CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8013/1
Permit Holder:	Mandora Cattle Company Pty Ltd
Duration of Permit:	5 December 2018 – 5 December 2023

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I –CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of horticulture.

2. **Land on which clearing is to be done**
   Lot 1502 on Deposited Plan, 66802, Eighty Mile Beach.

3. **Area of Clearing**
   The Permit Holder must not clear more than 100 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8013/1.

4. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II –MANAGEMENT CONDITIONS

5. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

6. **Direction of clearing**
   The Permit Holder shall conduct clearing in a slow progressive manner towards remnant vegetation to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

7. **Period in which clearing is authorised**
   The Permit Holder must ensure that the planting of crop species occurs within three months of the authorised clearing being undertaken.

8. **Fauna management**
   (a) Within two weeks of undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake clearance surveys using transects spaced at a maximum 200 metres within the areas cross-hatched yellow on attached Plan 8013/1 for potential greater bilby (*Macrotis lagotis*) burrows. If a burrow is identified during the initial 200 metre transects, the Permit Holder shall undertake more intensive searches with transects spaced at a maximum of 20 metres.

(b) Where a potential greater bilby burrow is identified under condition 8(a) of this Permit, the Permit Holder shall engage a *fauna specialist* to undertake the following measures:
   (i) flag the location of any burrow/s;
   (ii) determine whether the burrow/s is an *active burrow*;
   (iii) fill in any visibly *inactive burrow/s* to prevent future use; and
   (iv) monitor all *active burrows* with remote cameras for a minimum of three consecutive nights.

(c) Where monitoring under condition 8(b)(iv) does not identify any greater bilby activity, the Permit Holder shall ensure that a *fauna specialist* excavates the *inactive burrow* in accordance with Appendix 1 to confirm absence of greater bilby, and immediately fills in the *inactive burrow* to prevent future use.

(d) Where monitoring under condition 8(b)(iv) identifies greater bilby activity, the Permit Holder shall engage a *fauna specialist* to:
   (i) partially excavate the *active burrow*, to encourage greater bilby *displacement*;
   (ii) continually monitor with remote cameras any *active burrow/s* for a maximum period of three consecutive days or until such time that greater bilby has been *displaced* from the *active burrow/s*;
   (iii) fill in the *active burrow* to prevent future use where greater bilby is observed to have been *displaced*.

(e) Should greater bilby not be *displaced* under condition 8(d) of this Permit, the Permit Holder shall engage a *fauna specialist* to undertake the following measures:
   (i) capture greater bilby utilising the *active burrow* via cage traps or yard traps (refer to Appendix 1), to be deployed for a maximum of three consecutive days; and
   (ii) relocate any captured greater bilby within 14 hours at a pre-selected release site more than five kilometres from the boundary of the area hatched yellow on attached Plan 8013/1 in *suitable habitat*, in accordance with a fauna licence pursuant to Regulation 15 of the *Wildlife Conservation Regulations 1970*.

(f) Where greater bilby have been relocated under condition 8(e)(ii), the Permit Holder shall ensure that the *active burrow* from which the greater bilby was relocated is filled in to prevent future use.

(g) Within two days of undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake a walk-through of the area cross-hatched yellow on attached Plan 8013/1 to inspect previously filled burrows and ensure that greater bilby has not recolonised filled burrows, and no new burrows have been constructed.

(h) Should any new or recolonised burrows be identified under condition 8(g) of this Permit, the Permit Holder shall undertake measures in accordance with 8(e) of this Permit to remove and relocate greater bilby utilising the new or recolonised burrows.

(i) Where greater bilby burrows are identified under condition 8(a), 8(b) and/or 8(g) of this Permit, and/or greater bilby are *displaced* or are relocated under conditions 8(d), 8(e) and 8(h) of this Permit, the Permit Holder shall include the following in a report submitted to the Department of Water and Environmental Regulation:
   (i) the location of any *active burrows* and/or *inactive burrows* identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
   (ii) the date, time and location, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees of any *active burrows* and/or *inactive burrows* identified that were filled in, in accordance with condition 8(b)(iii) and/or 8(d)(iii);
   (iii) a description of the camera monitoring measures undertaken under condition 8(b)(iv) of this Permit, including photographic records demonstrating the method and the number of monitoring nights;
   (iv) the date, time and location identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees, of any greater bilby recorded as being displaced from an *active burrow*;
   (v) the gender of each greater bilby captured under conditions 8(e) and/or 8(h) of this Permit;

(vi) the location of any greater bilby captured using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
(vii) the date, time, vegetation type and weather conditions at each location where greater bilby is captured under condition 8(i)(v) of this Permit;
(viii) the gender of each greater bilby relocated under conditions 8(e) and/or 8(h) of this Permit;
(ix) the location of any greater bilby relocated using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
(x) the date, time, vegetation type and weather conditions at each location where greater bilby is relocated under condition 8(i)(viii) of this Permit;
(xi) the name of the *fauna specialist* that relocated greater bilby under condition 8(e) and/or 8(h) of this Permit; and
(xii) a copy of the fauna licence authorising the relocation of greater bilby under conditions 8(e) and/or 8(h) of this Permit.

9. Weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) restrict the movement of machines and other vehicles to the limits of the areas to be cleared; and
(c) within six months of the expiry of this Permit, the Permit Holder must remove or kill any *weeds* or species proposed for cropping which are growing within 200 meters outside of the area hatched yellow on attached Plan 8013/1.

PART III - RECORD KEEPING AND REPORTING

10. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:
(a) In relation to the clearing of native vegetation authorised under this Permit:
(i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
(ii) the date that the area was cleared;
(iii) the size of the area cleared (in hectares);
(iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit;
(v) actions taken in accordance with conditions 6 and 7 of this Permit;
(vi) of records required under condition 8 of this Permit, and the date the report is submitted to the Department of Water and Environmental Regulation; and
(vii) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 9 of this Permit.

11. Reporting

(a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
(i) of records required under condition 8 and 10 of this Permit; and
(ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
(c) Prior to 30 August 2023, the Permit Holder must provide to the *CE*O a written report of records required under condition 8 and 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:
active burrow means a burrow that is currently being utilised by greater bilby;
inactive burrow means a burrow that is not currently being utilised by greater bilby;
CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986;*
displaced/displacement means a greater bilby departing a burrow of its own volition and/or self-relocating;
fauna specialist: means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*;
fill means material used to increase the ground level, or fill a hollow;
mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;
suitable habitat means habitat that is suitable for use by greater bilby (*Macrotis lagotis*)
weed/s means any plant -

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
(c) not indigenous to the area concerned.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

5 November 2018

Appendix 1: burrow excavation

The following procedures should be followed when excavating burrows:

- Burrow excavation requires two people, each with a blunt-nosed shovel and/or garden trowels. It may take up to several hours to excavate a greater bilby burrow, depending on its length and other characteristics.
- To maintain sight of the burrow, place the shovel handle down the burrow entrance as far as possible.
- Slice away the ceiling with the second shovel or trowel, removing the sides and surrounding soils as required.
- Continue to slide the first shovel down into the burrow chamber so the burrow is not lost during excavation.
- Remove the soil with the second shovel or trowel as excavation proceeds and repeat.
- Excavate the burrow slowly and carefully, and stop often to see if a greater bilby is within reach or the end of the burrow is visible (a torch may be required). Be aware that other fauna species may be utilising the burrow.
- Do not collapse the burrow ahead of the shovel or trowel inside the burrow. Feel the shovel contact the other shovel with each stroke to avoid striking a greater bilby.
- Always excavate the burrow to its absolute end – be aware of forks, branches and plugged chambers and ensure all are excavated and inspected.
- If any fauna is observed, it may be either displaced or captured. Note that venomous species may be present in burrows.
- If a juvenile greater bilby is captured, then reunite with mother if possible by direct insertion into the pouch and taping.
- After excavating the burrow, fill in the remaining hole.

Appendix 2: greater bilby trapping

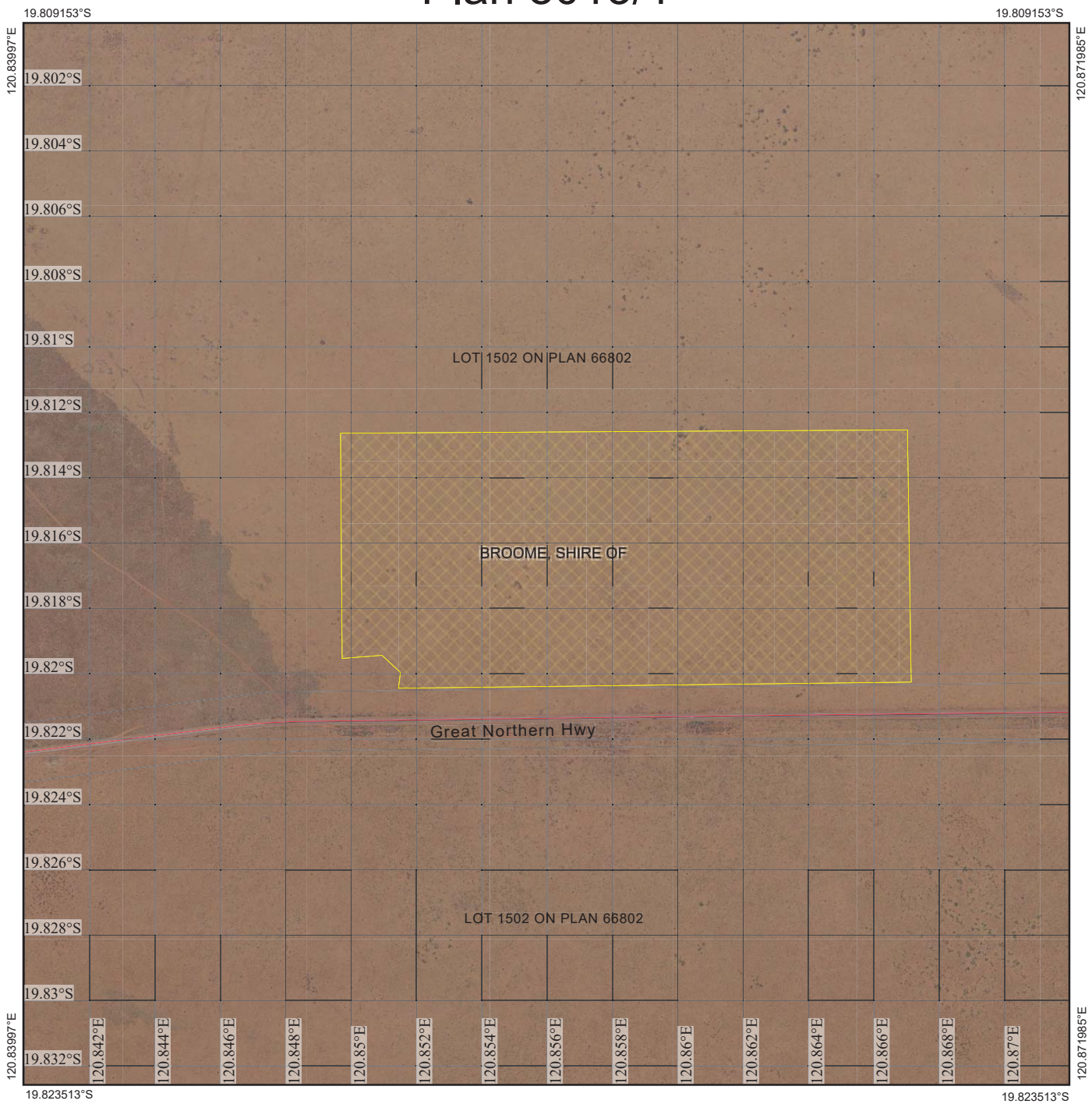
Burrow traps

Cage traps with internal-opening doors (spring closing) are required. Hessian should cover the top and sides of the trap but not the end, to enable a bilby to see through the trap. The wire mesh base should be lightly covered with sand. The sides of the burrow need to be carefully dug out using a small shovel to enable the trap to fit snugly inside the burrow, and deep enough so the treadle is just inside the burrow entrance (McGregor and Moseby 2014). Bait is unnecessary. Having no hessian on the base enables sand to obscure the wire mesh. However, the treadle needs to remain free and protected from sand build-up from below. The treadle can be camouflaged by spraying water over the treadle, and then sprinkling sand on top to affix.

Yard traps

A yard is built around a potentially active burrow using 3-4 m panels of 25x25 mm square mesh (or finer), 900 mm tall with a hinged 300-400 mm footing (Southgate *et al*. 1995). The hinged footing can be attached with ring fasteners. A rod through ring fasteners attached to the end of each panel can be used to join additional panels. The panels need to encircle the burrow, leaving about 1 m or more from the entrance. The footing needs to face inward toward the burrow entrance and can be cut to enable overlap and panels to curve around the burrow. The footing should be flat with the ground and covered with sand. At least three internally opening (spring closing) cage traps should be set inside the yard trap against the side of a panel and the wire mesh on the base obscured with sand. The top and sides of the traps should be covered with hessian but absent from the end. Bait may be used in traps.

Plan 8013/1



Legend

- Imagery
- Clearing Instruments Activities
- Local Government Authority

N

0 1km

1:17,776

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date ..05/11/2018.....

Mathew Gannaway

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8013/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Mandora Cattle Company Pty Ltd
Application received date: 6 March 2018

1.3. Property details

Property: Lot 1502 on Deposited Plan 66802
Local Government Authority: Shire of Broome
Localities: Eighty Mile Beach

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
150		Mechanical Removal	Pastoral diversification

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 5 November 2018

Reasons for Decision:

The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance to principles (a), (b) and (g), is not at variance to principle (e), and is not likely to be at variance to the remaining principles.

Based on the assessment of the application area, the Delegated Officer determined that:

- the application area may comprise a high level of biological diversity;
- the application area may be necessary for the maintenance of significant habitat for the greater bilby (*Macrotis lagotis*);
- the proposed clearing may cause appreciable land degradation in the form of wind erosion between clearing and crop establishment; and
- the proposed clearing may result in the spread of weeds into adjacent areas.

To minimise impacts to the greater bilby, the clearing permit contains conditions requiring:

- pre-clearance surveys to identify greater bilby burrows within the application area and determine whether burrows are active;
- measures to encourage greater bilby to self-relocate from active burrows;
- the trapping and relocation of greater bilby's from active burrows should they not self-relocate;
- slow progressive one directional clearing to allow greater bilby to move into adjacent vegetation ahead of the clearing; and
- the requirement to obtain a fauna licence issued pursuant to Regulation 15 of the *Wildlife Conservation Regulations 1970.*

To minimise the potential for appreciable land degradation and the spread of weeds, the clearing permit contains conditions requiring:

- the planting of crop species within three months of any clearing being undertaken, to minimise wind and water erosion; and
- the movement of machinery to be restricted to the limits of the application area and cleaning earth moving machinery prior to entering and leaving the application area.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The applicant has applied to clear 100 hectares of native vegetation within Lot 1502 on Deposited Plan 66802, Eighty Mile Beach, to establish a small-scale pivot irrigation development on Mandora Station, approximately 245 kilometres east of Port Hedland. The development is intended to comprise two irrigation pivots, each 50 hectares in size, located on the northern side of the Great Northern Highway. The purpose of the development is to grow cattle fodder (see Figure 1).

Vegetation Description

The application area is mapped as Beard vegetation association 32, which is described as 'Pindan: shrublands, pindan; acacia shrubland with scattered low trees over Triodia spp.' (Shepherd et al., 2001).

The applicant commissioned Biota Environmental Sciences (Biota, 2018) to complete a flora survey (the Flora Survey) of the application area for conservation significant flora in 2018. The Flora Survey identified that the vegetation under application is consistent with the broad scale mapped vegetation type and comprises *Grevillea pyramidalis* subsp. *pyramidalis, Dolichandrone occidentalis, Gardenia pyriformis* subsp. *keartlandii, Terminalia kumpaja* scattered tall shrubs to low trees over *Acacia stellaticeps* low shrubland over *Triodia epactia,* and *Triodia schinzii* hummock grassland, which included a stand of *Acacia eriopoda* tall shrubland in the south eastern section of the application area (Biota, 2018).

Vegetation Condition

The Flora Survey identified that the vegetation under application is in excellent (Keighery, 1994) condition, with occasional cattle and camel scats but no particular signs of grazing and no weeds. The Flora Survey noted that the southwestern corner of the application area had been burnt in late 2017 (Biota, 2018).

Soil type

The landform of the application area is mapped as the Nita Land System which comprises sandplains supporting shrubby spinifex grasslands. The Flora Survey noted that the application area comprised of flat pindan sandplain with a substrate of orange-brown sand (Biota, 2018).

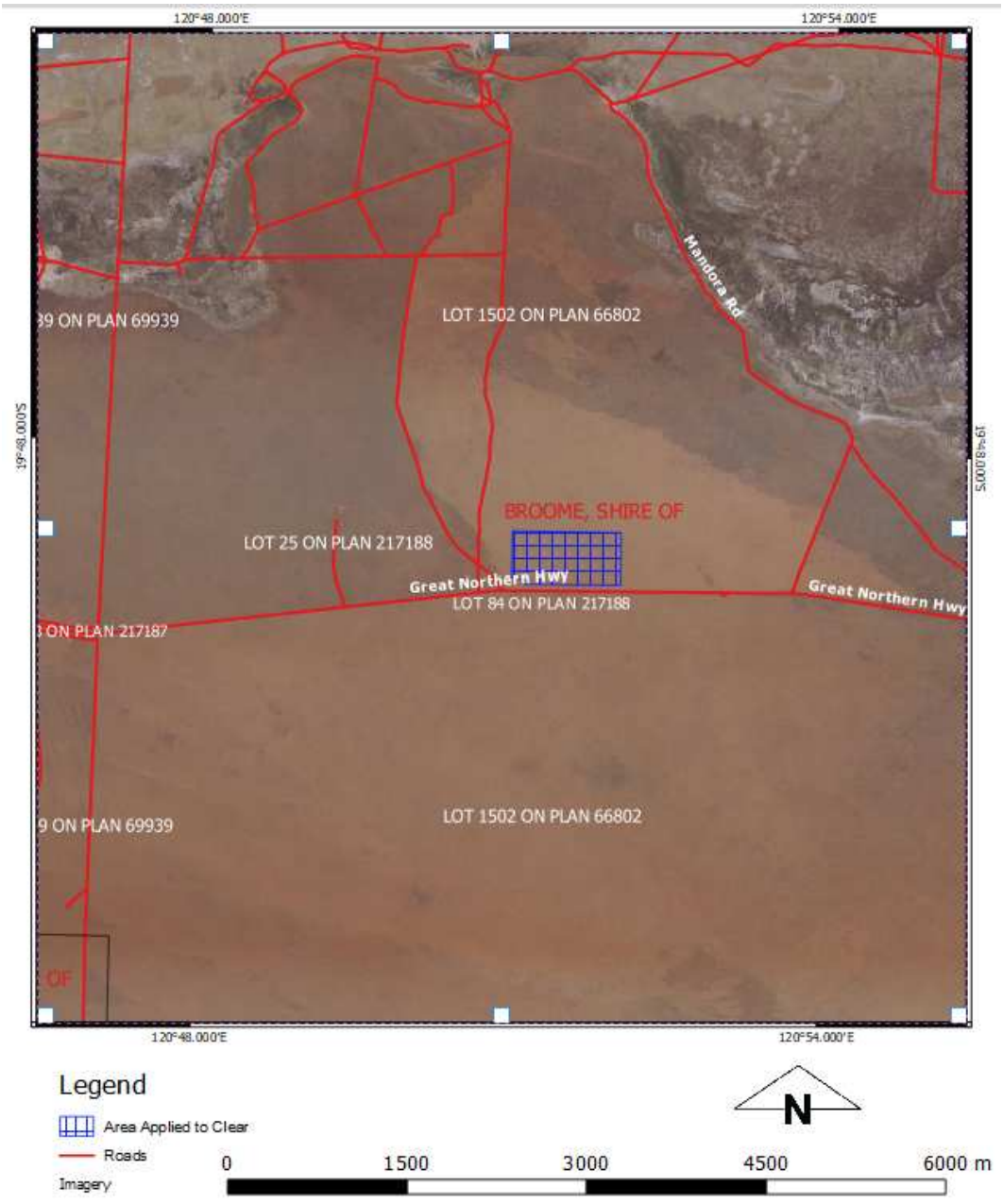


Fig 1: Application Area

3. Minimisation and mitigation measures

Since the initial submission of the clearing permit application, the applicant has amended the application area, reducing the proposed clearing from 150 hectares to 100 hectares within a larger footprint area and excluded the south western portion of the application area, to avoid impacts to priority flora species, including the provision of a 50 metre buffer to the Priority 3 flora species *Polymeria* sp. Broome (see principle (a) for additional information).

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing may be at variance to this Principle

A Flora Survey of a larger survey area (comprising 160.5 hectares) encompassing the application was undertaken by Biota on 21 March 2018. The Flora Survey involved two botanists traversing the survey area on foot along transects spaced at 100 metres. Photographs were taken from the approximate centre of each of the two proposed pivots facing each cardinal direction, to illustrate vegetation type. The broad vegetation type was described for each proposed pivot, and vegetation condition assessed. For any flora of conservation significance encountered, the botanists recorded location coordinates, number of individuals (a count wherever possible, or an estimate for large populations), habitat information (including landform, substrate, vegetation type and associated species) and vegetation condition information (Biota, 2018).

The timing of the Flora Survey was considered to be optimal, following substantial rainfall in the locality, with this view supported by the Department of Biodiversity, Conservation and Attractions (DBCA) whom commented on the adequacy of the Flora Survey and advised that "The timing of the Biota flora survey appears to be adequate to identify target species" (DBCA, 2018a).

The Flora Survey identified that that the application area comprises flat pindan sandplain with a substrate of orange-brown sand (Biota, 2018). The vegetation under application is consistent with the broad scale mapped vegetation type, being typical of near-coastal pindan sandplain habitat in the locality (Biota, 2018). The application area comprises soft spinifex hummock grassland dominated by *Triodia epactia* and *Triodia schinzii* below a low shrubland dominated by *Acacia stellaticeps* and a sparse overstorey of tall shrubs or trees. Specifically, the dominant trees/tall shrubs within the application area comprised *Grevillea pyramidalis* subsp. *pyramidalis* and *Dolichandrone occidentalis*, with scattered individuals of *Corymbia zygophylla*, *Gardenia pyriformis* subsp. *keartlandii*, and the Priority 3 species *Terminalia kumpaja*. A stand of *Acacia eriopoda* tall shrubland occurred in the southeastern section of the study area, and scattered tall shrubs of other wattle species such as *Acacia anaticeps, Acacia sabulosa, Acacia sericophylla* and *Acacia tumida* var. *kulparn* were also recorded. *Acacia stellaticeps* dominated the low shrubland, however *Corchorus incanus* subsp. *incanus, Corchorus sidoides* subsp. *vermicularis*, *Jacksonia aculeata, Ptilotus astrolasius* and *Sida* sp. Pindan (B.G. Thomson 3398) were also recorded. The parasitic creeper *Cassytha capillaris* was abundant, with scattered other herbs including *Bonamia alatisemina, Portulaca bicolor, Euphorbia trigonosperma* and *Trianthema pilosum* (Biota, 2018).

The Flora Survey identified that the majority of the vegetation under application is in excellent (Keighery, 1994) condition, noting that the southwestern corner of the study area was burnt in late 2017 and comprised regenerating vegetation (Biota, 2018).

The Flora Survey identified five conservation significant flora species within the survey area, being (Biota, 2018):

- *Bonamia oblongifolia* (Priority 3 (P3)) (four individuals over four locations);
- *Polymeria* sp. Broome (K.F. Kenneally 9759) (P3) (one individual);
- *Seringia katatona* (P3) (1268 individuals over five locations);
- *Tribulopis marliesiae* (P3) (18 individuals from 10 locations); and
- *Terminalia kumpaja* (P3) (120 individuals over 10 locations).

DBCA historically provided advice on clearing impacts in relation to *Seringia katatona* and advised that *"w*hile numerous records of *Seringia katatona* were recorded within the application area, based on the commonality of this species, impacts to *Seringia katatona* are unlikely to be of conservation significance" (DBCA, 2018b) and "*Seringia katatona* is more widespread and variable than previously understood and downgrading of its conservation status has been recommended…" (DBCA, 2018b). Noting this advice, the proposed clearing is not likely to impact on the conservation status of *Seringia katatona*.

DBCA provided comment on potential impacts to *Bonamia oblongifolia* and advised that this species "was recently downgraded from Priority 1 to Priority 3 as a result of further survey work in the La Grange region and a current conservation assessment undertaken by DBCA. *Bonamia oblongifolia* is widespread across the La Grange region, which appears to be the core of its range between Port Hedland and Broome. It is often locally common and abundant in the La Grange region. If the species were to occur within the application area, impacts from this… clearing proposal in isolation are not likely to be significant with respect to the broader conservation of this species" (DBCA, 2018c). Whilst four individuals were recorded in the larger survey area, the applicant has amended the application area to exclude the south western portion of the application area, as a result of this amendment, the application area now includes one *Bonamia oblongifolia* individual, and given the above, the proposed clearing is not likely to impact on the conservation status of this species.

The Flora Survey notes that *Terminalia kumpaja* is known from pindan vegetation over a range of approximately 280 kilometres, from north of Broome to Wallal Downs Station bordering Mandora to the west (Biota, 2018). This species is currently known from 20 records. The closest vouchered specimen of this species is approximately 3.9 kilometres northeast of the study area, and numerous additional records were recently made during a survey to the south of the application area (Biota unpublished data) (Biota, 2018). The Flora Survey identified 120 individuals of this species, with five individuals recorded outside of the application area. Given the number of plants recorded during the Flora Survey, the relatively large number of records made during another recent survey 3.9 kilometres to the south, and the moderate distribution of this species, the proposed clearing is not likely to impact on its conservation status.

The Flora Survey recorded a total of 18 *Tribulopis marliesiae* individuals from ten locations in the southern section of the study area, mostly from the recently burnt southwestern corner (Biota, 2018). The applicant has amended the application area to exclude the southwestern corner of the application area and minimise impacts to priority flora species. The amended application area includes five *Tribulopis marliesiae* individuals. This species has been recorded from the vicinity of Pardoo Roadhouse to Roebuck Plains station with a north to south range of approximately 250 kilometres, and east west range of over 250 kilometres. The closest vouchered location of this species is approximately 65 kilometres east of the application area, on the southern side of Mandora Marsh. However, the Flora Survey notes that this species was recorded numerous times during a recent survey to the south of the application area (Biota report in preparation), including three locations within seven kilometres west of the application area. Noting that this species has a broad distribution and has been recorded in relative abundance within pindan habitat, the proposed clearing of five individuals is not likely to impact on the conservation status of this species.

With regard to *Polymeria* sp. Broome (K.F. Kenneally 9759), DBCA provided comment on the impacts to this species and advised that "the occurrence of *Polymeria* sp. Broome (K.F. Kenneally 9759) within the area under application currently represents the most south western population of this species. Clearing of this population would therefore reduce its range by approximately 50km, which would be considered significant to the conservation of the species" (DBCA, 2018a). DBCA further advised that "providing a protective buffer [to this species] is recommended …" (DBCA, 2018a). The applicant has amended the application area to exclude the one recorded individual of this species and provide a 50 metre buffer to its occurrence. Therefore, the proposed clearing is not likely to impact on this species.

No other threatened or priority flora species were recorded within the application area (Biota, 2018) and noting the adequacy of the survey it is unlikely that the application area includes any other conservation significant flora species.

The local area considered in the assessment of this application is defined as a 50 kilometre radius surrounding the application area. The local area is extensively vegetated and contains approximately 99.9 per cent native vegetation cover.

According to available datasets, there are no priority ecological communities (PEC's) mapped within the application area. One PEC has been recorded in the local area, known as the 'Mandora Land System' (Priority 3), which has been mapped approximately 35 kilometres east of the application area. The Mandora Land System is associated with the Eighty Mile Beach Ramsar Site, specifically the Mandora Salt Marsh, which forms part of the Ramsar site, and the application area is not considered to be representative of this PEC.

As discussed under Principle (d), there are no threatened ecological communities (TEC's) mapped within the local area, and noting that the recorded vegetation type within the application area is not representative of any known TEC's, the proposed clearing is not likely to impact on any TEC's.

Excluding marine species, there are records of 41 conservation significant fauna species recorded within a 40 kilometre radius of the application area (Parks and Wildlife, 2007-). These include the following:

- one terrestrial species listed as 'fauna that is rare or is likely to become extinct as vulnerable fauna' under the *Wildlife Conservation (Specially Protected Fauna) Notice 2017* (WC Fauna Notice);
- one terrestrial species listed as Priority 4 by DBCA; and
- 39 migratory avian species, of which seven are listed as 'fauna that is rare or is likely to become extinct' under the WC Fauna Notice, one is Priority 4, and 31 are protected under international agreement.

As discussed under Principle (b), the applicant commissioned the Broome Bird Observatory to undertake a Fauna Survey of the application area. The Fauna Survey did not identify any conservation significant fauna species during the field survey of the application area. Whilst the greater bilby (*Macrotis lagotis*) was not recorded, the application area provides suitable habitat for this species and it is possible that individuals may pass through or periodically utilise the application area.

Based on known habitat requirements, the application area is considered unlikely to comprise significant habitat for any other conservation significant fauna species.

As the application area contains vegetation predominantly in excellent (Keighery, 1994) condition, four Priority 3 flora species and suitable habitat for the greater bilby, the proposed clearing may comprise a high level of biodiversity and may be at variance to this Principle.

To minimise direct impacts to the greater bilby, the applicant will be required to:

- conduct pre-clearance surveys to identify greater bilby burrows within the application area;
- relocate any greater bilbies recorded during the pre-clearance survey, after first encouraging individuals to self-relocate; and
- undertake slow progressive directional clearing towards surrounding remnant vegetation to allow greater bilby's the opportunity to move into adjacent habitat.

While the application area may contain a high level of biological diversity, it is acknowledged that the values present within the application area also occur within the immediate vicinity, and may occur throughout the larger local area, which retains approximately 99.9 per cent remnant native vegetation. It is also acknowledged that the applicant has amended the application area to minimise the extent of impacts to priority flora species.

Therefore, it is considered that with the fauna management measures outlined above, the proposed clearing is not likely to have a significant impact on the level of biological diversity in the local area, and will not lead to an unacceptable risk to the environment.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Proposed clearing may be at variance to this Principle

Excluding marine species, there are records of 41 conservation significant fauna species recorded within a 40 kilometre radius of the application area (Parks and Wildlife, 2007-).

The applicant commissioned the Broome Bird Observatory to undertake a Fauna Survey of the application area on 26 November 2017, corresponding with the late dry season, when burrows and diggings are considered to be easily visible (Broome Bird Observatory, 2018). The Fauna Survey incorporated transect searches spaced at 200 metres for signs of fauna over the entirety of the application area which included searches for old or active greater bilby burrows, scats, diggings and tracks (Broome Bird Observatory, 2017). Where diggings or other evidence was identified, further searches took place in the immediate surrounds to locate additional evidence of species presence. The Fauna Survey also incorporated five two-hectare plot searches for signs, including burrows, diggings, scats, tracks and vegetated denning sites. Habitat assessments were conducted at each of the five plot sites, as well as at two sites outside of the proposed clearing permit boundary to provide context (Broome Bird Observatory, 2017).

DBCA provided comment on the adequacy of the Fauna Survey and advised that "the fauna survey was adequate to determine the presence of the specially protected, threatened and priority fauna that have been previously recorded in the local and regional area, and likely to occur within the application area. The habitat within the application area was appropriately assessed for potential occurrence of conservation significant fauna species, as detailed in the survey report results and discussion sections" (DBCA, 2018c).

The Fauna Survey recorded one broad fauna habitat type within the application area, described as open to very open shrubland of *Acacia* spp., *Grevillea pyramidalis*, *Melaleuca* sp., *Gardenia pyriformis* and *Erythrophleum chlorostachys* over low, moderately open to dense *Triodia* sp. hummock grassland on a sand-loam plain with scatted leaf litter (Broome Bird Observatory, 2017).

The Fauna Survey identified the following species as potentially occurring within the application area based on a desktop assessment:

Mammal	**Conservation Status**	
	State	**Commonwealth**
Northern quoll (*Dasyurus hallucatus*)	Endangered	Endangered
Greater bilby (*Macrotis lagotis*)	Vulnerable	Vulnerable
Ghost bat (*Macroderma gigas*)	Vulnerable	Vulnerable
Spectacled hare-wallaby (*Lagorchestes conspicillatus leichardtii*)	Priority 3	N/A
Northern marsupial mole (*Notoryctes caurinus*)	Priority 4	N/A
Airlie Island Ctenotus (*Ctenotus angusticeps*)	Vulnerable	Vulnerable
Night parrot (*Pezoporus occidentalis*)	Critically Endangered	Endangered
Princess parrot (*Polytelis alexandrae*)	Priority 4	Vulnerable
Oriental cuckoo (*Cuculus optatus*)	Protected Under International Agreement (IA)	IA
Barn swallow (*Hirundo rustica*)	IA	IA
Grey wagtail (*Motacilla cinerea*)	IA	IA
Yellow wagtail (*Motacilla flava*)	IA	IA

The Fauna Survey did not identify any of the abovementioned conservation significant fauna species, or any other conservation significant fauna species (Broome Bird Observatory, 2018).

DBCA provided comment on potential impacts to conservation significant fauna species and advised that "the few migratory bird species that were included [as potentially occurring within the application area are] those that have been recorded in non-coastal areas, further inland and had some potential for occurring in the vicinity of the application area. However the application area does not contain suitable habitat for these bird species, or any currently listed migratory bird species, therefore they are unlikely to occur and will not be impacted by the proposed clearing…" (DBCA, 2018a).

With regard to impacts to the greater bilby DBCA advised that "bilby has the potential to occur within the application area based on the habitat description and as per the likelihood of occurrence and impact to species information provided in the survey report… There is a nearby record from 2001 (~10 km to the east) and numerous records from the 1980s within 20 - 40 km, confirming the suitability of habitat for bilby in the surrounding, local and regional area. The habitat type coupled with the records of bilby in the vicinity indicates that bilby may utilise the application area. As per the survey report, it is unlikely that a resident population of bilbies exist within the application area, based on the lack of bilby sign during the searches but it is possible that individuals may pass through or periodically use the area... Even though bilby evidence was not found during the fauna survey conducted in November 2017, it is possible that bilbies may be using the area at the time the clearing commences… (DBCA, 2018a).

DBCA further advised that "recent survey work in the La Grange region extended from Roebuck Plains Station to Mandora Station confirmed that the regional area is important for the continued persistence of wild bilby populations and revealed that they occur in several habitat types and in varying population sizes….The Mandora area was modelled as having habitat of medium suitability for bilbies but did not have an on-ground assessment. Based on the potential suitability of the habitat and

records of the species in the surrounding areas, there may be localised impacts to the immediate population and direct impact to individuals if utilising the area during clearing activities…(DBCA, 2018c).

While it is acknowledged that greater bilbies are not currently using the site, noting the extent of proposed clearing (100 hectares), that the application area provides suitable habitat for this species, and therefore may include occurrences of this species in the near future, the application area may provide significant habitat for this species.

DBCA concluded that "if clearing is approved, then the following is advised:

- undertake pre-clearing searches for bilby within 2 weeks prior to clearing, as per DBCA *Draft Guidelines for pre-clearing searches to locate resident bilbies...*
- applying clearing techniques that will minimise or avoid direct impacts to individuals. Vegetation clearing should be conducted in the direction that allows fauna to disperse into adjacent vegetation…" (DBCA, 2018c).

With the exception of the greater bilby, the Fauna Survey determined that the likelihood of occurrence of any other conservation significant fauna species within the application area was low (Broome Bird Observatory, 2018). Noting this, and that no other conservation significant fauna species were identified during the Fauna Survey, the application area is not likely to provide significant habitat for any other fauna species.

To minimise direct impacts to the greater bilby the applicant will be required to:

- conduct pre-clearance surveys to identify greater bilby burrows within the application area;
- relocate any greater bilbies recorded during the pre-clearance survey, after first encouraging individuals to self-relocate; and
- undertake slow progressive directional clearing towards surrounding remnant vegetation to allow greater bilby the opportunity to move into adjacent habitat.

It is considered that with the fauna management measures outlined above, the proposed clearing is not likely to have a significant impact on fauna indigenous to Western Australia, and will not lead to an unacceptable risk to the environment.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Proposed clearing is not likely to be at variance to this Principle

According to available datasets, there are no rare flora species recorded within the local area. The closest rare flora species is *Seringia exastia*, recorded approximately 145 kilometres from the application area.

The Flora Survey did not identify any species of rare flora within the application area (Biota, 2018).

The timing of the Flora Survey was considered to be optimal, following substantial rainfall in the locality, with this view supported by DBCA which commented on the adequacy of the Flora Survey and advised that "The timing of the Biota flora survey appears to be adequate to identify target species" (DBCA, 2018a).

Noting that the Flora Survey methodology was considered adequate, and was undertaken at an optimal time to record flora species within the region, it is considered that any rare flora species would have been positively identified should they occur within the application area.

Given the above, the proposed clearing is not likely to contain, or be necessary for the continued existence of any rare flora species, and the proposed clearing is not likely to be at variance to this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, there are no known TEC's within the local area. The nearest TEC to the application area is the 'Assemblages of the organic springs and mound springs of Mandora Marsh area', located approximately 51 kilometres east.

According to available databases, no springs are mapped within the application area, and none were recorded within the Flora Survey. The Flora Survey noted that the application area supports one native plant community, (Biota, 2018), which is not considered to be representative of any known TEC's. Noting this, the application area is not likely to comprise the whole or a part of, or be necessary for the maintenance of any TEC's.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) bioregion which retains 99.7 per cent of its pre-European vegetation extent (Government of Western Australia, 2018).

The vegetation within the application area is mapped as Beard vegetation association 32 which retains approximately 99.99 per cent of its pre-European vegetation extent and 99.9 per cent of its pre-European vegetation extent within the Dampierland IBRA bioregion (Government of Western Australia, 2018).

The local area is highly vegetated and retains approximately 99.9 per cent (635,000 hectares) of its pre-European vegetation extent (taking into account the coastal water mark). The application area represents approximately 0.016 per cent of the remaining native vegetation within the local area and the proposed clearing would reduce the extent of native vegetation within the local area to 634,900 hectares.

While the application area may be significant as a remnant as it contains Priority 3 flora species and suitable habitat for the greater bilby, noting that the IBRA bioregion, mapped vegetation type and local area retain more than 30 per cent of their vegetation extents respectively, it is considered that the vegetation within the application area is not within an area that has been extensively cleared.

Given the above, the proposed clearing is not at variance to this Principle.

Table 1: Vegetation extents

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA bioregion:					
Dampierland	8,343,944.96	8,319,879.14	99.7	141,360.02	1.69
Beard vegetation association:					
32	244,906.40	244,874.75	99.99	215.01	0.09
Beard vegetation association in IBRA bioregion:					
32 (Dampierland)	244,296.75	244,265.11	99.99	215.01	0.09

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, no wetlands, watercourses or areas subject to inundation are mapped within the application area. The closest mapped hydrological feature to the application area is a significant stream located approximately 4.7 kilometres north east. The closest mapped wetland is the Ramsar listed Eighty Mile Beach, which is located approximately 13.5 kilometres north. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh (located 20 kilometres east), and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotEE, 2016).

The Flora Survey did not identify any watercourses, wetlands or riparian vegetation within the application area (Biota, 2018). Noting this, and the distance to known hydrological features, the vegetation under application is not likely to be growing in, or in association with an environment associated with a watercourse or wetland.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing may be at variance to this Principle

The application area has been mapped by the former Department of Agriculture and Food Western Australia to be the Nita Land System, described as sandplain with deep red sands supporting sparse low tree steppe grassland. Advice from the Commissioner of Soil and Land Conservation (CSLC) noted that the application area "is interpreted to be a sandplain land unit" and "the soils of the Nita sandplain are likely to be dark reddish brown sand to loamy sand over loamy course sand sub-soil" (CSLC, 2018). The CSLC advised that "the paleo tidal coastal plain mapped as the Anna Land System is located about 10 kilometres to the north of the application area and is unlikely to be impacted by the proposed clearing" (CSLC, 2018). The Flora Survey noted that the application area comprised of flat pindan sandplain with a substrate of orange-brown sand (Biota, 2018).

The CSLC provided comment on the proposed clearing and advised that "These deep, red sandy soils are commonly described as pindan soils. To the north east of the application area, this type of soil has been successfully irrigated for many years without causing appreciable land degradation" (CSLC, 2018).

The CSLC advised that the "sandy soils of the application area are prone to wind erosion, once the protective vegetative cover is removed by clearing. This risk can be managed by timing the clearing and development, trash management and irrigation during crop establishment" (CSLC, 2018).

The CSLC noted that "the risk of water erosion is low as gradients within the application area are likely to vary between 0-0.3%. However, bare cultivated soil may still be prone to water erosion if high intensity rainfall is received prior to establishment of protective vegetative cover" (CSLC, 2018).

Given the above, the proposed clearing may result in land degradation via wind and water erosion and may be at variance to this Principle.

It is considered that land degradation via wind and water erosion may be further minimised by the utilisation of cleared areas within an appropriate period of time following clearing activities. Therefore, to minimise the risk of wind and water erosion, the applicant will be required to plant the intended crops over the cleared areas within three months of the date of clearing, which will prevent the prolonged exposure of bare sandy soils.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, the application area does not include any conservation areas or DBCA managed lands. The closest DBCA managed land to the application area is Eighty Mile Beach Marine Park which is located approximately 13.3 kilometres north of the application area. The application area is located approximately 13.5 kilometres from the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotEE, 2016).

Noting the distance to the closest conservation areas and highly vegetated local area (retains 99.9 per cent native vegetation cover), the proposed clearing is unlikely to impact on the environmental values of these conservation areas.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle

As discussed under Principle (f), there are no watercourses or wetlands mapped within the application area. The CSLC provided comment on the proposed clearing and advised that "gradients within the application area are likely to vary between 0-0.3%" (CSLC, 2018) therefore the application area is considered to occur on relatively flat terrain.

Given the distance to the closest mapped wetland or watercourse (a significant stream located approximately 4.7 kilometres north east), and extent of vegetation remaining between the application area and this watercourse, the proposed clearing is not likely to impact on the flow or quality of surface water to this watercourse.

Groundwater salinity within the application area has been mapped as marginal at between 500 to 1000 milligrams per litre total dissolved solids. Given the extensive vegetative cover surrounding the application area, the proposed clearing is unlikely to lead to a perceptible rise in the water table or increase groundwater salinity levels.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

Mean annual rainfall in Shellborough, located approximately 150 kilometres west of the application area, is approximately 317 millimetres (Bureau of Meteorology [BoM], 2018). The Dampierland bioregion has a semi-arid to tropical monsoonal climate, receiving much of its rainfall during summer months between December and March (Bastin and ACRIS Management Committee, 2008).

The proposed clearing of 100 hectares of native vegetation may increase the risk of localised flooding following periods of heavy rainfall, which is commonly experienced by the region. However, the soils within the application area comprise of orange and brown sands (Biota, 2018) which are highly permeable, and while increased localised flooding may occur following periods of heavy rainfall, it is likely to be short term and is not likely to have a significant environmental impact.

Noting that the risk of standing water and water erosion is associated with high rainfall events and that local runoff is likely to be for short durations, it is considered that the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this Principle

Planning instruments and other relevant matters.

The clearing permit application was advertised on the DWER website on 28 March 2018 with a 21 day submission period. No submissions have been received in relation to this application.

According to available datasets no Aboriginal Sites of Significance are mapped within the application area.

On 26 April 2018, a DWER Delegated Officer provided notice (as required by section 24GB s9 of the *Native Title Act 1993*) (NT Act) and an opportunity to comment on the clearing permit application to the Kimberley Land Council and wrote to the Nyangumarta-Karajarri Aboriginal Corporation (on behalf of the Nyangumarta People (Part A) native title claimants). To date, no response has been received.

The application area occurs within the Canning-Kimberley Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

In this area a RIWI Act section 5C licence to take groundwater and a RIWI Act section 26D licence to construct or alter a well are required for any groundwater supply bores.

The applicant has applied for a groundwater licence with an annual entitlement of three gigalitres to be used across two locations with a total staged project of four pivots over several years. The initial conceptual plan and first stage is for two pivots at one location (being the current clearing permit application area), requiring 1.5 gigalitres of water, to be monitored over two years. The applicant requires a H3 Hydrogeological Assessment (H3) report to further progress the application for a licence to take groundwater, including the installation of a production bore and subsequent aquifer pumping tests to support modelling for the H3.

The applicant has advised that the production bore is planned for installation in March 2019 (given the recent wet season flooding of the station). The applicant has advised that following installation of the production bore in March 2019, the pumping tests and subsequent groundwater modelling for both the H3 Hydrogeological Assessment report and draft detailed operating strategy can be completed within two to three months. DWER will continue to liaise directly with the proponent to ensure all information and reporting requirements have been addressed, before issuing a groundwater licence (Mandora Services, 2018).

The applicant has applied to the Department of Planning, Lands and Heritage (DPLH) for a Pastoral Diversification Permit to undertake irrigated agriculture activities, as provided for under section 120 of the *Land Administration Act 1997*. On 1 June 2018 DPLH provided a copy of a draft pastoral diversification permit to DWER for comment. The draft permit includes a condition that requires a weed monitoring system to be established to cover the permit area and a 50 metre buffer area beyond the permit area boundary. The condition requires that if any of the intended crop species are found outside the permit area, they are to be controlled immediately. Additional advice from DPLH noted that the applicant has since agreed to extend the weed buffer zone to 200 metres (DPLH, 2018).

DBCA provided comment on the potential impacts associated with the end land use of this application and advised that "the irrigation proposal may have potential for secondary impacts on hydrology in areas that are relatively remote for the proposal site. Cumulative impacts have the potential to be significant, including hydrological impacts to wetland threatened ecological communities such as Mandora Mound Springs that may be accessing the same aquifers as those likely to be used for irrigation" (DBCA, 2018c).

Impacts to the aquifer and the groundwater-dependant environment will need to be addressed in the applicants H3 Assessment Report including management through a groundwater monitoring program which will advise appropriate triggers and operational responses. In accordance with a condition of the Clearing Permit the applicant will be required to plant the intended crops over the cleared areas within three months of the date of clearing to minimise wind erosion, which will also prevent clearing prior to a groundwater licence being issued.

In addition to the requirements of the H3 and pending groundwater licence, the horticulture activities associated with the intended land use should be managed according to current best practice, in line with several DWER Water Quality Protection Notes (WQPN) that provide recommendations on best practice measures to protect water resource, including:

- WQPN 22 - Irrigation with nutrient rich waste water;
- WQPN 33 - Irrigation management plans; and
- WQPN 101 - Tropical agriculture

The application area has been mapped by the Department of Agriculture and Food to be Nita land system. Advice from the CSLC notes that the paleo tidal coastal plain mapped as Anna land system is located about 10 kilometres to the north of the application area and is unlikely to be affected by the project. The CSLC notes that "to the north east of the application area, this type of soil has been successfully irrigated for many years without causing appreciable land degradation. Should the sites be abandoned in the future, rapid regeneration of native vegetation is expected to occur… The risk that the … irrigation will cause appreciable land degradation in the forms of erosion, salinity and eutrophication is assessed to be low" (CSLC, 2018).

The Shire of Broome provided comment on the proposed clearing and advised that "under the Shire's Local Planning Scheme No.6 (LPS 6) the land the subject of the pastoral lease is zoned 'General Agriculture'. The undertaking of pivot irrigation is consistent with the land-use objectives of the Shire's Local Planning Strategy and LPS 6 and is exempt from the need to obtain development approval from the Shire of Broome. On this basis, the Shire does not wish to register any objections to the application" (Shire of Broome, 2018).

5. References

Bastin, G. and the ACRIS Management Committee, Rangelands (2008) Taking the Pulse, published on behalf of the ACRIS Management Committee by the National Land & Water Resources Audit, Canberra.

Biota Environmental Sciences (2018) Rare Flora Survey, Mandora Station. Additional Information for Clearing Permit Application CPS 8013/1. DWER Ref A1725708.

Broome Bird Observatory (2017) Conservation Significant Vertebrate Fauna Assessment. Additional Information for Clearing Permit Application CPS 8013/1. DWER Ref A1636633.

Commissioner of Soil and Land Conservation (CSLC) (2018) Advice received from the Commissioner of Soil and Land Conservation on 23 June 2018 for Clearing Permit Application CPS 8013/1. DWER Ref A1725706.

Commonwealth of Australia (2001). National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Department of Biodiversity, Conservation and Attractions (DBCA) (2018a) Flora Advice for Clearing Permit Application CPS 8013/1 received 6 July 2018. DWER Ref A1729333.

Department of Biodiversity, Conservation and Attractions (DBCA) (2018b) Flora and Fauna Advice for Clearing Permit Application CPS 7931/1 received 7 March 2018. DWER Ref A1629315.
Department of Biodiversity, Conservation and Attractions (DBCA) (2018c) Flora and Fauna Advice for Clearing Permit Application CPS 8013/1 received 5 June 2018. DWER Ref A1725703.
Department of the Environment and Energy (DotEE) (2016) Eighty-mile Beach Ramsar wetland description. Australian Government. URL: http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=34 (Accessed June 2018).
Department of the Environment and Energy (DotEE) (2016). *Macrotis lagotis* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat.
Department of Planning, Lands and Heritage (2018) Advice Received for Clearing Permit Application CPS 8013/1, received 2 May 2018. DWER Ref 1666161.
Government of Western Australia. (2018). 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Mandora Services (2018) Request for Extension to Provide H3 Assessment Report for Groundwater Licence Application DWER Ref DT84410.
Pavey, C. (2006) National Recovery Plan for the Greater Bilby *Macrotis lagotis*. Northern Territory Department of Natural Resources, Environment and the Arts.
Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
Shire of Broome (2018) Direct Interest Response provided for Clearing permit Application CPS 8013/1 received 13 April 2018. DWER Ref A1652653.

GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity Conservation and Attractions, Tenure
- Groundwater Salinity
- Hydrography, Linear
- Hydrography, Hierarchy
- Remnant Vegetation
- SAC bio datasets, accessed September 2018
- Soils, Statewide
- Topographic Contours