



12 May 2020

## RE: Broome Regional Resource Recovery Facility Detailed Flora & Fauna Assessment

[REDACTED]  
[REDACTED]

Talis Consultants

[REDACTED]

Spectrum Ecology completed the detailed flora and fauna field assessment at the proposed D2 and G1 Study Areas. Each Study Area was assessed by two botanists over two days, between 19 and 23 April (5 person days per Study Area). Each Study Area was assessed by two zoologists for 7 trapping nights as per the technical guidance.

This memo outlines the preliminary field findings of the field survey ahead of the detailed report. This memo additionally provides a preliminary response to the Department of Water and Environmental Regulation's (DWER) Request for Information (CPS 8820-1 Schedule 1) addressing the comments on the reconnaissance flora and level 1 fauna surveys.

Please contact me if you require any further information in relation to the above.

Yours sincerely,

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## BACKGROUND

The Shire of Broome has engaged Talis Consultants to investigate two potential areas (D2 and G1) for the placement of a new community recycling centre and landfill. Spectrum Ecology was engaged to undertake a detailed flora and level 2 fauna assessment at the two potential areas. Spectrum Ecology previously conducted a reconnaissance flora and level 1 fauna survey at the D2 and G1 sites in December 2019.

## FIELD METHODOLOGY

### Flora & Vegetation

The flora survey was undertaken by botanists [REDACTED] and across both Study Areas comprised of:

- Four 50 × 50 m quadrats (one located outside the Study Areas);
- Five relevés (three located outside the Study Areas); and
- 45 km of targeted traverse searches with 100 m spacing.

The flora survey was undertaken to identify the flora species present, detect potential significant species, and classify vegetation communities. The survey timing was appropriate for the detection of flora or vegetation communities that may be of conservation significance. No limitations or constraints were encountered that will affect the results of the assessment.

The location of flora survey sites and traverses is presented in Figure 1 and Figure 2.

### Fauna

The level 2 fauna assessment was undertaken by zoologists [REDACTED], and comprised of:

- Systematic trapping consisting of eight lines;
- Bat recording;
- Opportunistic survey sites;
- Bird survey sites; and
- Nocturnal survey sites.

The fauna survey was undertaken to a level 2 rigour to gain a census of fauna species present as well as detect any Threatened or Priority fauna species. No limitations or constraints were encountered that will affect the results of the assessment.

Opportunistic sites were based on a 2 ha sign plot as required for Greater Bilby and combined searches for Bilby sign, reptiles, mammals, birds and potential Short Range Endemic (SRE) taxa. A further two sign plots have been completed at each site by Yawuru Country Managers.

The location of fauna survey sites are presented in Figure 1 and Figure 2.

## RESULTS

### D2 Study Area

#### Flora & Vegetation

Preliminary observations have recorded a single vegetation type at the Study Area from two quadrat sites.

At the time of writing this memo and prior to formal confirmation of all plant specimens collected during the survey, no Threatened flora taxa were recorded at the D2 Study Area.

Preliminary field observations recorded three potential Priority flora (Figure 1). These have been collected for formal taxonomic identification. They are potentially:

- *Corymbia paractia* (P1);
- *Jacquemontia* sp. Broome (P1); and
- *Terminalia kumpaja* (P3).

Additionally, one potential species of interest, *Sersalisia sericea*, was collected for formal identification. This species is the primary indicator for the Kimberly Relict Dune System or Mangarr (Minyjuru), Priority Ecological Community (PEC), and thus has the potential to indicate the presence of this PEC. Eleven individuals of *Sersalisia sericea* were potentially recorded at six locations across the Study Area (Figure 1). Two observations of *Sersalisia sericea* were recorded within the existing Mangarr (Minyjuru) PEC boundary/buffer area in the north-west corner of the Study Area (Figure 1). Given the potential presence *Sersalisia sericea*, it may represent the Mangarr (Minyjuru) PEC. A more thorough analysis is needed to confirm presence/absence of the PEC which will be undertaken for the detailed assessment.

The locations of the potential significant flora are presented in Figure 1.

One introduced species was recorded, *\*Stylosanthes hamata*, primarily along the edges of the D2 survey area.

The species described above will be confirmed following formal plant identification.

#### Fauna

Seven fauna survey sites were located within the D2 Study Area, including:

- One systematic trapping site;
- One bat recorder site;
- Three opportunistic sites;
- One bird survey site; and
- One nocturnal survey site.

Additionally, two opportunistic survey sites (2 ha sign plots) were conducted by Country Managers.

Preliminary field observations identified no significant vertebrate fauna species (pending completion of bat call analysis). One scorpion specimen was collected from the site for formal taxonomic identification.

### G1 Study Area

#### Flora & Vegetation

Preliminary observations indicate several vegetation types are present within the Study Area. A large proportion of the site was recently burnt. Two quadrats were recorded in the unburnt patches of vegetation,

and two relevés were recorded in the recently burnt areas of the Study Area. One quadrat and three relevés were recorded outside the Study Area.

At the time of writing this memo, prior to formal confirmation, no potential Threatened or Priority flora taxa were observed at the G1 Study Area (Figure 2).

One potential species of interest, *Sersalisia sericea*, was collected for formal identification represented by a single individual at one location (Figure 2). This species is the primary indicator for the Kimberly Relict Dune System or Mangarr (Minyjuru) PEC, and thus has the potential to indicate the presence of this PEC. Given the very sparse coverage of *Sersalisia sericea*, it has low likelihood to represent the PEC. A more thorough analysis is needed to confirm presence/absence of the PEC which will be undertaken for the detailed assessment.

The locations of potential significant flora are presented in Figure 2.

Preliminary field observations recorded one introduced species, *\*Stylosanthes hamata*, within the G1 survey area.

The species described above will be confirmed following formal plant identification.

## Fauna

Eleven fauna survey sites were located within the G1 Study Area including:

- One systematic trapping site;
- One bat recorder site;
- Seven opportunistic sites;
- One bird survey site; and
- One nocturnal survey site.

Additionally, four opportunistic survey sites (2 ha sign plots) were conducted by Country Managers.

Preliminary field observations identified no significant vertebrate fauna species (pending completion of bat call analysis). Two scorpion specimens and a male Mygalomorph (trapdoor) spider were collected from the site for formal taxonomic identification.

## DWER Request for Information

The DWER identified a number of areas in which the information supplied in the Shire of Broome's application for a Purpose Permit was insufficient for the requirements of the assessment. The information requests within CPS 8820-1 Schedule 1 that are applicable to Spectrum Ecology's detailed flora and level 2 fauna surveys are addressed below.

Item 1: "The reconnaissance flora survey found that habitat observed within Site D2 is not typical of the habitat associated with the characteristic species *Sersalisia sericea* (Spectrum Ecology, 2019). An additional survey within the PEC buffer would be required to confirm the presence or absence of this PEC (Spectrum Ecology, 2019). Talis Consultants (2019) suggests that the PEC occurs outside the development footprint. However, the PEC remains within the application area footprint."

- The area in the north-west corner of the D2 study area was traversed during the detailed flora survey and *Sersalisia sericea* was potentially observed inside and outside the PEC buffer (Figure 1). Eleven individuals of *Sersalisia sericea* were recorded at six locations across the D2 Study Area; and
- A single collection of *Sersalisia sericea* was taken within the G1 Study Area.

Item 1: "Due to the proximity of these sensitive receptors, including greater bilby habitat within Site D2 and Site G1, and the Mangarr (Minyjuru) PEC mapped within the Site D2 of the application area, evidence of additional efforts to avoid the need for clearing is required."

- Talis Consultants has indicated that the clearing of tracks for the site investigations can be adapted to minimise impact on any significant flora, fauna, or vegetation communities identified by the survey; and
- Talis will provide further information of project design and justification of clearing requirements

Item 3: "Given the presence of associated species, and habitat preferences of this species, an additional survey is required to determine the presence or absence of threatened flora within the application area."

- Further to the reconnaissance level survey conducted in 2019, a detailed flora survey was conducted by Spectrum Ecology in 2020 and included targeted traverses of the D2 and G1 Study Areas to determine the presence or absence of Threatened flora (Figure 1; Figure 2). Prior to formal taxonomic identification of collected taxa, and to be reviewed preliminary results suggest no Threatened flora, including *Seringia exastia*, were observed in the Study Areas. Similarly, no taxa suspected of being Threatened flora were observed or deemed necessary to sample for further taxonomic identification.

Item 3: "Additionally, the preliminary assessment identified that application area may provide suitable habitat for nine Priority flora species recorded within the local area, ..."

- Intensive transect searches were conducted across the G1 and D2 Study Areas under favourable seasonal conditions for the detection of Priority flora, including annuals (Figure 1; Figure 2). This gave the highest probability of detecting the nine potential species in the local area;
- Prior to formal taxonomic identification of collected specimens, preliminary results indicate that three Priority flora were present within the D2 Study Area and include:
  - *Jacquemontia* sp. Broome (A.A. Mitchell 3028) (Priority 1);
  - *Corymbia paractia* (Priority 1); and
  - *Terminalia kumpaja* (Priority 3).

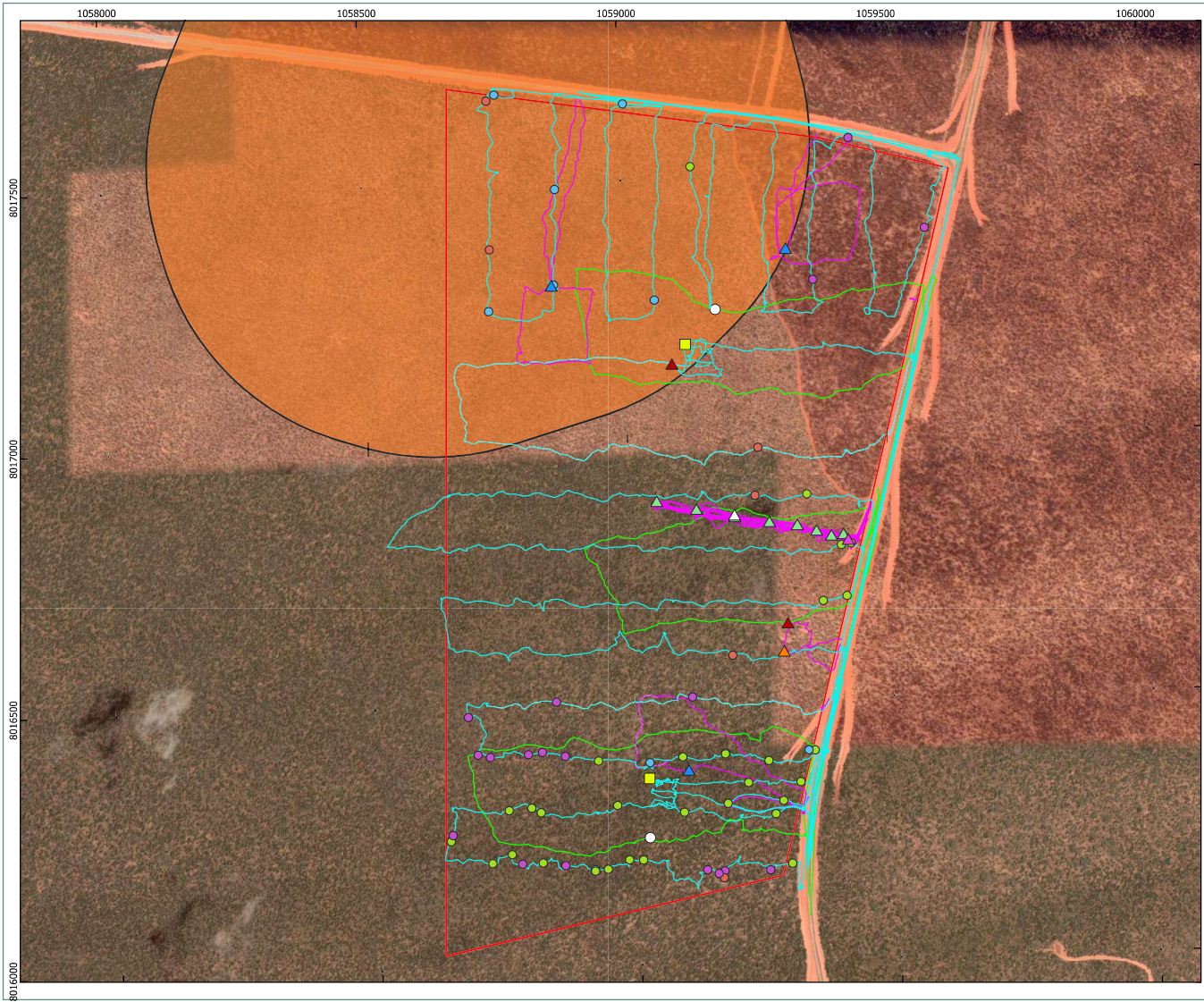
Item 3: "A survey conducted after sufficient rainfall in the period of March to May when the herbaceous species are flowering to determine the presence or absence of these species (Spectrum Ecology, 2019). Additional flora and vegetation surveys are required to determine the occurrence of priority flora within the application areas." And "An additional vegetation survey is required to confirm the absence, presence and extent of PECs within the application area. Alternatively, the application can provide a revised application area excluding the mapped PEC and buffer area (refer to Item 1 above)."

- The detailed flora survey of the D2 and G1 Study Areas was conducted in April 2020, following sufficient rainfall, to determine the occurrence of Priority flora during the flowering period of herbaceous species;
- Many common, annual herbaceous species, were observed to be present and flowering during the survey, indicating the survey timing was optimal for the detection of annual species;
- *Jacquemontia* sp. Broome (A.A. Mitchell 3028) (Priority 1), one of the species which the reconnaissance survey indicated as requiring confirmation was detected both flowering and fruiting;
- A traverse of the D2 and G1 Study Areas found *Sersalisia sericea* was potentially present at D2 and the species indicates the presence of the Mangarr (Minyjuru) PEC (Figure 1). Eleven individuals of *Sersalisia sericea* were recorded at six locations across the D2 Study Area. One individual of *Sersalisia sericea* was potentially recorded at G2; and
- The individuals of *Sersalisia sericea* can be avoided during clearing.

Item 4: "A targeted survey for the greater bilby is required to determine the occurrence of the species within the application area and potential impacts to the species. The survey should encompass Site D2 and Site G1, and any modifications to the application area boundary proposed for Site G1 (refer to Item 2), should these be confirmed as part of the application area."

- The level 2 fauna survey included opportunistic sites were based on a 2 ha sign plot as required for Greater Bilby. A further two sign plots were completed at each site by Yawuru Country Managers.





**Legend**

- D2 Study Area
- Mangarr (Minyjuru) PEC (P1)

**Detailed Flora Survey**

- Site Traverse
- Quadrat Site

**Potential Significant Flora Locations**

- *Corymbia paractia* (P1)
- *Jackmontia* sp. Broome (P1)
- *Terminalia kumpaja* (P3)
- *Sersalisia sericea* (SOI)

**Level 2 Fauna Survey**

- Fauna Survey Tracks
- ▲ Bat Recorder
- ▲ Bird Opportunistic Site
- ▲ Fauna Trapping Site
- ▲ Nocturnal Opportunistic Site
- ▲ Opportunistic Site
- ▲ Country Manager Sign Plot

**Reconnaissance Survey**

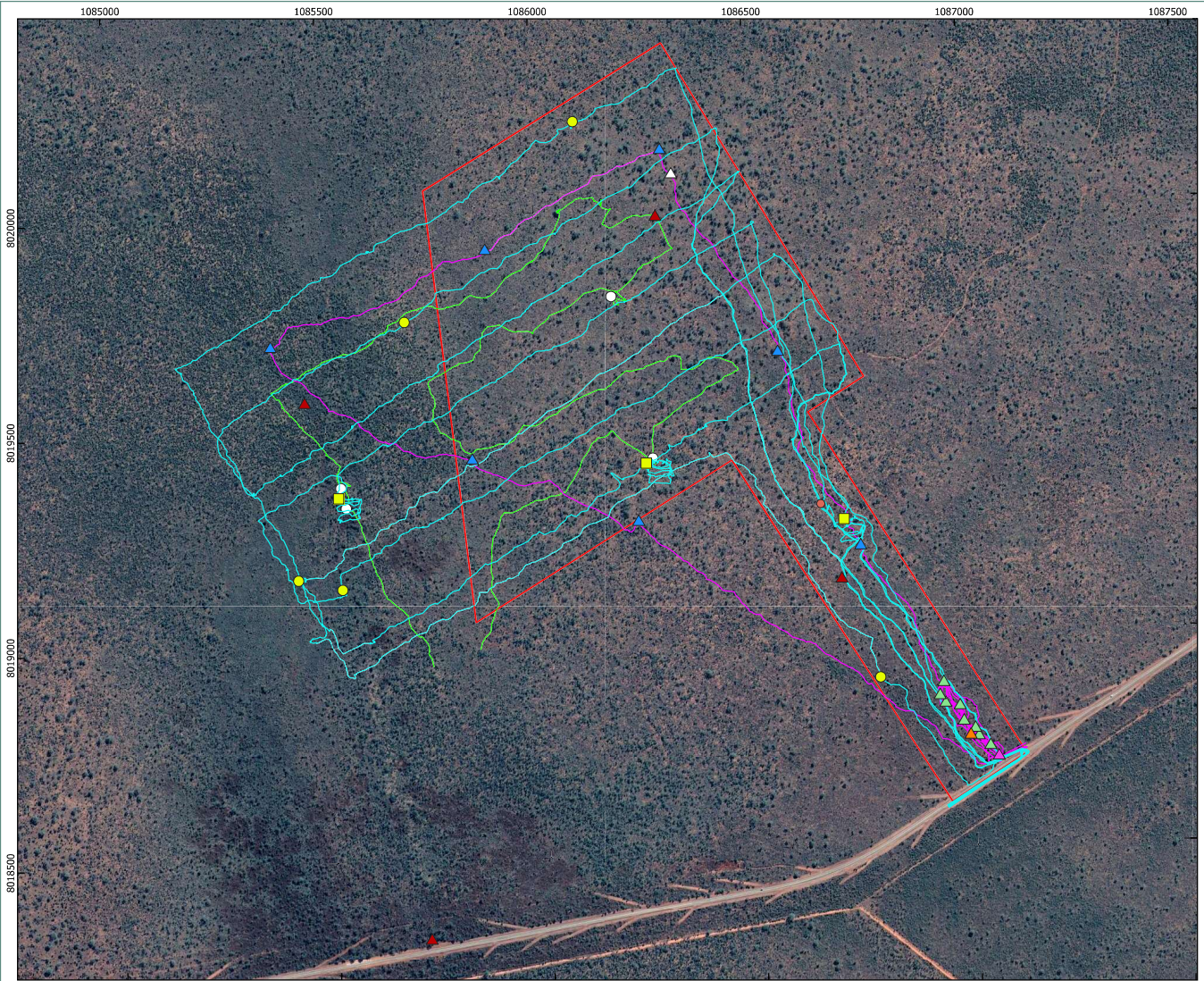
- Site Traverse
- Revele



0 0.1 0.2 km  
 Scale: 1:7,000  
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**D2 Study Area**  
**Potential Significant Flora**  
 Broome Waste Facility





- Legend**
- G1 Study Area
  - Detailed Flora Survey**
  - Site Traverse
  - Quadrat Site
  - Releve
  - Potential Significant Flora Locations**
  - *Sersalisia sericea*
  - Level 2 Fauna Survey**
  - Fauna Survey Tracks
  - ▲ Bat Recorder
  - ▲ Fauna Trapping Site
  - ▲ Opportunistic Site
  - ▲ Bird Opportunistic Site
  - ▲ Nocturnal Opportunistic Site
  - ▲ Country Manager Sign Plot
  - Reconnaissance Survey**
  - Site Traverse
  - Releve



0 0.1 0.2 0.3 km  
 Scale 1:8,500  
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Author: CS Date: 11/05/2020

**G1 Study Area**  
**Potential Significant Flora**  
 Broome Waste Facility