

*Detailed Flora and Vegetation Survey  
Clackline Nature Reserve, (32400)  
Clackline*



Prepared for: Department of Biodiversity, Conservation and Attractions  
(DBCA)  
Perth Hills District  
District Nature Conservation Program

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## EXECUTIVE SUMMARY

This report has been prepared by Del Botanics Environmental Consulting on behalf of Department of Biodiversity, Conservation and Attractions (DBCA) to present the results of a spring Detailed Flora and Vegetation survey within Clackline Nature Reserve (Reserve Number 32400), Clackline. The location of the site is shown on **Figures 1 and 2**.

The recent Flora and Vegetation Assessment undertaken in the area described above identified 139 flora species, with only 9% represented by exotic flora species. The vegetation condition is “Very Good” to “Degraded.”

Four vegetation communities were recorded at a local level during the survey. No species of Threatened (T), or Priority Flora pursuant to the *Biodiversity Conservation* (BC) Act 2016 and the *Environment Protection and Biodiversity Conservation* (EPBC) Act 1999 were located during the survey.

The Threatened Ecological Community Eucalypt Woodlands of the Western Australian Wheatbelt, listed by Department of Agriculture, Water and the Environment (DAWE) and Department of Biodiversity, Conservation and Attractions (DBCA) is likely to occur with the survey area.

## **STATEMENT OF LIMITATIONS**

This environmental report has been prepared in accordance with the scope of services set out in the original quotation. In preparing the report, Del Botanics Environmental Consulting has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report. Del Botanics Environmental Consulting has not verified the accuracy or completeness of the data to the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Del Botanics Environmental Consulting will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed.

In accordance with the scope of services, Del Botanics Environmental Consulting has relied on the data and have conducted environmental field monitoring in the preparation of the report. The nature and extent of monitoring conducted is described in the report. Within the limitations imposed by the scope of services, the monitoring and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care. No other warranty, express or implied, is made.

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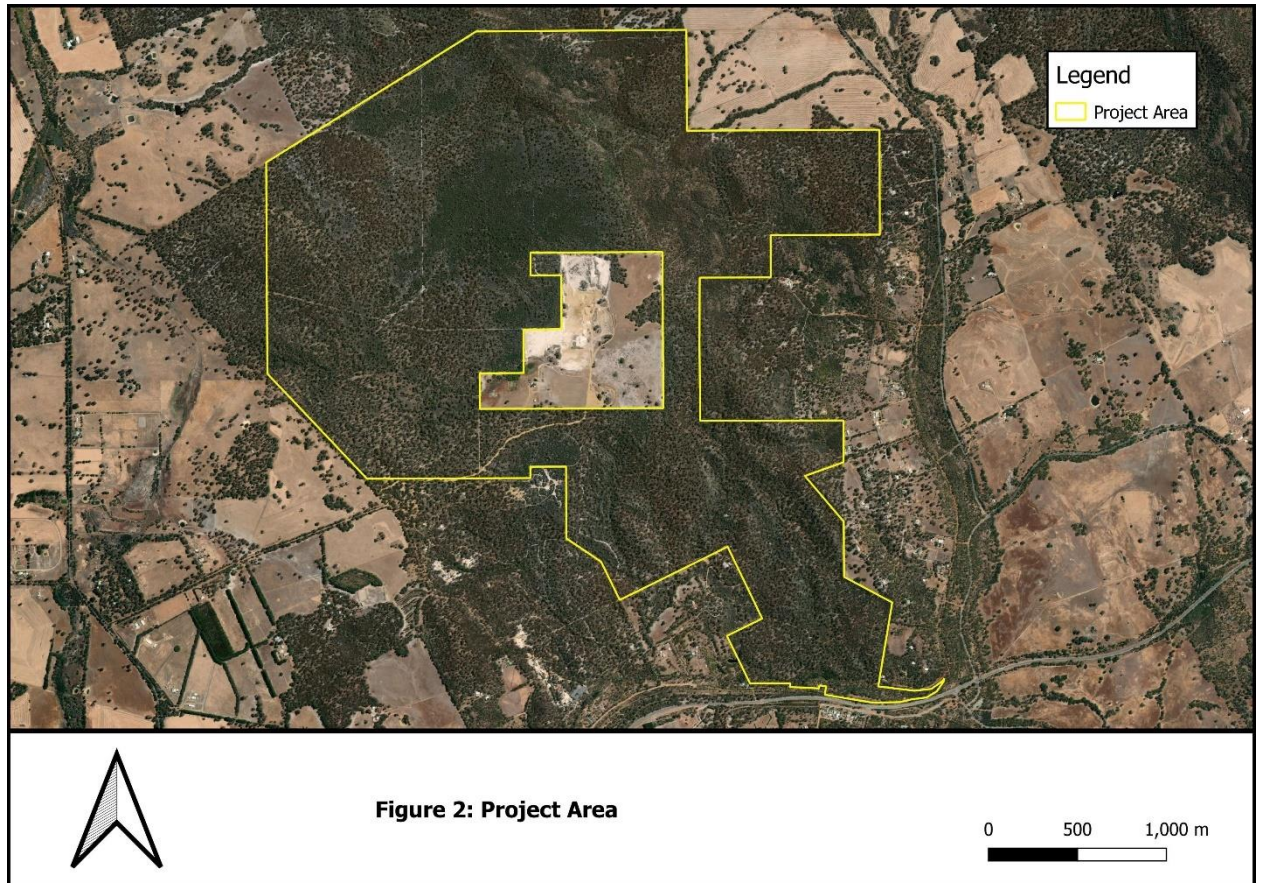
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## 1.2 PURPOSE OF THIS REPORT

This report was prepared to present the results of the flora and vegetation survey, describing the flora and vegetation that occurs within the area described above. The flora species and vegetation were used to determine the significance of the site.

In summary this report provides:

- A Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Flora (T) and Threatened Ecological Communities (TEC's) database search;
- A Department of Climate Change, Energy, the Environment and Water (DCCEEW) database search;
- A spring botanical survey; and
- An assessment of vegetation communities and conditions.

## **2. EXISTING ENVIRONMENT**

### **2.1 LANDFORM, TOPOGRAPHY AND SOILS**

Soil-landscape system mapping of Western Australia describes broad soil and landscape characteristics from regional to local scales. The project area is within the Wundowie and Boyagin System (Department of Agriculture and Food WA, 2012).

The Wundowie system consists of intact undulating lateritic terrain with minor rock outcrops in the northeastern Darling Range. It consists of "Buckshot" gravels, duricrust and some deep sands commonly vegetated by Jarrah forest (Department of Agriculture and Food WA, 2012).

The Boyagin System consists of large duricrust remnants, surrounded by stripped terrain of rock outcrops and fresh soils in the Eastern Darling Range Zone. Gravels soils support Jarrah-Marri-Parrotbush forest, loams and duplexes support York Gum and Wandoo. Mallet and Powderbark occur on the on scarp (Department of Agriculture and Food WA, 2012).

### **2.2 VEGETATION**

The survey area lies in the Drummond Botanical Subdistrict within the Southwest Botanical Province as described by Beard (1990). Flora composition has been described by Beard (1990) as predominantly consisting of Banksia Low Woodlands on leached sands with Melaleuca swamps where ill drained and Woodlands of Eucalyptus spp. on less leached soils.

#### **2.2.1 *Regional vegetation***

The Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological and geographical/geological attributes. Western Australia has 26 biogeographic regions and 53 subregions based on dominant landscape characteristics of climate, lithology, geology, landform and vegetation.

The study area lies within the Jarrah Forest (JAF) bioregion. The Jarrah Forest bioregion consists of duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Marri-Wandoo woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands.

### 2.2.2 *Vegetation Complex*

The term vegetation complex describes the pre-1750 distribution of vegetation communities of the southwest forest region of Western Australia as described by Matiske and Havel (1998). This was part of the biodiversity assessment for the comprehensive regional assessment for the southwest forest region.

Based on this mapping at a scale of 1:50,000, the Department of Primary Industries and Regional Development (DPIRD) has compiled a list of vegetation extent and types across WA. This mapping suggests four vegetation complexes occur within the project area.

The Cooke vegetation complex occurs in the northern section of the project area and is described as a mosaic of open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla* (subhumid zone) and open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* (semiarid and arid zones) on deeper soils adjacent to outcrops. Closed heath of Myrtaceae-Proteaceae species and lithic complex occur on granite rocks and associated soils in all climate zones. Some *Eucalyptus laeliae* (semiarid), *Allocasuarina huegeliana* and *Eucalyptus wandoo* (mainly semiarid to perarid zones) occur within this complex.

The Coolakin vegetation complex occurs in the northeast and northwest corner of the project area. The vegetation is described as woodlands of *Eucalyptus wandoo* with mixtures of *Eucalyptus patens*, *Eucalyptus marginata* subsp. *thalassica* and *Corymbia calophylla* on the valley slopes in arid and perarid zones.

The Michibin vegetation complex occurs in the southern section of the project area. The vegetation consists of open woodland of *Eucalyptus wandoo* over *Acacia acuminata* with some *Eucalyptus loxophleba* on valley slopes, and low woodland of *Allocasuarina huegeliana* on or near shallow granite outcrops in arid and perarid zones.

The Yalanbee vegetation complex is the dominant complex recorded within the project area. It consists of woodland of *Eucalyptus wandoo*-*Eucalyptus accedens*, and less consistently, open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* on lateritic uplands and breakaway landscapes in arid and perarid zones.

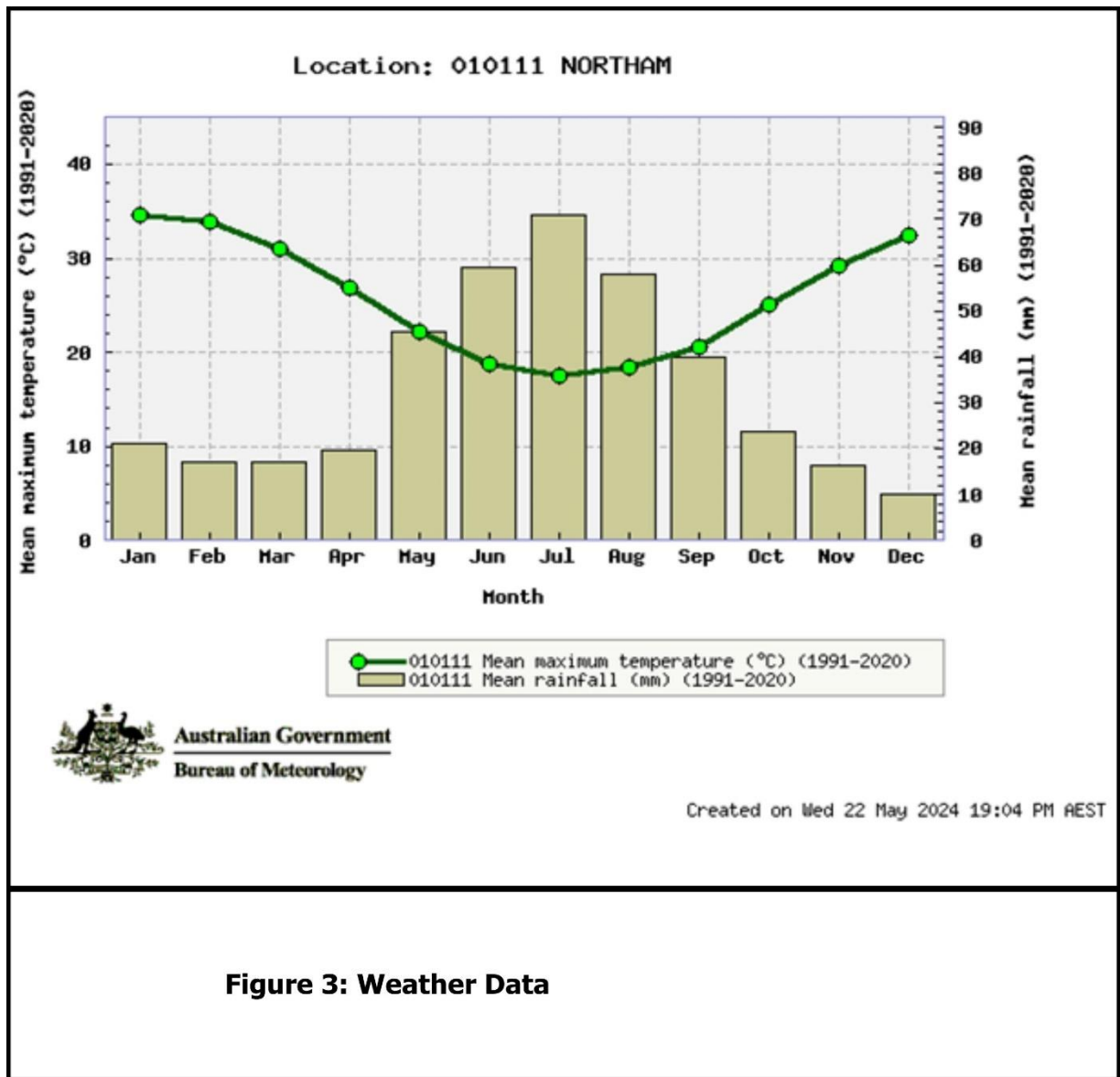
## 2.3 CLIMATE

The closest Bureau of Meteorology (BoM) weather station is approximately 22.9 km East of the survey area in Northam (Site No.010111). The long-term mean minimum temperature for Northam ranged from

5.0°C in July to 17.4°C in February between 1991 to 2020. The long-term mean maximum temperature ranged from 17.5°C in July to 34.6°C in January between 1991 to 2020 (Bureau of Meteorology, 2023).

The long-term annual average rainfall is 396.3 millimetres (mm) from 1991 to 2020 (Bureau of Meteorology, 2020). Data for the previous 12 months is show below on **Figure 3**.

The temperature recorded in November 2023 was within the normal climatic conditions historically recorded for this area. The rainfall recorded in November 2023 was 3.2mm less than recorded in November 2022. The last 3 years were drier than the rainfall recorded November 2020. However, was consistent with the annual average rainfall recorded between 2006 to 2023. These results overall would not have a significant impact on the flora recorded within the survey area.



**Figure 3: Weather Data**

### 3. FLORA AND VEGETATION ASSESSMENT

#### 3.1 VEGETATION METHODS

A Detailed Flora and Vegetation Survey was undertaken on the 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, and 30<sup>th</sup> November 2023. The site was surveyed for flora species including, Threatened Flora (T), Priority Flora (PF), potential areas of Threatened Ecological Communities (TEC's) and vegetation condition. Each variation or difference in vegetation was recorded with three 10 metre by 10 metre quadrats. Data was recorded to statistically determine vegetation communities and condition. In total, twelve quadrats were assembled to record each vegetation community. Each quadrat recorded flora species, heights, percentage cover and percentage dead and alive. Quadrats were not assembled permanently; quadrat data is available in **Appendix B**.

The survey methodology was undertaken in accordance with EPA Position Statement No.3: *Terrestrial Biological Surveys as an Element of Biodiversity Protection* and EPA Guidance Statement No. 51: *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*.

All plant specimens collected during the field survey were dried, pressed and then sorted in accordance with the requirements of the Western Australian State Herbarium. Identification of specimens occurred through comparison with named material and through the use of taxonomic keys.

The use of standard data collection forms ensured the data was collected in a systematic and consistent manner. At each quadrat the following information was recorded:

- Vegetation condition;
- Vegetation community;
- Flora species;
- Local disturbances;
- Topography;
- Soils; and
- Age since fire.

The vegetation communities occurring on this site were described in detail. Aerial photography was used to extrapolate and map plant communities in combination with running notes made during the course of the survey.

### 3.2 DECLARED RARE AND PRIORITY FLORA

Species of flora acquire “Threatened” “Presumed Extinct” or “Priority” conservation status where populations are restricted geographically or threatened by local processes.

The Department of Biodiversity, Conservation and Attractions (DBCA) recognise these threats and subsequently applies regulations towards population protection and species conservation. The DBCA enforces regulations under the *Biodiversity Conservation Act 2016* to conserve Threatened species and protect significant populations. Priority Flora species are potentially rare or threatened and are classified in order of threat. Threatened and Priority Flora category definitions are listed in **Table 1**.

The likelihood of each Threatened and Priority flora species occurring onsite is determined by background research on the known soil types and vegetation communities. This information together with botanical knowledge provides an informative result on whether the flora species is likely to occur on the site.

**Table 1: Definition of Threatened and Priority Flora Species (DEC 2012)**

Conservation Code	Category
T	<p><b>Threatened Flora (Declared Rare Flora – Extant).</b> Schedule 1 under the Wildlife Conservation Act 1950 Rare Flora Notice Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.</p> <p><b>Threatened Flora (Schedule 1) are further ranked by the Department according to their level of threat using IUCN Red List criteria:</b> <b>CR:</b> Critically Endangered - considered to be facing an extremely high risk of extinction in the wild. <b>EN:</b> Endangered –considered to be facing a very high risk of extinction in the wild. <b>VU:</b> Vulnerable - considered to be facing a high risk of extinction in the wild</p>
X	<p><b>Presumed Extinct Flora (Declared Rare Flora – Extinct)</b> Schedule 2 under the Wildlife Conservation Act 1950 Rare Flora Notice Taxa which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such.</p>
P1	<p><b>Priority One: Poorly known species</b> Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes</p>
P2	<p><b>Priority Two: Poorly-known species</b> Species that are known from one or a few collections or sight records, some of which are on land not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State Forest, vacant Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.</p>
P3	<p><b>Priority Three: Poorly known species</b> Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.</p>
P4	<p><b>Priority Four: Rare, Near Threatened and other species in need of monitoring</b> (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>
P5	<p><b>Priority Five: Conservation Dependent species</b> Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years</p>

A search of the Department of Biodiversity, Conservation and Attractions (DBCA) NatureMap database identified forty species of significance likely to occur within a 10km radius of the area. These species are listed in **Table 2** below.

**Table 2: NatureMap listed species.**

Species Name	Conservation Status	Likely to occur onsite	Survey undertaken in flowering time
<i>Acacia aphylla</i>	T	Yes	Yes
<i>Acacia campylophylla</i>	P3	Yes	No
<i>Amperea micrantha</i>	P2	Yes	No
<i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i>	P4	Yes	No
<i>Asteridea gracilis</i>	P3	Yes	Yes
<i>Asterolasia grandiflora</i>	P4	Yes	No
<i>Banksia nivea</i> subsp. <i>Morangup</i>	P2	Unknown	No
<i>Beaufortia purpurea</i>	P3	Yes	Yes
<i>Caladenia integra</i>	P4	Yes	No
<i>Calytrix oncophylla</i>	P2	Yes	Yes
<i>Chordifex chaunocoleus</i>	P4	Yes	No
<i>Cyanicula ixiooides</i> subsp. <i>ixiooides</i>	P4	Yes	No
<i>Daviesia nudiflora</i> subsp. <i>drummondii</i>	P3	Yes	No
<i>Dicrastylis reticulata</i>	P3	Yes	Yes
<i>Drosera albonotata</i>	P2	Unknown	Unknown
<i>Eremaea blackwelliana</i>	P4	Yes	Yes
<i>Eucalyptus loxophleba</i> x <i>wandoo</i>	P4	Yes	Unknown
<i>Grevillea candolleana</i> .	P2	Yes	No
<i>Grevillea pimeleoides</i>	P4	Yes	Yes
<i>Hemigenia platyphylla</i>	P4	Yes	Yes
<i>Hibbertia subvillosa</i>	P3	Unknown	Unknown
<i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>	P3	Unknown	Unknown
<i>Lasiopetalum trichanthera</i>	P2	Unknown	Unknown
<i>Lechenaultia laricina</i>	T	Yes	Yes
<i>Levenhookia pulcherrima</i>	P3	Yes	Yes
<i>Meionectes tenuifolia</i>	P3	Unknown	Unknown
<i>Senecio gilbertii</i>	P1	No	Yes
<i>Stylidium asteroideum</i>	P3	Unknown	Unknown
<i>Stylidium exappendiculatum</i>	P3	Unknown	Unknown
<i>Stylidium periscelianthum</i>	P3	No	No
<i>Stylidium striatum</i>	P4	Yes	Yes
<i>Synaphea rangiferops</i>	P2	Yes	No
<i>Tetrateca pilifera</i>	P3	Yes	No
<i>Thelymitra dedmaniarum</i>	T	Yes	Yes
<i>Thysanotus cymosus</i>	P3	Yes	No
<i>Thysanotus tenuis</i>	P3	Yes	No
<i>Tribonanthes minor</i>	P3	No	Unknown
<i>Verticordia citrella</i>	P2	Yes	Yes
<i>Verticordia huegelii</i> var. <i>tridens</i>	P3	Yes	Yes
<i>Verticordia serrata</i> var. <i>linearis</i>	P3	Yes	No

### 3.2.1 *Environment Protection and Biodiversity Conservation Act (1999) – Species level significance*

The *Environment Protection and Biodiversity Conservation (EPBC) Act*, 1999, promotes the conservation of biodiversity by providing strong protection for plants at a species level. Section 178 and 179 provides the lists and categories of threatened species under the Act and is presented in **Table 3** below.

**Table 3: Categories of Threatened Species (EPBC Act, Section 179, 1999)**

1	<p><b>Extinct</b> A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.</p>
2	<p><b>Extinct in the Wild</b> A native species is eligible to be included in the <b>extinct in the wild</b> category at a particular time if, at that time:(a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p>
3	<p><b>Critically Endangered</b> A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p>
4	<p><b>Endangered</b> A native species is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.</p>
5	<p><b>Vulnerable</b> A native species is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>
6	<p><b>Conservation Dependant</b> A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long-term survival in nature are maximised; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; (iv) cessation of the plan of management would adversely affect the conservation status of the species.</p>

A search using the Department of Climate Change, Energy, the Environmental and Water (DCCEEW) Protected Matters Tool was undertaken within a 10km radius of the site. The search result noted sixteen flora species of significance likely to occur in the area. Eleven flora species have been listed as Endangered; four species are listed as Vulnerable, and one is recorded as Critically Endangered. These species are listed in **Table 4** below.

**Table 4: DCCEEW Protected Matters listed flora species.**

Species Name	Conservation Code	Likely to occur onsite	Survey undertaken in flowering time
<i>Acacia aphylla</i>	Vulnerable	Yes	Yes
<i>Acacia ataxiphylla</i> subsp. <i>magna</i>	Endangered	Yes	No
<i>Andersonia gracilis</i>	Endangered	No	Yes
<i>Caladenia huegelii</i>	Endangered	Yes	No
<i>Conospermum densiflorum</i> subsp. <i>unicephalatum</i>	Endangered	Yes	Yes
<i>Dasymalla axillaris</i>	Critically Endangered	Unknown	Unknown
<i>Diplolaena andrewsii</i>	Endangered	Yes	No
<i>Diuris micrantha</i>	Vulnerable	No	No
<i>Diuris purdiei</i>	Endangered	No	No
<i>Eleocharis keigheryi</i>	Vulnerable	No	No
<i>Gastrolobium hamulosum</i>	Endangered	Yes	No
<i>Grevillea christineae</i>	Endangered	Yes	No
<i>Grevillea flexuosa</i>	Vulnerable	Yes	No
<i>Thelymitra stellata</i>	Endangered	Yes	Yes
<i>Verticordia fimbriolepis</i> subsp. <i>fimbriolepis</i>	Endangered	Yes	Yes
<i>Verticordia staminosa</i> subsp. <i>staminosa</i>	Endangered	Yes	No

### 3.2.2 Department of Biodiversity, Conservation and Attractions (DBCA) Database Search

In addition to the background searches undertaken through the DBCA NatureMap and the DCCEEW Protected Matters searches, a Threatened and Priority flora search was undertaken through the DBCA. The search is undertaken on records from the Threatened and Priority Flora Database (TPFL) and the WA Herbarium database (WAHerb), which provides known locations of each species. The results are provided below in **Table 5**. The search was conducted within a 10km radial area from the central coordinate.

**Table 5: DBCA Threatened and Priority Flora Search Results**

Taxon	Conservation Status DBCA EPBC	Likely to occur onsite	Survey undertaken in flowering time
<i>Acacia aphylla</i>	T	Yes	Yes
<i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i>	4	Yes	No
<i>Asteridea gracilis</i>	3	Yes	Yes
<i>Asterolasia grandiflora</i>	4	Yes	No
<i>Boronia scabra</i> subsp. <i>condensata</i>	2	Yes	No
<i>Caladenia huegelii</i>	T	Yes	No
<i>Caladenia integra</i>	4	Yes	No
<i>Calytrix oncophylla</i>	2	Yes	Yes
<i>Chordifex chaunocoleus</i>	4	Yes	No
<i>Cyanicula ixiooides</i> subsp. <i>ixiooides</i>	4	Yes	No
<i>Eremaea blackwelliana</i>	4	Yes	Yes
<i>Eucalyptus loxophleba</i> x <i>wandoo</i>	4	Yes	Unknown
<i>Grevillea candolleana</i>	2	Yes	No
<i>Hemigenia platyphylla</i>	4	Yes	Yes
<i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>	3	Unknown	Unknown

<i>Lasiopetalum trichanthera</i>	2		Unknown	Unknown
<i>Sowerbaea multicaulis</i>	4		Yes	Yes
<i>Stylidium asteroideum</i>	3		Unknown	Unknown
<i>Stylidium striatum</i>	4		Yes	Yes
<i>Tetradlea retrorsa</i>	3		Yes	No
<i>Thysanotus cymosus</i>	3		Yes	No
<i>Verticordia serrata</i> var. <i>linearis</i>	3	CR	Yes	No

### 3.3 THREATENED ECOLOGICAL COMMUNITIES

In Western Australia, Threatened Ecological Communities (TEC's) are assessed through a procedure coordinated by the DBCA and are assigned to one of the categories outlined below in **Table 6**. While they are not afforded direct statutory protection at a state level (unlike Threatened Flora under the *Biodiversity Conservation Act, 2016*) their significance is acknowledged through other State environmental approval processes (i.e. Environmental Impact Assessment pursuant to Part IV of the *Environmental Protection Act 1986*). Scheduled TEC's are afforded statutory protection at a federal level pursuant to the EPBC Act. The Department has been identifying and listing threatened ecological communities since 1994 through the non-statutory process.

The Minister for Environment previously listed ecological communities as threatened through a non-statutory process if the community was presumed to be totally destroyed or at risk of becoming totally destroyed. The *Biodiversity Conservation Act, 2016* (BC Act) provides for the statutory listing of threatened ecological communities (TECs) by the Minister. The new legislation also describes statutory processes for preparing recovery plans for TEC's, the registration of their critical habitat, and penalties for unauthorised modification of TEC's.

The Department has been identifying and listing TEC's since 1994 through the non-statutory process. The WA Minister for Environment has endorsed 69 ecological communities as threatened in the following categories:

- 20 critically endangered
- 17 endangered
- 28 vulnerable
- 4 presumed totally destroyed.

25 of these are listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act, 1999*. As of January 2019, an additional 393 ecological communities (community types and sub-types) with insufficient information available to be considered a TEC, or which are rare but not currently threatened, have been placed on the Priority list and referred to as Priority Ecological Communities (PEC's).

**Table 6: Categories of DBCA’s Threatened Ecological Communities**

PD	<b>Presumably Totally Destroyed</b> An ecological community that has been adequately searched for but for which no representative occurrences have been located.
CE	<b>Critically Endangered</b> An ecological community that has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future.
E	<b>Endangered</b> An ecological community that has been adequately surveyed and is not critically endangered but is facing a very high risk of total destruction in the near future.
V	<b>Vulnerable</b> An ecological community that has been adequately surveyed and is not critically endangered or endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future.

The EPBC Act provides for the strong protection of TEC’s, which are listed under section 181 of the Act and are described as ‘Critically Endangered’, ‘Endangered’ or ‘Vulnerable’ under section 182. Schedules of protected TEC’s maintained pursuant to the EPBC Act are based on the same Floristic Community Type’s (FCT’s) as adopted by DBCA, however not all TEC’s listed by the DBCA are scheduled under the EPBC Act.

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Report indicated there is one known Threatened Ecological Community (TEC) likely to occur within a 10km radius of the area, the TEC is listed in **Table 7** below.

**Table 7: DCCEEW listed Threatened Ecological Communities**

Species Name	Conservation Code	Likely to occur on site
Eucalypt Woodlands of the Western Australian Wheatbelt	Critically Endangered	Yes

### 3.3.1 *Department of Biodiversity, Conservation and Attractions (DBCA) Database Search*

In addition to the background searches undertaken through the DCCEEW Protected Matters search a Threatened Ecological Community (TEC) search was undertaken through the DBCA. The search is undertaken on records from the DBCA, which provides known locations of TEC’s. The results noted one known TEC to occur within a 10km radial area from the central coordinate. This information is provided in **Table 8** below.

**Table 8: DBCA listed Threatened Ecological Communities**

Species Name	Conservation Code	Likely to occur on site
Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3 [DBCA] Critically Endangered [EPBC]	Yes

## 4. FLORA AND VEGETATION ASSESSMENT RESULTS

A total of 139 taxa, comprising of 36 families and 94 genera were recorded on site. A list of these species has been provided in **Appendix A**. Species representation was greatest among the Fabaceae, Myrtaceae and Proteaceae families.

### 4.1 INTRODUCED SPECIES

Twelve introduced flora species were recorded on the site, shown in **Table 9** below. This represents 9% of the total number of flora species recorded on site. None of the recorded species are listed as Declared Pest species under the Biosecurity and Agriculture Management Act 2007 (BAM Act). Definitions are provided in **Appendix C**.

**Table 9: Introduced Flora Recorded in the Survey Area**

Taxa	Common Name	BAM Act
* <i>Aira caryophyllea</i>	Silver Hair-Grass.	Permitted - s11
* <i>Allium triquetrum</i>	Three-Cornered Garlic	Permitted - s11
* <i>Avena barbata</i>	Wild Oats	Permitted - s11
* <i>Briza maxima</i>	Blowfly Grass	Permitted - s11
* <i>Bromus ?diandrus</i>	Great Brome	Permitted - s11
* <i>Ehrharta longiflora</i>	Annual Veldt Grass	Permitted - s11
* <i>Hypochaeris glabra</i>	Smooth Cats Ear	Permitted - s11
* <i>Lysimachia arvensis</i>	Scarlet Pimpernel	Permitted - s11
* <i>Romulea rosea</i>	Guildford Grass	Permitted - s11
* <i>Sonchus oleraceus</i>	Common Sow Thistle,	Permitted - s11
* <i>Ursinia anthemoides</i>	South African Marigold.	Permitted - s11
* <i>Vulpia bromoides</i>	Squirreltail Fescue,	Permitted - s11

### 4.2 THREATENED AND PRIORITY FLORA

No species of Threatened (T) or Priority Flora pursuant to the *Biodiversity Conservation (BC) Act 2016* or the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* or listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were located during the time of the survey.

The botanical survey was undertaken in spring to coincide with the majority of the flowering times of the threatened species.

### 4.3 THREATENED ECOLOGICAL COMMUNITIES

It is likely that the listed TEC *Eucalypt Woodlands of the Western Australian Wheatbelt* occurs within the survey area. The soil complex within the survey area supports the Eucalypt woodland community.

The vegetation surveyed in Quadrats 1,2,4,5,7,11 and 12, recorded Eucalypt woodlands in “Good” or better vegetation condition and of an appropriate size of more than 2 hectares, which meet the thresholds for this TEC. The data presented in these quadrats using the dominant vegetation stratum, also indicates that the percentage cover for native and weed species also meets the criteria for determining the presence of the TEC Eucalypt Woodlands of the Western Australian Wheatbelt.

The Threatened Ecological Community *Eucalypt Woodlands of the Western Australian Wheatbelt*, listed by Department of Agriculture, Water and the Environment (DAWE) and Department of Biodiversity, Conservation and Attractions (DBCA) is likely to occur with the survey area.

#### 4.4 LOCAL VEGETATION COMMUNITIES

Vegetation structure recorded in each vegetation community is used to determine the coverage class as described below in **Table 10**. These vegetation structure classes are defined in the Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (2016).

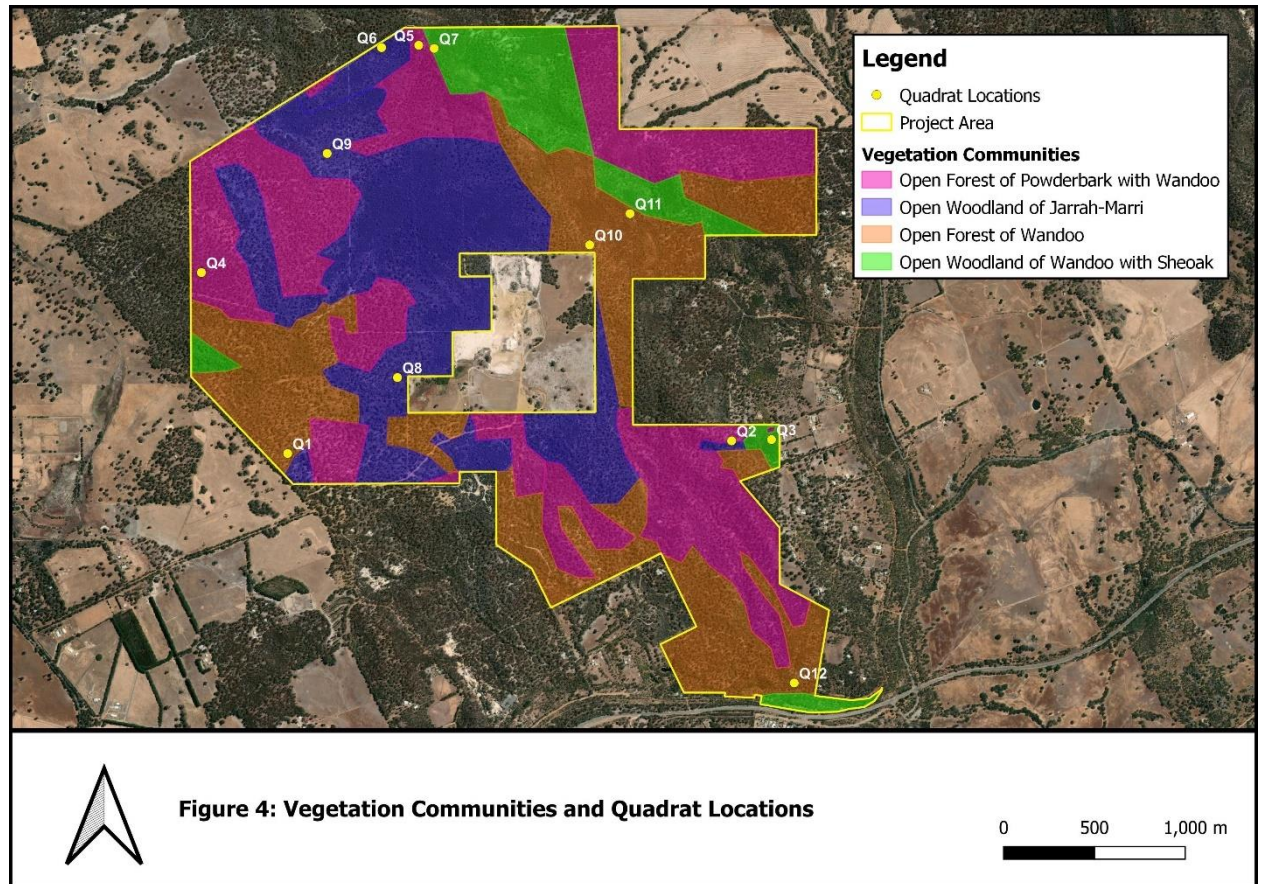
**Table 10: Vegetation Structure Classes**

Life Form/ Height Class	Canopy Cover (percentage)			
	100% - 70%	70% - 30%	30% - 10%	10% - 2%
Trees 10-30m	Closed Forest	Open Forest	Woodland	Open Woodland
Trees < 10m	Low Closed Forest	Low Open Forest	Low Woodland	Low Open Woodland
Shrub Mallee	Closed Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub Mallee
Shrubs > 2m	Closed Tall Scrub	Tall Open Scrub	Tall Shrubland	Tall Open Shrubland
Shrubs 1-2m	Closed Heath	Open Heath	Shrubland	Open Shrubland
Shrubs <1m	Closed Low Heath	Open Low Heath	Low Shrubland	Low Open Shrubland
Grasses	Closed Grassland	Grassland	Open Grassland	Very Open Grassland
Herbs	Closed Herbland	Herbland	Open Herbland	Very Open Herbland
Sedges	Closed Sedgeland	Sedgeland	Open Sedgeland	Very Open Sedgeland

Four vegetation communities were represented on the site at a local level, which have been described below in **Table 11**. Photographic representations of the vegetation communities are shown in the Quadrat data sheets in **Appendix B**. The vegetation communities, conditions and quadrat locations are shown on **Figures 4 & 5**.

**Table 11: Local Vegetation Community Recorded within Clackline Nature Reserve, Clackline, November 2023.**

<b>Community Description</b>
<b>Vegetation Community 1</b> – Open forest of Wandoo ( <i>Eucalyptus wandoo</i> )
Open forest of <i>Eucalyptus wandoo</i> over shrubland of <i>Trymalium odoratissimum</i> and <i>Hakea lissocarpha</i> , over low shrubland of <i>Hibbertia</i> spp., <i>Bossiaea eriocarpa</i> , and <i>Banksia nivea</i> over very open herbland of <i>Cheilanthes sieberi</i>
<b>Community Description</b>
<b>Vegetation Community 2</b> – Open forest of Powderbark ( <i>Eucalyptus accedens</i> ) with occasional Wandoo ( <i>Eucalyptus wandoo</i> )
Open forest of <i>Eucalyptus accedens</i> with <i>Eucalyptus wandoo</i> over shrubland of <i>Xanthorrhoea preissii</i> , <i>Xanthorrhoea acanthostachya</i> , <i>Hakea lissocarpha</i> and <i>Macrozamia riedlei</i> , over low shrubland of <i>Bossiaea eriocarpa</i> and <i>Lomandra</i> spp.
<b>Community Description</b>
<b>Vegetation Community 3</b> – Open woodland of Wandoo ( <i>Eucalyptus wandoo</i> ) with low woodland of Sheoak ( <i>Allocasuarina huegeliana</i> )
Open woodland of <i>Eucalyptus wandoo</i> with low woodland of <i>Allocasuarina huegeliana</i> and <i>Acacia accuminata</i> over tall shrubland of <i>Trymalium odoratissimum</i> and <i>Trymalium ledifolium</i> over very open herbland of <i>Cheilanthes sieberi</i>
<b>Community Description</b>
<b>Vegetation Community 4</b> – Open woodland of Jarrah ( <i>Eucalyptus marginata</i> ) and Marri ( <i>Corymbia calophylla</i> )
Open woodland of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over open shrubland of <i>Leptospermopsis erubescens</i> , <i>Xanthorrhoea preissii</i> and <i>Hakea undulata</i> over low open shrubland of <i>Bossiaea eriocarpa</i> , <i>Hibbertia</i> spp. and <i>Leucopogon</i> spp. over very open herbland of <i>Stirlingia latifolia</i>



#### 4.5 VEGETATION CONDITION

Many bushland remnants have been historically degraded and current land use activities continue degradation and fragmentation processes. As a result, these remnants are especially susceptible to disturbances arising from indirect impacts such as surrounding developments and human activity. Degradation is caused by a wide range of factors, including isolation and edge effects, weed invasion, plant diseases, changes in fire frequency and behaviour, landscape fragmentation, increased predation on native fauna by feral animals, resulting in a decrease in species richness and general modification of ecological function (Urban Bushland Council, 2018).

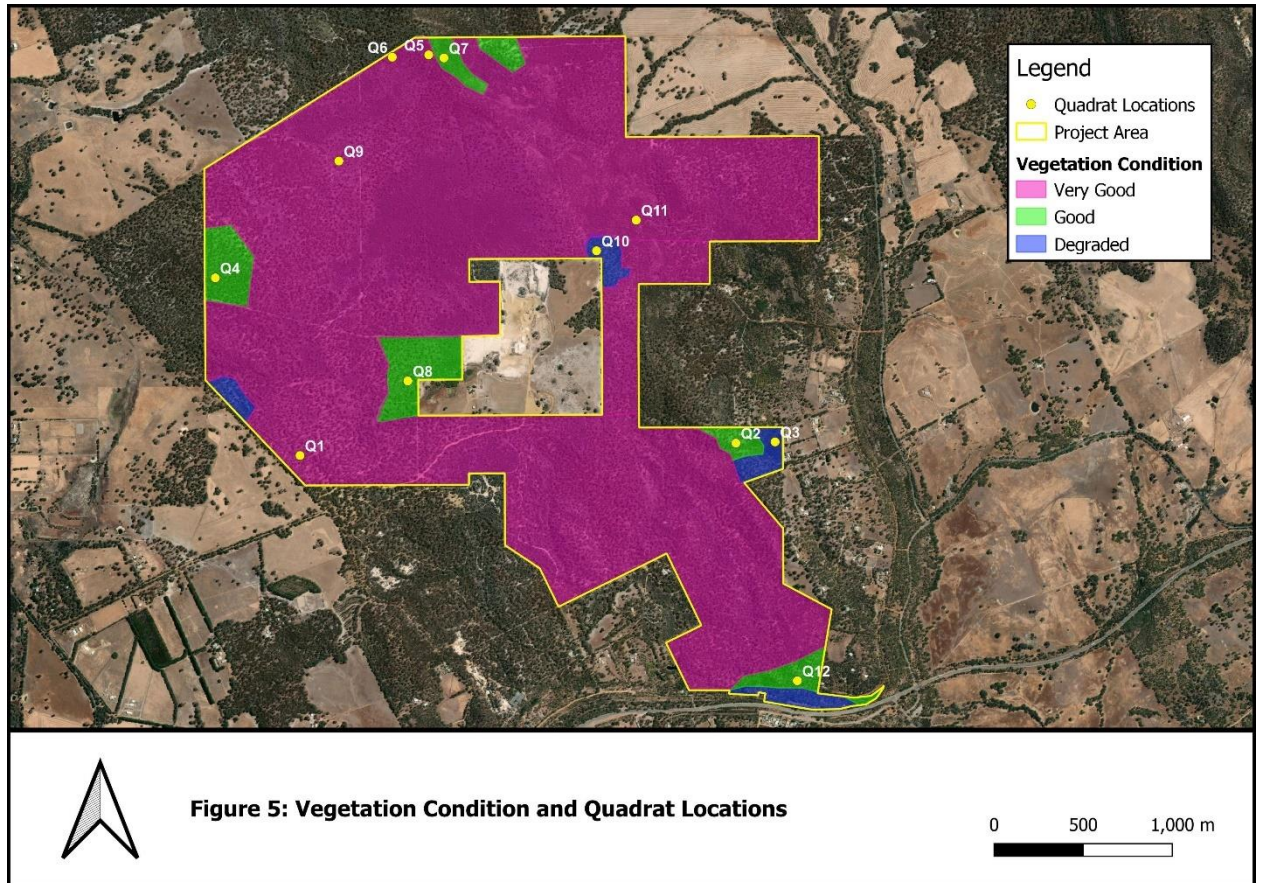
The site has been subject to historic land disturbances, such as fires and logging and there are signs of recent impacts from off road vehicles, however the majority of the site has had limited disturbances. Despite some disturbance factors, the majority of the site remains in very good vegetation condition.

The vegetation condition was rated according to the Vegetation Condition Scale used in the Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (2016). The definitions are described in **Table 12** below.

**Table 12: Vegetation Condition Scale**

<b>Vegetation Condition</b>	<b>South West and Interzone Botanical Provinces</b>	<b>Eremaean and Northern Botanical Provinces</b>
<b>Pristine</b>	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	
<b>Excellent</b>	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement
<b>Very Good</b>	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks
<b>Good</b>	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds
<b>Poor</b>		Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds
<b>Degraded</b>	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	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 present including very aggressive species.
<b>Completely Degraded</b>	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees and shrubs.	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or ‘parkland cleared’ with their flora comprising weed or crop species with isolated native trees or shrubs

The vegetation condition recorded across the site was “Very Good” to “Degraded”. Vegetation condition mapping is provided on **Figure 5**.



## 5. CONCLUSIONS AND RECOMMENDATIONS

The Detailed Flora and Vegetation survey undertaken within Clackline Nature Reserve, Clackline, identified a total of 139 taxa representing 94 genera and 36 families. Weeds species comprised of 9% of the total flora recorded. The vegetation condition across the site ranged from “Very Good” to “Completely Degraded”, with a majority of the site being in very good condition.

Four vegetation communities were recorded at a local level during the survey. Vegetation Community 1 - Open Forest of Wandoo, consists of open forest of *Eucalyptus wandoo* over shrubland of *Trymalium odoratissimum* and *Hakea lissocarpa*, over low shrubland of *Hibbertia* spp., *Bossiaea eriocarpa*, *Banksia nivea* over very open herbland of *Cheilanthes sieberi*. This vegetation community is consistent with what has been described for the Coolakin vegetation complex. Similarities include the structure and composition of the vegetation.

Vegetation Community 2 - Open Forest of Powderbark with Wandoo, consists of open forest of *Eucalyptus accedens* with *Eucalyptus wandoo* over shrubland of *Xanthorrhoea preissii*, *Xanthorrhoea acanthostachya*, *Hakea lissocarpa* and *Macrozamia riedlei*, over low shrubland of *Bossiaea eriocarpa* and *Lomandra* spp. This vegetation community is consistent with what has been described for the Yalanbee vegetation complex. Similarities include the structure and composition of the vegetation.

Vegetation Community 3 - Open Woodland of Wandoo with Sheoak, consists of open woodland of *Eucalyptus wandoo* with low woodland of *Allocasuarina huegeliana* and *Acacia accuminata* over tall shrubland of *Trymalium odoratissimum* and *Trymalium ledifolium* over very open herbland of *Cheilanthes sieberi*. This vegetation community is consistent with what has been described for the Michibin vegetation complex. Similarities include the structure and composition of the vegetation.

Vegetation Community 4 - Open Woodland of Jarrah-Marri consists of open woodland of *Eucalyptus marginata* and *Corymbia calophylla* over open shrubland of *Leptospermopsis erubescens*, *Xanthorrhoea preissii* and *Hakea undulata* over low open shrubland of *Bossiaea eriocarpa*, *Hibbertia* spp and *Leucopogon* spp. over very open herbland of *Stirlingia latifolia*. This vegetation community is consistent with what has been described for the Cooke vegetation complex. Similarities include the structure and composition of the vegetation.

No species of Threatened (T), or Priority Flora pursuant to the *Biodiversity Conservation* (BC) Act 2016 or the *Environment Protection and Biodiversity Conservation* (EPBC) Act 1999 were located during the time of the survey.

The Threatened Ecological Community *Eucalypt Woodlands of the Western Australian Wheatbelt*, listed by Department of Agriculture, Water and the Environment (DAWE) and Department of Biodiversity, Conservation and Attractions (DBCA) is likely to occur with the survey area.

Based on the results of this survey, Del Botanics Environmental Consulting proposes the following recommendations:

- Encourage best practice weed management and rehabilitation; and
- Limit access to vehicles.

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**APPENDIX A**  
**VASCULAR PLANT SPECIES RECORDED**

**APPENDIX A:  
VASCULAR PLANT SPECIES RECORDED WITHIN CLACKLINE NATURE RESERVE,  
CLACKLINE, NOVEMBER 2023**

(\*Denotes a weed species)

<b>Family</b>	<b>Genus/Species</b>
<b>Alliaceae</b>	* <i>Allium triquetrum</i>
<b>Amaranthaceae</b>	<i>Ptilotus declinatus</i> <i>Ptilotus manglesii</i>
<b>Anarthriaceae</b>	<i>Lyginia barbata</i> <i>Lyginia imberbis</i> <i>Lyginia</i> sp
<b>Apiaceae</b>	<i>Daucus glochidiatus</i>
<b>Araliaceae</b>	<i>Trachymene pilosa</i>
<b>Asparagaceae</b>	<i>Dichopogon capillipes</i> <i>Laxmannia ? squarrosa</i> <i>Lomandra micrantha</i> <i>Lomandra</i> sp <i>Lomandra ?suaveolens</i> <i>Thysanotus patersonii</i>
<b>Asteraceae</b>	* <i>Hypochaeris glabra</i> * <i>Sonchus oleraceus</i> * <i>Ursinia anthemoides</i> <i>Asteraceae</i> sp <i>Podotheca ?gnaphalioides</i> <i>Hyalosperma cotula</i> <i>Lagenophora huegelii</i> <i>Lawrencella rosea</i> <i>Pimelea ?ciliata</i> <i>Podotheca</i> sp <i>Podotheca ? gnaphalioides</i> <i>Olearia rudis</i> <i>Waitzia nitida</i>
<b>Boryaceae</b>	<i>Borya sphaerocephala</i>
<b>Casuarinaceae</b>	<i>Allocasuarina huegeliana</i>
<b>Celastraceae</b>	<i>Tripterococcus brunonis</i>
<b>Cyperaceae</b>	<i>Lepidosperma</i> sp <i>Lepidosperma leptophyllum</i> <i>Lepidosperma pubisquameum</i> <i>Morelotia octandra</i> <i>Schoenus clandestinus</i> <i>Schoenus ? unispiculatus</i> <i>Lepidosperma leptostachyum</i>
<b>Dilleniaceae</b>	<i>Hibbertia commutata</i> <i>Hibbertia hypericoides</i> <i>Hibbertia montana</i>
<b>Droseraceae</b>	<i>Drosera macrantha</i>
<b>Ericaceae</b>	<i>Conostephium pendulum</i> <i>Eremaea blackwelliana</i>

	<i>Leucopogon ?verticillatus</i>
	<i>Styphelia</i> sp.
	<i>Styphelia propinqua</i>
	<i>Styphelia nitens</i>
	<i>Synaphea decorticans</i>
<b>Fabaceae</b>	<i>Sphaerolobium medium</i>
	<i>Acacia drummondii</i>
	<i>Acacia huegelii</i>
	<i>Acacia acuminata</i>
	<i>Acacia nervosa</i>
	<i>Acacia pulchella</i>
	<i>Bossiaea pulchella</i>
	<i>Bossiaea eriocarpa</i>
	<i>Daviesia cordata</i>
	<i>Daviesia decurrens</i>
	<i>Gastrolobium calycinum</i>
	<i>Gastrolobium dilatatum</i>
	<i>Gastrolobium parviflorum</i>
	<i>Gastrolobium retusum</i>
	<i>Gastrolobium spathulatum</i>
	<i>Gompholobium knightianum</i>
	<i>Gompholobium marginatum</i>
	<i>Gompholobium tomentosum</i>
	<i>Hovea pungens</i>
	<i>Jacksonia restioides</i>
<b>Goodeniaceae</b>	<i>Dampiera ?linearis</i>
	<i>Goodenia pinifolia</i>
<b>Haemodoraceae</b>	<i>Anigozanthos humilis</i>
	<i>Conostylis</i> sp
	<i>Conostylis setigera</i>
	<i>Conostylis? setigera</i>
	<i>Haemodoraceae</i> sp
<b>Haloragaceae</b>	<i>Glischrocaryon aureum</i>
<b>Hemerocallidaceae</b>	<i>Chamaescilla corymbosa</i>
	<i>Dianella revoluta</i>
	<i>Tricoryne elatior</i>
<b>Iridaceae</b>	* <i>Romulea rosea</i>
	<i>Orthrosanthus laxis</i>
	<i>Patersonia occidentalis</i>
	<i>Patersonia pygmaea</i>
<b>Lauraceae</b>	<i>Cassytha racemosa</i>
<b>Loranthaceae</b>	<i>Nuytsia floribunda</i>
<b>Myrtaceae</b>	<i>Calytrix flavescens</i>
	<i>Calytrix angulata</i>
	<i>Corymbia calophylla</i>
	<i>Eremaea pauciflora</i>
	<i>Eucalyptus accedens</i>

	<i>Eucalyptus marginata</i>
	<i>Eucalyptus wandoo</i>
	<i>Leptospermopsis erubescens</i>
	<i>Melaleuca ?aspalathoides</i>
	<i>Verticordia</i> sp
<b>Phyllanthaceae</b>	<i>Lysiandra calycina</i>
<b>Pittosporaceae</b>	<i>Marianthus ? coeruleopunctatus</i>
<b>Poaceae</b>	* <i>Aira caryophyllea</i>
	* <i>Avena barbata</i>
	* <i>Briza maxima</i>
	* <i>Bromus ?diandrus</i>
	* <i>Ehrharta longiflora</i>
	* <i>Vulpia bromoides</i>
	<i>Austrostipa elegantissima</i>
	<i>Austrostipa hemipogon</i>
	<i>Neurachne alopecuroidea</i>
	<i>Rytidosperma</i> sp
	<i>Rytidosperma caespitosum</i>
	<i>Rytidosperma ?acerosum</i>
<b>Polygalaceae</b>	<i>Comesperma calymega</i>
<b>Primulaceae</b>	* <i>Lysimachia arvensis</i>
	<i>Banksia bipinnatifida</i> subsp. <i>bipinnatifida</i>
	<i>Banksia bipinnatifida</i>
	<i>Banksia nivea</i>
	<i>Banksia sessilis</i>
	<i>Banksia squarrosa</i>
	<i>Grevillea synapheae</i>
	<i>Hakea incrassata</i>
	<i>Hakea lissocarpha</i>
	<i>Hakea trifurcata</i>
	<i>Hakea undulata</i>
	<i>Persoonia ? quinquenervis</i>
	<i>Petrophile stricta</i>
	<i>Stirlingia latifolia</i>
	<i>Styphelia propinqua</i>
<b>Pteridaceae</b>	<i>Cheilanthes sieberi</i>
<b>Restionaceae</b>	<i>Desmocladius flexuosus</i>
<b>Rhamnaceae</b>	<i>Trymalium ledifolium</i>
	<i>Trymalium odoratissimum</i>
<b>Rubiaceae</b>	<i>Opercularia vaginata</i>
<b>Stylidiaceae</b>	<i>Levenhookia pusilla</i>
	<i>Stylidium brunoianum</i>
	<i>Stylidium affine</i>
	<i>Stylidium repens</i>
	<i>Stylidium</i> sp
<b>Xanthorrhoeaceae</b>	<i>Xanthorrhoea acanthostachya</i>
	<i>Xanthorrhoea gracilis</i>

**Zamiaceae**

*Xanthorrhoea preissii*

*Macrozamia riedlei*

**APPENDIX B**  
**QUADRAT DATA**

*Del Botanics*

**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q1
<b>GPS Datum:</b> 50 451515.55 6491907.99	<b>Topography:</b> Lower slope	<b>Litter cover:</b> 40% twigs, 80% leaves 0% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Grey/Brown/Clay/loam/sand
<b>Vegetation Description:</b> Open Wandoo Woodland		
<b>Vegetation Condition:</b> Very good		
<b>Observations:</b>		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus wandoo</i>	1500	100		45
	<i>Allocasuarina huegeliana</i>	600	100		1
<b>Middle</b>	<i>Bossiaea eriocarpa</i>	40	100		50
	<i>Hakea lissocarpa</i>	40	100		2.5
<b>Bottom</b>	<i>Banksia nivea</i>	30	100		8
	<i>Hibbertia commutata</i>				
	<i>Acacia nervosa</i>				
	<i>Acacia drummondii</i>				
<b>SP3</b>	<i>Lepidosperma leptostachyum</i>				
	<i>Banksia bipinnatifida</i>				
	<i>Hibbertia hypericoides</i>				
	<i>Gompholobium marginatum</i>				
	<i>Ptilotus manglesii</i>				

<b>SP4</b>	<i>Jacksonia restioides</i>				
	<i>Cassytha racemosa</i>				
	<i>Rytidosperma caespitosum</i>				
	<i>Daviesia decurrens</i>				
	<i>Patersonia pygmaea</i>				
	<i>Leptospermopsis erubescens</i>				
	<i>Corymbia calophylla</i>				
	<i>Tripterococcus brunonis</i>				
	<i>Petrophile stricta</i>				
	<i>Conostylis setigera</i>				
	<i>Desmocladius flexuosus</i>				
	<i>Grevillea synapheae</i>				
	<i>Gompholobium tomentosum</i>				
<b>Opp</b>	<i>Banksia squarrosa</i>				
<b>Opp</b>	<i>Macrozamia riedlei</i>				

*Del Botanics*

**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q2
<b>GPS Datum:</b> 50 43962.81 6491976.47	<b>Topography:</b> Upper slope	<b>Litter cover:</b> 50% twigs, 80% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Grey/sand/loam quartz outcrops

**Vegetation Description:** Good

**Vegetation Condition:** Open Powderbark Woodland

**Observations:**



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus accedens</i>	2000	100		45
<b>Middle</b>	<i>Gastrolobium parviflorum</i>	120	100		1
	<i>Xanthorrhoea preissii</i>	100	100		1
	<i>Macrozamia riedlei</i>	100	100	90	1
<b>Bottom</b>	<i>Bossiaea eriocarpa</i>	50	100		5
<b>SP7</b>	<i>Styphelia</i> sp.	50	100		2
	<i>Glischrocaryon aureum</i>	60	100		1
	<i>*Ursinia anthemoides</i>				
	<i>Neurachne alopecuroidea</i>				
	<i>Hibbertia commutata</i>				
	<i>Rytidosperma caespitosum</i>				
	<i>Lomandra</i> sp				
	<i>Hibbertia hypericoides</i>				

	<i>Daucus glochidiatus</i>				
	* <i>Romulea rosea</i>				
	<i>Opercularia vaginata</i>				
	<i>Thysanotus patersonii</i>				
<b>SP3</b>	<i>Lepidosperma leptostachyum</i>				
	<i>Dampiera ?linearis</i>				
	<i>Lawrencella rosea</i>				
	<i>Hakea lissocarpha</i>				
	<i>Hovea pungens</i>				
<b>Opp</b>	<i>Banksia bipinnatifida</i>				
<b>Opp</b>	<i>Corymbia calophylla</i>				

*Del Botanics*

**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q3
<b>GPS Datum:</b> 50 454033.83 6492170.83	<b>Topography:</b> Mid slope	<b>Litter cover:</b> 40% twigs, 100% leaves 20% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Sandy loam/ Quartz outcrop
<b>Vegetation Description:</b> Sheoak-Wandoo Woodland		
<b>Vegetation Condition:</b> Degraded		
<b>Observations:</b>		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus wandoo</i>	1500	100		2
	<i>Allocasuarina huegeliana</i>	1500	80	20	70
<b>Middle</b>	<i>Acacia acuminata</i>	300			1.5
<b>Bottom</b>	<i>Hibbertia commutata</i>	50	100		1
<b>SP6</b>	<i>Hibbertia montana</i>	40	100		0.75
	<i>Cheilanthes sieberi</i>	30	1000		1
	<i>Tripterococcus brunonis</i>				
<b>opp</b>	<i>Corymbia calophylla</i>				
<b>opp</b>	<i>Xanthorrhoea preissii</i>				
	<i>Thysanotus patersonii</i>				
	<i>Chamaescilla corymbosa</i>				
	* <i>Ursinia anthemoides</i>				

	<i>Rytidosperma caespitosum</i>				
	<i>Neurachne alopecuroidea</i>				
<b>SP7</b>	<i>Styphelia</i> sp.				
	* <i>Romulea rosea</i>				
	<i>Levenhookia pusilla</i>				
	<i>Austrostipa hemipogon</i>				
	<i>Podotheca</i> sp				
	* <i>Ehrharta longiflora</i>				
<b>SP3</b>	<i>Lepidosperma leptostachyum</i>				
	<i>Tricoryne elatior</i>				
	* <i>Hypochaeris glabra</i>				
	<i>Comesperma calymega</i>				
	* <i>Briza maxima</i>				
	<i>Lysiandra calycina</i>				
	* <i>Sonchus oleraceus</i>				
	<i>Asteraceae</i> sp				
<b>Opp</b>	<i>Trymalium ledifolium</i>				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q4
<b>GPS Datum:</b> 50 451052.55 6492899.15	<b>Topography:</b> Upper slope	<b>Litter cover:</b> 20% twigs, 70% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Clay brown

**Vegetation Description:** Good

**Vegetation Condition:** Powderbark Woodland

**Observations:** Historic logging. No weeds



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus accedens</i>	1500	100		45
<b>Middle</b>	<i>Xanthorrhoea acanthostachya</i>	200	100		2
<b>Bottom</b>	<i>Lepidosperma leptostachyum</i>	40	100		0.5
	<i>Bossiaea eriocarpa</i>	40	100		0.5
	<i>Lomandra micrantha</i>	30	100		0.5
	<i>Stylidium affine</i>				
	<i>Acacia pulchella</i>				
<b>SP10</b>	<i>Goodenia pinifolia</i>				
	<i>Gastrolobium parviflorum</i>				
<b>SP6</b>	<i>Hibbertia montana</i>				
	<i>Thysanotus patersonii</i>				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q5
<b>GPS Datum:</b> 50 452253.35 6494154.83	<b>Topography:</b> Mid Slope	<b>Litter cover:</b> 20% twigs, 70% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Peaty Brown
<b>Vegetation Description:</b> Powderbark- woodland with Wandoo		
<b>Vegetation Condition:</b> Very good		
<b>Observations:</b> Historic logging		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus accedens</i>	1200	100		14
	<i>Eucalyptus wandoo</i>	1200	100		10
<b>Middle</b>	<i>Xanthorrhoea acanthostachya</i>	200	100		2
	<i>Macrozamia riedlei</i>	100	90	10	2.5
	<i>Hakea lissocarpha</i>	60	100		2
<b>Bottom</b>	<i>Styphelia</i> sp.	60	100		3
<b>SP6</b>	<i>Hibbertia montana</i>	60	100		2.5
	<i>Bossiaea eriocarpa</i>	60	100		1
	<i>Orthrosanthus laxus</i>				
	<i>Glischrocaryon aureum</i>				
	<i>Stylidium affine</i>				
	<i>Hibbertia commutata</i>				
<b>SP11</b>	<i>Lomandra micrantha</i>				

	<i>Acacia pulchella</i>				
	<i>Dianella revoluta</i>				
	<i>Gastrolobium retusum</i>				
	<i>Austrostipa elegantissima</i>				
	<i>Hibbertia hypericoides</i>				
	<i>Hyalosperma cotula</i>				
	<i>Thysanotus patersonii</i>				
	<i>Austrostipa hemipogon</i>				
	<i>Dampiera ?linearis</i>				
	<i>Rytidosperma caespitosum</i>				
<b>SP12</b>	<i>Olearia rudis</i>				
<b>SP14</b>	<i>Eremaea blackwelliana</i>				

*Del Botanicis*

FIELD SHEET – FLORA AND VEGETATION SURVEY

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q6
<b>GPS Datum:</b> 50 452064.55 6494145.61	<b>Topography:</b> Lower Slope	<b>Litter cover:</b> 20% twigs, 20% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Sand white/grey

**Vegetation Description:** Jarrah/Marri woodland

**Vegetation Condition:** Very good

**Observations:** Historic logging



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Corymbia calophylla</i>	1500	100		6
	<i>Eucalyptus marginata</i>	150	100		8
<b>Middle</b>	<i>Leptospermopsis erubescens</i>	200	100		30
	<i>Xanthorrhoea preissii</i>	300	100		6
	<i>Macrozamia riedlei</i>	170	100		10
<b>Bottom</b>	<i>Eremaea blackwelliana</i>	140	100		40
	<i>Bossiaea eriocarpa</i>	100	100		2
	<i>Stirlingia latifolia</i>	100	100		2.5
	<i>Calytrix angulata</i>				
	<i>Dianella revoluta</i>				
	<i>Acacia pulchella</i>				
	<i>Lyginia barbata</i>				
	<i>Thysanotus patersonii</i>				

	<i>Conostylis</i> sp				
	<i>Lomandra</i> sp				
	<i>Lysiandra calycina</i>				
	<i>Gompholobium tomentosum</i>				
	<i>Hibbertia hypericoides</i>				
	* <i>Ursinia anthemoides</i>				
	<i>Lepidosperma leptophyllum</i>				
	<i>Marianthus ? coeruleopunctatus</i>				
<b>Opp</b>	<i>Verticordia</i> sp				
<b>Opp</b>	<i>Melaleuca aspalathoides</i>				
<b>SP15</b>	<i>Lomandra ?suaveolens</i>				
<b>SP16</b>	<i>Calytrix flavescens</i>				
<b>SP17</b>	<i>Conostylis ?setigera</i>				

*Del Botanics*

**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q7
<b>GPS Datum:</b> 50 452339.41 6494131.37	<b>Topography:</b> Upper Slope	<b>Litter cover:</b> 20% twigs, 30% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Peaty Brown/ Quartz outcrop

**Vegetation Description:** *Allocasuarina huegeliana*- Wandoo Woodland

**Vegetation Condition:** Good

**Observations:**



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus wandoo</i>	1200	100		15
	<i>Allocasuarina huegeliana</i>	1200	100		12
<b>Middle</b>	<i>Trymalium odoratissimum</i>	200	100		16
	<i>Trymalium ledifolium</i>	200	100		5
<b>SP7</b>	<i>Styphelia</i> sp.	40	100		5
<b>Bottom</b>	<i>Orthrosanthus laxus</i>	40	100		4
	<i>Hibbertia commutata</i>	40	100		2
	<i>Hibbertia hypericoides</i>	40	100		3
<b>SP22</b>	<i>Acacia pulchella</i>				
	<i>Glischrocaryon aureum</i>				
<b>SP12</b>	<i>Olearia rudis</i>				
	<i>Macrozamia riedlei</i>				

	<i>Bossiaea eriocarpa</i>				
	<i>Gompholobium marginatum</i>				
	<i>Hakea lissocarpa</i>				
	* <i>Briza maxima</i>				
	<i>Rytidosperma caespitosum</i>				
	<i>Stylidium affine</i>				
	<i>Leptospermopsis erubescens</i>				
	<i>Hakea incrassata</i>				
<b>SP13</b>	<i>Gastrolobium parvifolium</i>				
	<i>Neurachne alopecuroidea</i>				
	? <i>Rytidosperma acerosum</i>				
<b>SP20</b>	<i>Schoenus ? unispiculatus</i>				
<b>SP21</b>	<i>Schoenus clandestinus</i>				
	<i>Chamaescilla corymbosa</i>				
	<i>Sphaerolobium medium</i>				
	<i>Stylidium brunoianum</i>				
	<i>Drosera macrantha</i>				
	<i>Asteraceae</i> sp				

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FIELD SHEET – FLORA AND VEGETATION SURVEY

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q8
<b>GPS Datum:</b> 50 452133.88 6492318.87	<b>Topography:</b> Flat	<b>Litter cover:</b> 10% twigs, 15% leaves 5% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Grey Sand
<b>Vegetation Description:</b> Marri-Jarrah Woodland		
<b>Vegetation Condition:</b> Good		
<b>Observations:</b>		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus marginata</i>	1600	70	30	25
	<i>Corymbia calophylla</i>	2000	100		10
<b>Middle</b>	<i>Leptospermopsis erubescens</i>	300	100		10
<b>SP23</b>	<i>Synaphea decorticans</i>	100	100		5
	<i>Hakea undulata</i>				
<b>Bottom</b>	<i>Hibbertia hypericoides</i>	40	100		10
	<i>Morelotia octandra</i>	40	100		5
<b>SP24</b>	<i>Styphelia propinqua</i>	30	100		2
	<i>Bossiaea eriocarpa</i>				
	<i>Xanthorrhoea preissii</i>				
	<i>Xanthorrhoea gracilis</i>				
	<i>Dianella revoluta</i>				
	<i>Conostylis setigera</i>				

	<i>Lepidosperma pubisquamum</i>				
	<i>Lepidosperma leptophyllum</i>				
	<i>Patersonia occidentalis</i>				
	* <i>Briza maxima</i>				
	* <i>Aira caryophyllea</i>				
	<i>Thysanotus patersonii</i>				
	<i>Acacia pulchella</i>				
	<i>Ptilotus manglesii</i>				
	<i>Hibbertia commutata</i>				
	<i>Austrostipa hemipogon</i>				
	<i>Banksia nivea</i>				
	<i>Podotheca ?gnaphalioides</i>				
	<i>Lomandra sp</i>				
	* <i>Ursinia anthemoides</i>				
	* <i>Vulpia bromoides</i>				
	<i>Gompholobium knightianum</i>				
	<i>Laxmannia ? squarrosa</i>				
	<i>Neurachne alopecuroidea</i>				
	<i>Conostephium pendulum</i>				
	* <i>Hypochoeris glabra</i>				
	<i>Lyginia sp</i>				
	<i>Anigozanthos humilis</i>				
	<i>Hakea trifurcata</i>				
	<i>Chamaescilla corymbosa</i>				
	<i>Persoonia ? quinquenervis</i>				
<b>SP25</b>	<i>Lepidosperma leptostachyum</i>				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q9
<b>GPS Datum:</b> 50 452769.92 6492866.33	<b>Topography:</b> Mid Slope	<b>Litter cover:</b> 20% twigs, 30% leaves 10% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Grey sand
<b>Vegetation Description:</b> Jarrah Marri Woodland		
<b>Vegetation Condition:</b> Very Good		
<b>Observations:</b>		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus marginata</i>	3000	100		60
<b>Middle</b>	<i>Xanthorrhoea preissii</i>	150	100		6
<b>SP26</b>	<i>Eremaea pauciflora</i>	200	100		5
	<i>Leptospermopsis erubescens</i>	200	100		3
<b>Bottom</b>	<i>Hibbertia hypericoides</i>	50	100		9
	<i>Lyginia imberbis</i>	50	100		5
<b>Opp</b>	<i>Corymbia calophylla</i>				
<b>Opp</b>	<i>Nuytsia floribunda</i>				
	<i>Leucopogon ?verticillatus</i>				
	<i>Bossiaea eriocarpa</i>				
	<i>Stirlingia latifolia</i>				
	<i>Acacia pulchella</i>				

	<i>Calytrix angulata</i>				
	<i>Leptospermopsis erubescens</i>				
<b>Sp 27</b>	<i>Acacia huegelii</i>				
	<i>Leucopogon</i> sp				
	* <i>Ursinia anthemoides</i>				
	<i>Stylidium repens</i>				
	* <i>Briza maxima</i>				
	<i>Rytidosperma caespitosum</i>				
	<i>Banksia sessilis</i>				
	<i>Thysanotus patersonii</i>				
	* <i>Briza maxima</i>				
	<i>Chamaescilla corymbosa</i>				
	<i>Morelotia octandra</i>				
	<i>Haemodoraceae</i> sp				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q10
<b>GPS Datum:</b> 50 453198.46 6493036.91	<b>Topography:</b> Upper Slope	<b>Litter cover:</b> 10% twigs, 20% leaves 5% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Peaty brown

**Vegetation Description:** *Allocasuarina huegeliana* – Wandoo Woodland

**Vegetation Condition:** Degraded

**Observations:** Increased weeds



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus wandoo</i>	2000	100		40
	<i>Allocasuarina huegeliana</i>	1500	90	10	30
<b>Middle</b>	<i>Gastrolobium dilatatum</i>	200	100		6
	<i>Trymalium odoratissimum</i>	130	100		3
	<i>Hakea lissocarpha</i>	40	100		3
<b>Bottom</b>	<i>Neurachne alopecuroidea</i>	15	100		70
	<i>Orthrosanthus laxis</i>	40	100		5
	<i>Hibbertia commutata</i>	30	100		2
	<i>*Aira caryophyllea</i>				
	<i>Rytidosperma caespitosum</i>				
	<i>Chamaescilla corymbosa</i>				
	<i>Cheilanthes sieberi</i>				
<b>SP 29</b>	<i>Lawrencella rosea</i>				

	<i>Austrostipa hemipogon</i>				
	<i>Glischrocaryon aureum</i>				
<b>Sp 31</b>	<i>Banksia bipinnatifida</i> subsp. <i>bipinnatifida</i>				
	* <i>Briza maxima</i>				
	<i>Hyalosperma cotula</i>				
<b>Sp 28</b>	<i>Gastrolobium calycinum</i>				
	<i>Trymalium ledifolium</i>				
	<i>Lysiandra calycina</i>				
	<i>Stylidium</i> sp				
<b>Sp 22</b>	<i>Acacia pulchella</i>				
	<i>Gastrolobium spathulatum</i>				
	<i>Borya sphaerocephala</i>				
	<i>Desmocladius flexuosus</i>				
<b>Opp</b>	<i>Xanthorrhoea preissii</i>				
<b>Opp</b>	<i>Corymbia calophylla</i>				
	<i>Opercularia vaginata</i>				
	<i>Dianella revoluta</i>				
	<i>Lomandra</i> sp				
	* <i>Vulpia bromoides</i>				
	<i>Conostylis setigera</i>				
	<i>Hakea lissocarpha</i>				
	<i>Hibbertia hypericoides</i>				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q11
<b>GPS Datum:</b> 50 453268.40 6492681.19	<b>Topography:</b> Mid Slope	<b>Litter cover:</b> 20% twigs, 20% leaves 30% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Brown Peaty
<b>Vegetation Description:</b> Wandoo woodland		
<b>Vegetation Condition:</b> Very good		
<b>Observations:</b> Edge of Sheoak into Wandoo Woodland		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Top</b>	<i>Eucalyptus wandoo</i>	2000	100		70
	<i>Allocasuarina huegeliana</i>	1500	100		5
<b>Middle</b>	<i>Trymalium odoratissimum</i>	200	90	10	65
<b>Bottom</b>	<i>Hibbertia hypericoides</i>	40	9.5	5	2
	<i>Cheilanthes sieberi</i>	20		100	3
	<i>Desmodcladus flexuosus</i>	20		100	1.5
	<i>Trymalium ledifolium</i>				
	<i>Macrozamia riedlei</i>				
	<i>Xanthorrhoea preissii</i>				
	<i>Podotheca ?gnaphalioides</i>				
	* <i>Lysimachia arvensis</i>				
	<i>Lepidosperma pubisquameum</i>				
	<i>Lepidosperma</i> sp				
	* <i>Briza maxima</i>				

	<i>Lomandra</i> sp				
	<i>Thysanotus patersonii</i>				
	<i>Lysiandra calycina</i>				
	<i>Waitzia nitida</i>				
	<i>Gompholobium marginatum</i>				

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**FIELD SHEET – FLORA AND VEGETATION SURVEY**

<b>Job Code:</b> Clackline Nature Reserve	<b>Date:</b> 7/11/2023	<b>Site:</b> Q12
<b>GPS Datum:</b> 50 454322.90 6490646.29	<b>Topography:</b> Mid Slope	<b>Litter cover:</b> 10% twigs, 30% leaves 5% logs
<b>Age since fire:</b> >10 yrs	<b>Disturbance:</b> Hi Med Lo	<b>Soils:</b> Peaty Brown
<b>Vegetation Description:</b> Wandoo Woodland		
<b>Vegetation Condition:</b> Good		
<b>Observations:</b>		



Coll No.	Taxon	Ht (cm)	% Alive	% Dead	% Cover
<b>Upper</b>	<i>Eucalyptus wandoo</i>	2000	950	5	65
<b>Middle</b>	<i>Leptospermopsis erubescens</i>	200	97	3	12
	<i>Xanthorrhoea preissii</i>	150	100		6
<b>Bottom</b>	* <i>Briza maxima</i>	20		100	12
	* <i>Ehrharta longiflora</i>				
	<i>Dichopogon fimbriatus</i>				
	* <i>Avena barbata</i>				
	<i>Trymalium ledifolium</i>				
	<i>Acacia pulchella</i>				
	<i>Dianella revoluta</i>				
<b>SP7</b>	<i>Styphelia</i> sp.				
	* <i>Bromus ?diandrus</i>				

	<i>Pimelea ?ciliata</i>				
	* <i>Ursinia anthemoides</i>				
	<i>Daviesia cordata</i>				
	* <i>Vulpia bromoides</i>				
	<i>Rytidosperma</i> sp				
	<i>Cheilanthes sieberi</i>				
	* <i>Aira caryophyllea</i>				
	<i>Lagenophora huegelii</i>				
<b>SP29</b>	<i>Lawrencella rosea</i>				
<b>SP1</b>	<i>Hibbertia commutata</i>				
	<i>Desmocladius flexuosus</i>				
	<i>Gompholobium marginatum</i>				
	<i>Glischrocaryon aureum</i>				
	* <i>Romulea rosea</i>				
	* <i>Lysimachia arvensis</i>				

## **APPENDIX C**

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### **BAM ACT DEFINITIONS**

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# BAM Act Definitions

## Legal status

Each listed organism is declared under the Biosecurity Management act with certain legal requirements:

### Declared Pest, Prohibited - s12

Prohibited organisms are declared pests by virtue of section 22(1), and may only be imported and kept subject to permits. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.

### Permitted - s11

Permitted organisms must satisfy any applicable import requirements when imported. They may be subject to an import permit if they are potential carriers of high-risk organisms.

### Declared Pest - s22(2)

Declared pests must satisfy any applicable import requirements when imported, and may be subject to an import permit if they are potential carriers of high-risk organisms. They may also be subject to control and keeping requirements once within Western Australia.

### Permitted, Requires Permit - r73

Regulation 73 permitted organisms may only be imported subject to an import permit. These organisms may be subject to restriction under legislation other than the *Biosecurity and Agriculture Management Act 2007*. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.

### Unlisted - s14

If you are considering importing an unlisted organism/s you will need to submit the name/s for assessment, as unlisted organisms are automatically prohibited entry