          | BM       | 9/9/05  | 150        | dense   |
| 414588          | 7599135          | BM       | 12/8/05 | 20         | sparse  |
| 414588          | 7600242          | MM       | 9/9/05  | scattered  | sparse  |
| 414598          | 7599187          | RO       | 12/8/05 | scattered  | sparse  |
| 414630          | 7600167          | MM       | 9/9/05  | scattered  | sparse  |
| 414633          | 7599646          | MM       | 12/9/05 | scattered  | sparse  |
| 414634          | 7599673          | MM       | 12/9/05 | scattered  | sparse  |
| 414640          | 7599728          | MM       | 12/9/05 | scattered  | sparse  |
| 414653          | 7599669          | MM       | 12/9/05 | scattered  | sparse  |
| 414657          | 7600162          | MM       | 9/9/05  | scattered  | sparse  |
| 414663          | 7600269          | BM       | 9/9/05  | 20         | sparse  |
| 414675          | 7600286          |          |         | <2%        | sparse  |
| 414677          | 7599588          | MM       | 12/9/05 | scattered  | sparse  |
| 414688          | 7600151          | MM       | 9/9/05  | scattered  | sparse  |
| 414688          | 7600215          | MM       | 9/9/05  | scattered  | sparse  |
| 414715          | 7599586          | MM       | 12/9/05 | scattered  | sparse  |
| 414723          | 7599928          | MM       | 9/9/05  | scattered  | sparse  |
| 414738          | 7599708          | MM       | 12/9/05 | scattered  | sparse  |
| 414752          | 7599924          | MM       | 9/9/05  | scattered  | sparse  |
| 414755          | 7599563          | MM       | 12/9/05 | scattered  | sparse  |
| 414759          | 7599682          | MM       | 12/9/05 | scattered  | sparse  |
| 414780          | 7600306          | BM       | 9/9/05  | 20         | sparse  |
| 414807          | 7599912          | MM       | 9/9/05  | scattered  | sparse  |
| 414810          | 7599835          | MM       | 12/9/05 | scattered  | sparse  |
| 414812          | 7599857          | MM       | 12/9/05 | scattered  | sparse  |
| 414818          | 7600049          | BM       | 9/9/05  | 150        | dense   |
| 414819          | 7600092          | MM       | 9/9/05  | scattered  | sparse  |
| 414824          | 7600359          | MM       | 9/9/05  | scattered  | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 414828          | 7599875          | MM       | 12/9/05 | scattered  | sparse  |
| 414830          | 7599990          | BM       | 6/9/05  | 150        | dense   |
| 414836          | 7600272          | BM       | 9/9/05  | 40         | sparse  |
| 414848          | 7600056          |          |         | +          | sparse  |
| 414858          | 7599855          | MM       | 12/9/05 | scattered  | sparse  |
| 414867          | 7598914          | BM       | 12/8/05 | 20         | sparse  |
| 414880          | 7598824          | RO       | 12/8/05 | scattered  | sparse  |
| 414880          | 7600348          | MM       | 9/9/05  | scattered  | sparse  |
| 414891          | 7600152          | MM       | 9/9/05  | scattered  | sparse  |
| 414893          | 7600328          | MM       | 9/9/05  | scattered  | sparse  |
| 414894          | 7598906          | BM       | 12/8/05 | 1          | sparse  |
| 414919          | 7600200          | BM       | 9/9/05  | 30         | sparse  |
| 414920          | 7600141          | MM       | 9/9/05  | scattered  | sparse  |
| 414926          | 7598946          | BM       | 12/8/05 | 5          | sparse  |
| 414941          | 7600262          | BM       | 9/9/05  | 20         | sparse  |
| 414944          | 7600194          | BM       | 9/9/05  | 10         | sparse  |
| 414973          | 7598980          | RO       | 12/8/05 | scattered  | sparse  |
| 414980          | 7600114          | MM       | 9/9/05  | scattered  | sparse  |
| 414988          | 7600255          | BM       | 9/9/05  | 100        | dense   |
| 415015          | 7600312          | MM       | 9/9/05  | scattered  | sparse  |
| 415023          | 7600001          | BM       | 9/9/05  | 50         | dense   |
| 415039          | 7600032          | MM       | 9/9/05  | scattered  | sparse  |
| 415046          | 7600306          | MM       | 9/9/05  | scattered  | sparse  |
| 415061          | 7600293          | MM       | 9/9/05  | scattered  | sparse  |
| 415118          | 7600287          | MM       | 9/9/05  | scattered  | sparse  |
| 415128          | 7600020          | MM       | 9/9/05  | scattered  | sparse  |
| 415135          | 7600280          | MM       | 9/9/05  | scattered  | sparse  |
| 415143          | 7598707          | RO       | 12/8/05 | scattered  | sparse  |
| 415149          | 7600192          | BM       | 9/9/05  | 5          | sparse  |
| 415156          | 7600192          | BM       | 9/9/05  | 20         | sparse  |
| 415169          | 7600124          | BM       | 9/9/05  | 10         | sparse  |
| 415172          | 7599999          | MM       | 9/9/05  | scattered  | sparse  |
| 415179          | 7600265          | MM       | 9/9/05  | scattered  | sparse  |
| 415193          | 7600068          | MM       | 9/9/05  | scattered  | sparse  |
| 415195          | 7599731          | MM       | 12/9/05 | scattered  | sparse  |
| 415199          | 7598715          | MM       | 8/9/05  | scattered  | sparse  |
| 415231          | 7598737          | MM       | 8/9/05  | scattered  | sparse  |
| 415233          | 7600047          | MM       | 9/9/05  | scattered  | sparse  |
| 415251          | 7598597          | RO       | 12/8/05 | scattered  | sparse  |
| 415257          | 7598687          | BM       | 12/8/05 | 1          | sparse  |
| 415296          | 7598666          | BM       | 12/8/05 | 2          | sparse  |
| 415328          | 7594578          | MM       | 3/5/05  | 20         | sparse  |
| 415357          | 7599848          | BM       | 6/9/05  | 20         | sparse  |
| 415389          | 7599742          | MM       | 9/9/05  | scattered  | sparse  |
| 415410          | 7598644          | BM       | 8/9/05  | 1          | sparse  |
| 415447          | 7599937          | MM       | 9/9/05  | scattered  | sparse  |
| 415507          | 7599912          | MM       | 9/9/05  | scattered  | sparse  |
| 415511          | 7599368          | MM       | 12/9/05 | scattered  | sparse  |
| 415555          | 7599421          | MM       | 12/9/05 | scattered  | sparse  |
| 415591          | 7599534          | MM       | 12/9/05 | scattered  | sparse  |
| 415666          | 7599992          | BM       | 9/9/05  | 10         | sparse  |
| 415708          | 7599663          | MM       | 9/9/05  | scattered  | sparse  |
| 415781          | 7599403          | MM       | 8/9/05  | scattered  | sparse  |
| 415832          | 7599681          | MM       | 9/9/05  | scattered  | sparse  |
| 415834          | 7599722          | BM       | 9/9/05  | 100        | dense   |
| 415838          | 7599753          | MM       | 9/9/05  | scattered  | sparse  |
| 415840          | 7599741          | MM       | 9/9/05  | scattered  | sparse  |
| 415842          | 7599986          | MM       | 9/9/05  | scattered  | sparse  |
| 415863          | 7600050          | MM       | 9/9/05  | scattered  | sparse  |
| 415931          | 7600002          | MM       | 7/9/05  | scattered  | sparse  |
| 415934          | 7600018          | BM       | 7/9/05  | 10         | sparse  |
| 415945          | 7599723          | MM       | 7/9/05  | scattered  | sparse  |
| 415981          | 7600031          | BM       | 7/9/05  | 10         | sparse  |
| 415995          | 7600082          | MM       | 7/9/05  | scattered  | sparse  |
| 416013          | 7599683          | BM       | 7/9/05  | 1          | sparse  |
| 416049          | 7600055          | MM       | 7/9/05  | scattered  | sparse  |
| 416114          | 7599726          | BM       | 7/9/05  | 2          | sparse  |
| 416204          | 7599704          | BM       | 7/9/05  | 5          | sparse  |
| 416345          | 7599924          | BM       | 7/9/05  | 150        | dense   |
| 416369          | 7599717          | MM       | 7/9/05  | scattered  | sparse  |
| 416389          | 7599710          | MM       | 7/9/05  | scattered  | sparse  |

**\*Malvastrum americanum (continued)**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | NO._OF_IND | DENSITY |
|-----------------|------------------|----------|---------|------------|---------|
| 416422          | 7599759          | MM       | 7/9/05  | scattered  | sparse  |
| 416724          | 7599816          | BM       | 7/9/05  | 3          | sparse  |
| 416749          | 7599894          | MM       | 7/9/05  | scattered  | sparse  |
| 416891          | 7599785          | BM       | 7/9/05  | 1          | sparse  |
| 418434          | 7599274          | RO       | 10/8/05 | scattered  | sparse  |
| 418453          | 7599212          | RO       | 10/8/05 | scattered  | sparse  |
| 418626          | 7598981          | RO       | 10/8/05 | scattered  | sparse  |
| 418867          | 7596641          | RO       | 9/7/05  | 1          | sparse  |
| 418968          | 7596926          | RO       | 9/7/05  | scattered  | sparse  |
| 419043          | 7596078          | RO       | 9/7/05  | 2          | sparse  |
| 419078          | 7596193          | MyM      | 9/7/05  | 2          | sparse  |
| 419120          | 7598769          | RO       | 5/7/05  | scattered  | sparse  |
| 419121          | 7593033          |          |         | +          | sparse  |
| 419138          | 7596314          | RO       | 9/7/05  | scattered  | sparse  |
| 419143          | 7595876          | MyM      | 9/7/05  | 1          | sparse  |
| 419366          | 7596012          | MyM      | 9/7/05  | 2          | sparse  |
| 419507          | 7594663          | MyM      | 8/7/05  | 2          | sparse  |
| 419521          | 7595075          | BM       | 8/7/05  | scattered  | sparse  |
| 419543          | 7594641          | MyM      | 8/7/05  | 1          | sparse  |
| 419561          | 7595627          | MyM      | 9/7/05  | 3          | sparse  |
| 419597          | 7594411          | RO       | 8/7/05  | scattered  | sparse  |
| 419610          | 7595456          | MyM      | 9/7/05  | 1          | sparse  |
| 419613          | 7594502          | RO       | 8/7/05  | scattered  | sparse  |
| 419726          | 7594917          | RO       | 8/7/05  | scattered  | sparse  |
| 419768          | 7594181          | RO       | 8/7/05  | scattered  | sparse  |
| 419813          | 7594710          | BM       | 8/7/05  | scattered  | sparse  |
| 420113          | 7594244          | MyM      | 8/7/05  | 5          | sparse  |
| 420130          | 7594165          | RO       | 8/7/05  | scattered  | sparse  |
| 420335          | 7594396          | RO       | 8/7/05  | scattered  | sparse  |
| 420367          | 7594356          | MyM      | 8/7/05  | 10         | sparse  |
| 420406          | 7594400          | RO       | 8/7/05  | scattered  | sparse  |
| 420483          | 7598698          | RO       | 6/7/05  | scattered  | sparse  |
| 421195          | 7599017          | RO       | 6/7/05  | scattered  | sparse  |
| 421249          | 7599037          |          |         | 1          | sparse  |
| 421686          | 7599173          | RO       | 6/7/05  | scattered  | sparse  |
| 421740          | 7599209          | BM       | 6/7/05  | scattered  | sparse  |
| 421805          | 7599232          | MyM      | 7/7/05  | 4          | sparse  |
| 422125          | 7599286          | BM       | 6/7/05  | 4          | sparse  |
| 422181          | 7599279          | BM       | 6/7/05  | 1          | sparse  |
| 422427          | 7599497          | BM       | 6/7/05  | 2          | sparse  |
| 423013          | 7591421          |          |         | +          | sparse  |
| 423113          | 7591468          | MM       | 30/4/05 | 1          | sparse  |
| 423320          | 7591446          | MM       | 30/4/05 | scattered  | sparse  |
| 423332          | 7591594          | MM       | 30/4/05 | scattered  | sparse  |
| 423338          | 7591443          | MM       | 30/4/05 | scattered  | sparse  |
| 424238          | 7597551          |          |         | +          | sparse  |
| 424838          | 7598570          | MM       | 16/9/05 | scattered  | sparse  |
| 424909          | 7598468          | MM       | 16/9/05 | scattered  | sparse  |

**\*Melochia pyramidata**

| EASTING_(WGS84) | NORTHING_(WGS84) | SPECIMEN_NO | NO._OF_IND | DENSITY |
|-----------------|------------------|-------------|------------|---------|
| 414848          | 7600056          | MATH21-04   | scattered  | sparse  |
| 422125          | 7599286          | 2MATC-96    | scattered  | sparse  |

**\*Ocimum basilicum**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | SPECIMEN_NO | NO._OF_IND | COMMENTS                                                  | DENSITY |
|-----------------|------------------|----------|--------|-------------|------------|-----------------------------------------------------------|---------|
| 420496          | 7598702          | RO       | 6/7/05 | 2MATC-66    | scattered  | location approx; no GPS recorded; nearest coordinate used | sparse  |

**\*Parkinsonia aculeata**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_IND | COMMENTS                   | DENSITY |
|-----------------|------------------|----------|--------|------------|----------------------------|---------|
| 382384          | 7614811          | RO       | 3/4/05 | 8          | to 4 m tall in Robe River  | sparse  |
| 382693          | 7614740          | RO       | 3/4/05 | 4          | to 3.5 m tall in Robe Rive | sparse  |

**\*Passiflora foetida**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|--------|-------------|---------|
| 406552          | 7598186          | MM       | 9/8/05 | scattered   | sparse  |
| 406566          | 7598194          | MM       | 9/8/05 | scattered   | sparse  |
| 406639          | 7598266          | MM       | 9/8/05 | scattered   | sparse  |
| 415135          | 7598700          | MM       | 8/9/05 | 1           | sparse  |
| 418905          | 7597980          | RO       | 9/7/05 | scattered   | sparse  |

**\*Phoenix dactylifera**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | COMMENTS                       | DENSITY |
|-----------------|------------------|----------|--------|--------------------------------|---------|
| 384000          | 7614000          | RO       | 3/4/05 | location approximate; no GPS r | sparse  |
| 424064          | 7596969          | MM       |        | outside study area; near Mesa  | sparse  |
| 400765          | 7594510          | MM       |        | outside study area; location a | sparse  |

**\*Setaria verticillata**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE    | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|---------|-------------|-------------|---------|
| 386522          | 7611926          |          |         |             | +           | sparse  |
| 387241          | 7603044          | RO       | 1/8/05  |             | 1           | sparse  |
| 387679          | 7603090          | RO       | 1/8/05  |             | 1           | sparse  |
| 387687          | 7602232          | MM       | 2/8/05  |             | scattered   | sparse  |
| 387737          | 7603303          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387751          | 7603306          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387767          | 7603118          | MM       | 1/8/05  |             | scattered   | sparse  |
| 387814          | 7603381          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387820          | 7603346          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387873          | 7603424          |          |         |             | 1-2         | sparse  |
| 387914          | 7603429          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387928          | 7603173          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387938          | 7602772          | MM       | 2/8/05  |             | scattered   | sparse  |
| 387947          | 7603176          | MM       | 5/8/05  |             | scattered   | sparse  |
| 387968          | 7602852          | MM       | 1/8/05  |             | scattered   | sparse  |
| 388003          | 7603342          | MM       | 5/8/05  |             | scattered   | sparse  |
| 388013          | 7602916          | RO       | 1/8/05  |             | 20          | sparse  |
| 388032          | 7603316          | MM       | 5/8/05  |             | scattered   | sparse  |
| 388064          | 7602760          | MM       | 2/8/05  |             | scattered   | sparse  |
| 388068          | 7603186          | MM       | 5/8/05  |             | scattered   | sparse  |
| 388074          | 7602925          | RO       | 1/8/05  |             | 1           | sparse  |
| 388100          | 7602609          | RO       | 2/8/05  |             | 25          | sparse  |
| 388154          | 7602776          | MM       | 2/8/05  |             | scattered   | sparse  |
| 388156          | 7603250          | MM       | 5/8/05  |             | scattered   | sparse  |
| 388172          | 7603146          | MM       | 1/8/05  |             | scattered   | sparse  |
| 388254          | 7602628          | MM       | 2/8/05  |             | scattered   | sparse  |
| 389153          | 7603245          | MM       | 2/8/05  |             | scattered   | sparse  |
| 392432          | 7603516          | MM       | 4/8/05  |             | scattered   | sparse  |
| 392497          | 7603555          | RO       | 4/8/05  |             | 1           | sparse  |
| 392507          | 7603516          | MM       | 4/8/05  |             | scattered   | sparse  |
| 392778          | 7603244          |          |         |             | +           | sparse  |
| 393011          | 7603826          | MM       | 11/9/05 |             | scattered   | sparse  |
| 393147          | 7603630          | MM       | 11/9/05 |             | scattered   | sparse  |
| 393213          | 7603668          | MM       | 4/8/05  |             | scattered   | sparse  |
| 393234          | 7603890          | MM       | 11/9/05 |             | scattered   | sparse  |
| 393264          | 7603883          | MM       | 11/9/05 |             | scattered   | sparse  |
| 393351          | 7603606          | MM       | 11/9/05 |             | scattered   | sparse  |
| 395389          | 7602232          | RO       | 6/8/05  |             | scattered   | sparse  |
| 406558          | 7598153          | RO       | 9/8/05  |             | 6           | sparse  |
| 407613          | 7600300          | MM       | 8/8/05  |             | scattered   | sparse  |
| 407850          | 7600507          | RO       | 8/8/05  |             | 4           | sparse  |
| 409983          | 7600849          | RO       | 8/8/05  |             | 2           | sparse  |
| 410110          | 7601035          | MM       | 8/8/05  |             | scattered   | sparse  |
| 410143          | 7600856          | RO       | 8/8/05  |             | scattered   | sparse  |
| 410374          | 7601047          | MM       | 8/8/05  |             | scattered   | sparse  |
| 414819          | 7600092          | MM       | 9/9/05  |             | scattered   | sparse  |
| 415591          | 7599534          | MM       | 12/9/05 |             | scattered   | sparse  |
| 415700          | 7599663          | MM       | 9/9/05  |             | scattered   | sparse  |
| 420320          | 7594404          | RO       | 8/7/05  | 2MATC-142   | scattered   | sparse  |

**\*Sonchus oleraceus**

| EASTING_(WGS84) | NORTHING_(WGS84) | RECORDER | DATE   | SPECIMEN_NO | NO._OF_INDS | DENSITY |
|-----------------|------------------|----------|--------|-------------|-------------|---------|
| 418611          | 7598065          | MyM      | 9/7/05 | MyM010      | 1           | sparse  |
| 418691          | 7597883          | RO       | 8/7/05 | 2MATC-185   |             | sparse  |
| 420320          | 7594404          | RO       | 8/7/05 | 2MATC-144   |             | sparse  |

## Appendix 6

### Indicative Clearing Areas for the Development

| Vegetation Type                                | Perceived Relative Significance β | Area Mapped within Total Study Area (ha) | Area to be cleared for Mesa A and Warramboos mines, waste dumps and associated minor access roads | Area to be cleared for Mesa A - Mesa J rail based on 80m buffer | Total area of rail borrow pits (note that only a proportion will be cleared) | Area to be cleared for Mesa A - Mesa J haul road based on 50m buffer | Total area of haul road borrow pits (note that only a proportion will be cleared) | Area to be cleared for proposed Yarraloola pipeline | Area to be cleared for Mesa G access road | Area to be Cleared for Proposed Development based on Northern Haul Road Option |       | Area to be Cleared for Proposed Development based on Northern Rail Option |       |                                    |       |       |      |
|------------------------------------------------|-----------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------|-------|------------------------------------|-------|-------|------|
|                                                |                                   |                                          | ha                                                                                                | ha                                                              | ha                                                                           | ha                                                                   | ha                                                                                | ha                                                  | ha                                        | ha                                                                             | ha    | % of area mapped within study area                                        | ha    | % of area mapped within study area |       |       |      |
| Vegetation of Clayey Plains                    |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |       |                                                                           |       |                                    |       |       |      |
| CcCAoTwTe/h                                    | High                              | 12.6                                     | 17.8                                                                                              | 12.2                                                            | 1.5                                                                          | 5.0                                                                  | 1.5                                                                               |                                                     |                                           | 1.5                                                                            | 12.2  | 1.5                                                                       | 12.2  |                                    |       |       |      |
| AxCAoTwTe/h                                    | High                              | 79.5                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 22.9                                                                           | 28.8  | 30.1                                                                      | 37.8  |                                    |       |       |      |
| AfAbPICAo/h                                    | High                              | 3.6                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.5                                                                            | 12.5  | -                                                                         | -     |                                    |       |       |      |
| AatAbAaCAoTe/h                                 | Moderate                          | 48.8                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 4.9                                                                            | 9.9   | -                                                                         | -     |                                    |       |       |      |
| AbCAoTw/h                                      | High                              | 55.8                                     | 2.9                                                                                               | 2.3                                                             | 10.2                                                                         | 5.4                                                                  | 10.2                                                                              |                                                     |                                           | 5.4                                                                            | 9.7   | 2.9                                                                       | 5.2   |                                    |       |       |      |
| AsyCAoTw/h                                     | High                              | 16.0                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 10.2                                                                           | 63.6  | 12.5                                                                      | 78.1  |                                    |       |       |      |
| AsyCAoTe/h                                     | High                              | 3.9                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.4                                                                            | 10.6  | -                                                                         | -     |                                    |       |       |      |
| CAoTe/h                                        | High                              | 5.5                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.8                                                                            | 15.0  | -                                                                         | -     |                                    |       |       |      |
| Vegetation of Stony Plains                     |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |       |                                                                           |       |                                    |       |       |      |
| AxTw                                           | High                              | 182.5                                    | 14.9                                                                                              | 20.5                                                            | 24.3                                                                         | 11.7                                                                 | 20.3                                                                              |                                                     |                                           | 46.9                                                                           | 25.7  | 59.7                                                                      | 32.7  |                                    |       |       |      |
| AxTe                                           | High                              | 11.8                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 2.0                                                                            | 17.0  | 9.0                                                                       | 75.9  |                                    |       |       |      |
| scald                                          | Moderate                          | 4.4                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.01                                                                           | 0.1   | 1.4                                                                       | 32.8  |                                    |       |       |      |
| AsyAbAaTw                                      | High                              | 258.5                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 12.5                                                                           | 10.7  | 0.3                                                                       | 2.9   | 82.2                               | 31.8  | 96.5  | 37.3 |
| AsyAbAaTe                                      | Moderate                          | 276.5                                    | 2.6                                                                                               | 14.0                                                            | 1.9                                                                          | 19.7                                                                 | 1.9                                                                               | 0.7                                                 |                                           | 22.3                                                                           | 8.1   | 16.5                                                                      | 6.0   |                                    |       |       |      |
| AsyAbTlo                                       | Moderate                          | 7.8                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 2.6                                                                            | 33.2  | 3.9                                                                       | 50.6  |                                    |       |       |      |
| AatAbTw                                        | Moderate                          | 319.4                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 9.3                                                                            | 42.9  | 0.7                                                                       | 10.1  | 63.1                               | 19.8  | 142.7 | 44.7 |
| AatAbTe                                        | Moderate                          | 127.5                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 8.4                                                                            |       | 1.9                                                                       | 11.9  | 9.3                                | 16.3  | 12.8  |      |
| CcAaAbAsyTeTw                                  | Moderate                          | 234.7                                    | 11.9                                                                                              | 4.5                                                             |                                                                              | 2.3                                                                  |                                                                                   | 4.7                                                 |                                           | 18.9                                                                           | 8.0   | 21.2                                                                      | 9.0   |                                    |       |       |      |
| AiAaAbTw                                       | Moderate                          | 395.0                                    | 106.3                                                                                             | 11.6                                                            | 0.2                                                                          | 6.8                                                                  | 0.1                                                                               | 0.8                                                 | 5.6                                       | 119.5                                                                          | 30.3  | 124.4                                                                     | 31.5  |                                    |       |       |      |
| AiAaAbTe                                       | Moderate                          | 13.7                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.3                                                                            | 2.4   | 1.2                                                                       | 8.6   |                                    |       |       |      |
| ChAbTw                                         | Moderate                          | 1020.8                                   |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 33.8                                                                           | 63.0  | 1.4                                                                       | 18.5  | 116.7                              | 11.4  | 180.9 | 17.7 |
| ChAbTe                                         | Moderate                          | 7.3                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.4                                                                            | 2.6   |                                                                           |       | 3.0                                | 40.7  | 3.1   | 42.2 |
| ChAbTwTe                                       | Moderate                          | 62.0                                     | 146.4                                                                                             | 16.0                                                            |                                                                              | 4.1                                                                  |                                                                                   |                                                     |                                           | 4.1                                                                            | 6.5   | -                                                                         | -     |                                    |       |       |      |
| ChCzAtrAaTla                                   | High                              | 349.5                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 1.1                                                                            |       |                                                                           | 147.5 | 42.2                               | 162.3 | 46.4  |      |
| CcAsyCAoTla                                    | High                              | 36.4                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 2.4                                                                            |       |                                                                           | 25.6  | 70.4                               | 25.1  | 69.1  |      |
| CzAaTla                                        | High                              | 24.2                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |       |                                                                           | -     | -                                  | 2.5   | 10.3  |      |
| ChAiAsyHcTe                                    | Moderate                          | 151.4                                    | 23.3                                                                                              | 1.9                                                             | 2.5                                                                          |                                                                      |                                                                                   | 3.4                                                 |                                           | 3.4                                                                            | 2.2   | 3.4                                                                       | 2.2   |                                    |       |       |      |
| ChAiAsyHcTeCE                                  | Low                               | 232.5                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | -                                                                         | -     |                                    |       |       |      |
| CcAanTw                                        | High                              | 0.5                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | -                                                                         | -     |                                    |       |       |      |
| AsclAbTeTw                                     | Moderate                          | 8.8                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | 1.0                                                                       | 10.9  |                                    |       |       |      |
| Vegetation of Stony Hills and Breakaways       |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |       |                                                                           |       |                                    |       |       |      |
| EiAiAptTw                                      | Moderate                          | 13.2                                     | 58.0                                                                                              | 22.8                                                            | 8.5                                                                          | 0.5                                                                  | 0.7                                                                               |                                                     |                                           | -                                                                              | -     | 0.9                                                                       | 7.0   |                                    |       |       |      |
| EiAiAbTw                                       | Moderate                          | 218.7                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 59.2                                                                           | 27.1  | 89.3                                                                      | 40.8  |                                    |       |       |      |
| EiAatAarTw                                     | Moderate                          | 1169.6                                   |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 1047.4                                                                         | 89.6  | 1048.2                                                                    | 89.6  |                                    |       |       |      |
| EiAarTw                                        | Moderate                          | 323.0                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 244.2                                                                          | 75.6  | 245.0                                                                     | 75.8  |                                    |       |       |      |
| EiGwAacTw                                      | Moderate                          | 11.1                                     | 29.5                                                                                              | 0.4                                                             |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | 0.01                                                                      | 0.1   |                                    |       |       |      |
| EiAfuAbTwERIm                                  | Moderate                          | 58.0                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 29.5                                                                           | 50.9  | 29.9                                                                      | 51.6  |                                    |       |       |      |
| EiAatAfuGwTw                                   | Moderate                          | 22.7                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 22.7                                                                           | 100.0 | 22.7                                                                      | 100.0 |                                    |       |       |      |
| AiAbTw                                         | Moderate                          | 308.3                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 19.6                                                                           | 1.3   | 11.7                                                                      | 1.3   | 0.7                                | 13.6  | 4.4   | 21.5 |
| AatAiAarAbTw                                   | Moderate                          | 187.4                                    | 177.8                                                                                             | 2.1                                                             | 2.5                                                                          | 0.1                                                                  | 2.5                                                                               |                                                     | 0.02                                      | 177.8                                                                          | 94.9  | 177.8                                                                     | 94.9  |                                    |       |       |      |
| AiAarTw                                        | Moderate                          | 83.9                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 71.4                                                                           | 85.0  | 73.3                                                                      | 87.4  |                                    |       |       |      |
| AacTw                                          | Moderate                          | 61.6                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.02                                                                           | 0.03  | 0.02                                                                      | 0.03  |                                    |       |       |      |
| ERTw                                           | Moderate                          | 20.9                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.04                                                                           | 0.2   | 1.1                                                                       | 5.4   |                                    |       |       |      |
| Vegetation of Major Creeklines and Floodplains |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |       |                                                                           |       |                                    |       |       |      |
| EcMaAtrPISg                                    | High                              | 139.1                                    |                                                                                                   | 5.8                                                             |                                                                              | 7.0                                                                  |                                                                                   |                                                     |                                           | 7.0                                                                            | 5.1   | 5.8                                                                       | 4.1   |                                    |       |       |      |
| Ec/h                                           | Moderate                          | 17.8                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | -                                                                         | -     |                                    |       |       |      |
| EcEvAtrApyPITw                                 | High                              | 198.1                                    |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 4.7                                                                            | 2.3   | 4.7                                                                       | 2.3   |                                    |       |       |      |
| AtrTe                                          | Moderate                          | 76.7                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.7                                                                            | 4.7   | 3.7                                                                       | 4.9   |                                    |       |       |      |
| EvAtrApyAbGOrTeCE                              | Moderate                          | 15.0                                     | 0.3                                                                                               | 1.1                                                             | 0.04                                                                         | 0.5                                                                  | 0.04                                                                              | 0.2                                                 | 4.5                                       | 1.1                                                                            | 7.1   | 0.3                                                                       | 1.8   |                                    |       |       |      |
| EvAtrGOrPITw                                   | High                              | 4.4                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | 1.1                                                                       | 24.3  |                                    |       |       |      |
| EvCcAcitTwTe                                   | High                              | 6.2                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -     | 1.0                                                                       | 15.6  |                                    |       |       |      |
| EvApyTEr                                       | High                              | 3.3                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.002                                                                          | 0.1   | -                                                                         | -     |                                    |       |       |      |
| CcTe                                           | Moderate                          | 108.9                                    | 0.6                                                                                               |                                                                 |                                                                              |                                                                      |                                                                                   | 0.8                                                 |                                           | 0.8                                                                            | 0.8   | 0.8                                                                       | 0.8   |                                    |       |       |      |
| ChAiApyTw                                      | Moderate                          | 21.1                                     |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 0.5                                                                            | 2.4   | 0.6                                                                       | 3.1   |                                    |       |       |      |

| Vegetation Type                              | Perceived Relative Significance β | Area Mapped within Total Study Area (ha) | Area to be cleared for Mesa A and Warramboos mines, waste dumps and associated minor access roads | Area to be cleared for Mesa A - Mesa J rail based on 80m buffer | Total area of rail borrow pits (note that only a proportion will be cleared) | Area to be cleared for Mesa A - Mesa J haul road based on 50m buffer | Total area of haul road borrow pits (note that only a proportion will be cleared) | Area to be cleared for proposed Yarraloola pipeline | Area to be cleared for Mesa G access road | Area to be Cleared for Proposed Development based on Northern Haul Road Option |      | Area to be Cleared for Proposed Development based on Northern Rail Option |      |
|----------------------------------------------|-----------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|------|---------------------------------------------------------------------------|------|
|                                              |                                   |                                          | ha                                                                                                | ha                                                              | ha                                                                           | ha                                                                   | ha                                                                                | ha                                                  | ha                                        | ha                                                                             | ha   | % of area mapped within study area                                        | ha   |
| Vegetation of Minor Creeklines and Flowlines |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |      |                                                                           |      |
| CcAciAaAbTwTe                                | High                              | 107.0                                    |                                                                                                   | 2.1                                                             | 9.5                                                                          | 6.3                                                                  | 9.5                                                                               |                                                     |                                           | 15.8                                                                           | 14.8 | 11.6                                                                      | 10.8 |
| CcAcoTw                                      | High                              | 0.9                                      |                                                                                                   |                                                                 |                                                                              | 0.04                                                                 |                                                                                   |                                                     |                                           | 0.04                                                                           | 4.3  | -                                                                         | -    |
| CcAfAxTwTeERlb                               | High                              | 8.8                                      |                                                                                                   | 2.6                                                             |                                                                              | 0.2                                                                  |                                                                                   |                                                     |                                           | 0.2                                                                            | 2.2  | 2.6                                                                       | 30.1 |
| CcGOrAtuTe                                   | Moderate                          | 2.0                                      |                                                                                                   |                                                                 | 0.01                                                                         |                                                                      | 0.01                                                                              |                                                     |                                           | 0.01                                                                           | 0.3  | 0.01                                                                      | 0.3  |
| CcSsAbGOrTe                                  | Moderate                          | 3.8                                      |                                                                                                   |                                                                 |                                                                              | 0.7                                                                  |                                                                                   |                                                     |                                           | 0.7                                                                            | 17.7 | -                                                                         | -    |
| CcTw                                         | Moderate                          | 0.8                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | -                                                                         | -    |
| CcChAatAaTe                                  | Moderate                          | 34.2                                     | 25.1                                                                                              |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 25.1                                                                           | 73.5 | 25.1                                                                      | 73.5 |
| CcChAtrAbPITwTe                              | High                              | 33.8                                     | 6.6                                                                                               | 2.2                                                             | 12.3                                                                         | 0.6                                                                  | 12.3                                                                              |                                                     |                                           | 19.4                                                                           | 57.5 | 21.1                                                                      | 62.3 |
| ChAsppGOrGsppPISsTeTw                        | Moderate                          | 299.2                                    |                                                                                                   | 21.7                                                            | 99.7                                                                         | 26.2                                                                 | 51.6                                                                              |                                                     |                                           | 77.8                                                                           | 26.0 | 121.4                                                                     | 40.6 |
| ChAtuGwAatAarTw                              | Moderate                          | 21.9                                     | 20.0                                                                                              |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 20.0                                                                           | 91.3 | 20.0                                                                      | 91.3 |
| ChCzAtuAtrTe                                 | High                              | 25.7                                     | 1.4                                                                                               |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 1.4                                                                            | 5.3  | 1.4                                                                       | 5.3  |
| ChCzAtuAtrCE                                 | Moderate                          | 8.0                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | -                                                                         | -    |
| ChAacTw                                      | Moderate                          | 4.2                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | -                                                                         | -    |
| ChAtuTwTe                                    | Moderate                          | 48.3                                     | 4.5                                                                                               | 6.9                                                             | 6.9                                                                          | 0.3                                                                  | 5.8                                                                               |                                                     |                                           | 10.6                                                                           | 21.8 | 18.3                                                                      | 37.9 |
| ChGOrPITw                                    | Moderate                          | 1.3                                      |                                                                                                   | 0.1                                                             | 0.7                                                                          |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | 0.9                                                                       | 66.0 |
| ElAprAatAarTw                                | Moderate                          | 3.3                                      | 2.9                                                                                               |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 2.9                                                                            | 87.0 | 2.9                                                                       | 87.0 |
| ElCcAtuAarTw                                 | Moderate                          | 38.4                                     | 38.1                                                                                              |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 38.1                                                                           | 99.3 | 38.1                                                                      | 99.3 |
| ElChPIGwAacTw                                | Moderate                          | 2.4                                      |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | -                                                                         | -    |
| AatPITw                                      | Moderate                          | 23.4                                     |                                                                                                   | 0.4                                                             |                                                                              | 2.8                                                                  |                                                                                   |                                                     |                                           | 2.8                                                                            | 11.8 | 0.4                                                                       | 1.6  |
| AbTw                                         | Moderate                          | 10.2                                     |                                                                                                   |                                                                 |                                                                              | 1.1                                                                  |                                                                                   |                                                     |                                           | 1.1                                                                            | 10.5 | -                                                                         | -    |
| AbApyGOrPITwCE                               | Moderate                          | 10.3                                     |                                                                                                   | 0.9                                                             | 4.1                                                                          |                                                                      |                                                                                   |                                                     |                                           | -                                                                              | -    | 5.0                                                                       | 48.3 |
| AciAtuTw                                     | Moderate                          | 23.8                                     |                                                                                                   | 0.5                                                             |                                                                              | 1.9                                                                  |                                                                                   |                                                     |                                           | 1.9                                                                            | 8.0  | 0.5                                                                       | 2.2  |
| Vegetation of Sand Sheets                    |                                   |                                          |                                                                                                   |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           |                                                                                |      |                                                                           |      |
| CzAtGeTs                                     | Very High                         | 146.3                                    | 3.1                                                                                               |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 3.1                                                                            | 2.1  | 3.1                                                                       | 2.1  |
| Disturbed                                    | -                                 |                                          |                                                                                                   | 3.5                                                             |                                                                              | 9.7                                                                  |                                                                                   | 0.1                                                 |                                           | 9.8                                                                            |      | 3.6                                                                       |      |
| No Vegetation Mapping                        |                                   |                                          | 119.0                                                                                             |                                                                 |                                                                              |                                                                      |                                                                                   |                                                     |                                           | 119.0                                                                          |      | 119.0                                                                     |      |
| Total                                        |                                   | 7878.0                                   | 2249.3                                                                                            | 364.9                                                           | 366.1                                                                        | 203.0                                                                | 237.0                                                                             | 14.2                                                | 46.2                                      | 2749.7                                                                         |      | 3040.7                                                                    |      |

<sup>β</sup> See Table 4.4.