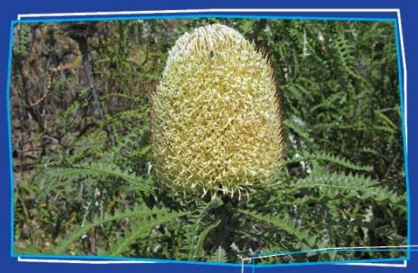
Vegetation, Flora, Fauna and Environmental Considerations, and Targeted Flora Report

Shire of Esperance Strategic Purpose Permit 20/21
Site E – Grass Patch Material Storage



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1 Executive Summary

This 'Vegetation, Flora, Fauna and Environmental Considerations and Targeted Flora Report' has been undertaken in accordance with the 'Environmental Protection Authority (EPA) Technical Guidance, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (2016)' as part of the application to the Department of Water and Environmental Regulations (DWER) to clear 1.488 ha within a 2.2 8ha area of native vegetation for the purpose of storage of road building materials and equipment.

2 Introduction

The Shire of Esperance endeavors to maintain a high level of road safety, being proactive in identifying high risk road designs and progressively upgrading them. The Shire of Esperance manages the largest road network of any local government in Western Australia, encompassing a total of 4 593 km of road. The Shire of Esperance is submitting 'Grass Patch Material Storage' project as Site E under the '2021 Strategic Purpose Permit' (Figure 1), for the purpose of forming a storage area for road building and maintenance materials in the Grass Patch town-site. Specifically, it will be used to store blue metal, gravel and other road maintenance or construction materials. This site has always been historically used as a storage area for rural operation needs. Additionally, this site has been identified as suitable for large water tanks to be present, as part of a drought relief initiative with state government for the local farming community to use and during significant bushfire events. For example over the summer of 2020, northern regions of Esperance community experienced significant fire emergency events. Four large mobile water tanks for firefighting are now permanently stationed within this area, reducing the space available for storage. The large haulage machinery used to cart material from the Grass Patch storage site to the job in the area no longer have the space to turn around with the presence of the water tanks. Widening is therefore required to allow this. No rehabilitation will occur post activity, and be used for the foreseeable future for this purpose.

Part of the site was originally submitted under a <1ha CPS 7548/1 permit SOE037 and was refused due to the presence of priority flora *Goodenia laevis ssp. laevis*, which required a full, in depth assessment of the area. As the project changed in scope and the area surveyed was increased an additional flora survey was conducted.

The proposed works are located ~70 km north of Esperance, within the Shire of Esperance managed reserve R 19624. Specifically, it is located at the intersection of the Coolgardie-Esperance Highway and Grass Patch Road from 0 to 275m west along Grass Patch Rd, at straight line kilometre (SLK) 0 to 0.27 (Main Roads 2020). A point within the proposed clearing permit area is -33.21847 S, 121.71520 E or 6322287 m N, 380272 m E (UTM Zone 51 H, GDA94).

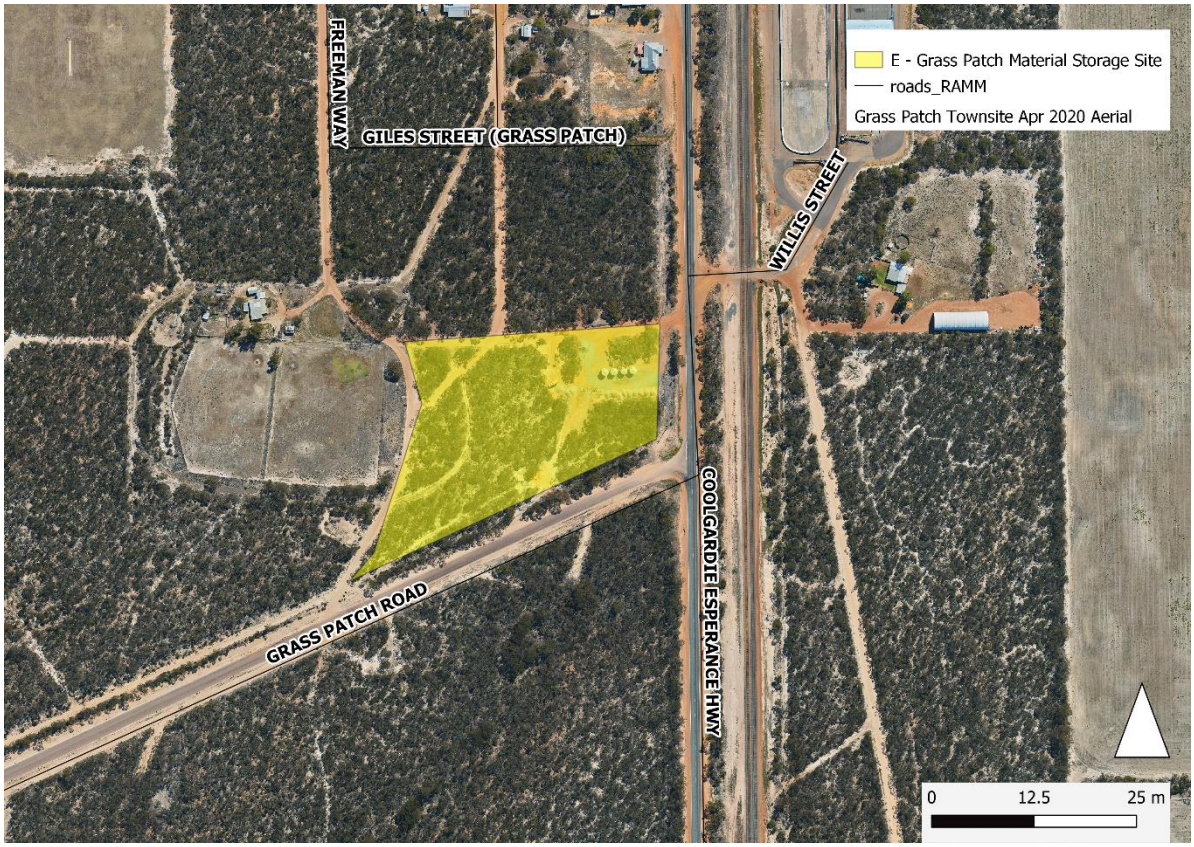

Figure 1. Location of 'Site E – Grass Patch Material Storage Site, located ~70km north of Esperance at SLK 0 to 0.27 along Grass Patch Road (Main Roads 2020.

3 Environmental Background

3.1 Scope

The removal of native vegetation at 'Site E – Grass Patch Material Storage' site to create a material storage area has the potential to affect a multiple environmental factors.

Possible impacts include;

- Threatened Flora (TF) and Priority Flora (PF).
- Threatened fauna, specifically, potential feeding, nesting and roosting habitat of endangered Carnaby's Black Cockatoo, *Calyptorhynchus latirostris.*

Assessing these impacts involves two approaches; desktop study and field survey. The desktop study gathered background information on the target area. The field survey allows for detailed understanding of vegetation communities, targeted flora surveys for possible TF or PF, environmental condition, presence of PEC and TEC, and overall potential impact of clearing.

3.2 Catchment

'Site E – Grass Patch Material Storage Project' is present within the western part of the Bandy Creek catchment area.

3.3 Climate

The Esperance climate is described as Mediterranean, characterised by cool wet winters and dry warm

summers (BoM 2020). The area receives an average annual rainfall of 618 mm.

3.4 Geology

Five geological units were identified within 'Site E – Grass Patch Material Storage Project', by Schoknecht et al. (2004). They are described as "Colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite."

3.5 Soils

The soil of 'Site E – Grass Patch Material Storage Project' is broadly defined as Scaddan 1 Subsystem (246Sc_1): alkaline solonetzic duplex soils (Schnoknecht et al. 2004). Within the area, only this one soil type was identified.

3.6 Topography

During the field survey, topography was observed to be dominated by flat plains. Using Schnoknect et al. (2004), the project topography is mapped at a fine scale, traversing a single topographic area "Level to gently undulating plain".

3.7 Vegetation

The site is located within the Eastern Mallee (Mal01) Interim Biogeographic Regionalisation of Australia (Thackway & Cresswell 1995) region. The MaL01 is described as "the south-eastern of Yilgarn Craton is gently undulating, with partially occluded drainage. Mainly Mallee over Myrtaceous-Proteaceous heaths on duplex (sand over clay) soils. Melaleuca shrublands characterize alluvia, and Halosarcia low shrublands occur on saline alluvium. A mosaic of mixed Eucalypt woodlands and Mallee occur on calcareous earth plans, and sandplains overlying the Eocene Limestone strata in the East. Semi-arid (dry) and warm Mediterranean".

Beard (1973) mapped a single vegetation association (VA) within the 'Site E – Grass Patch Material Storage' area – VA512 described as "Mallee scrub, *Eucalyptus eremophilia,* and Forrest's marlock (*E. forrestiana)*. This VA has less than desirable representation of its pre-European extent (19.02%) and is also under-represented in the Esperance LGA (20.14%) and conserved area of the IUCN (9%).

Since 2016, at least 88 ha illegal clearing by private landowners has occurred in the Grass Patch-Scaddan area. Much of this has been in VA 512, and further reduced the pre-European vegetated extent.

3.8 Land use

The area directly included in the clearing permit application 'Site E – Grass Patch Material Storage Project' is currently intact and vegetated 1.8 ha C class reserve, managed by the Shire of Esperance, for the purpose of recreation and racecourse. The land directly adjacent to the proposed project is intact vegetation surrounded by agricultural land, and the Grass Patch town site. The area is within public open space zoning.

4 Methodology

4.1 Desktop study

A desktop study was completed prior to any site visit. Geographical Information System (GIS) review existing

- Existing site digital orthophotos, as sourced from LandGate (2020).
- Western Australian Local Government Association's (WALGA) 'Local Government Mapping (LGMap 2020)' program was used to assess spatial information of geology, topography, soil

profiles, native and planted vegetation, water bodies and Interim Biogeographical Regionalisation for Australia (IBRA; Thackway & Cresswell 1995) classification system.

- Data provided by Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Herbarium in July/August 2020 was used to assess threatened flora (TF), priority flora (PF), and threatened (TEC) and priority (PEC) ecological communities within 20 km radius of the site. Specifically, spatial data included;
    - WAHerb extract (DBCA 2020E).
    - Threatened and Priority Reporting (TPFL; DBCA 2020C).
    - Esperance District Threatened Flora (DBCA 2020B).
    - TEC and PEC 'Likely to Occur' buffer and boundary areas (DBCA 2020D).
    - Department of Agriculture, Water and the Environment Protected Matters Search Tool
    - Index of Biodiversity Surveys for Assessment (IBSA).
- To assess fauna, the following databases were searched with a 20km buffer from the center of the site (33°13"55'S 121°42"57' E);
    - Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Museum (WAM) NatureMap data portal
    - DBCA Threatened and Priority Fauna database
    - BirdLife Australia's Atlas and Birdata datasets
    - Department of Agriculture, Water and the Environment Protected Matters Search Tool
    - Atlas of Living Australia database
    - Index of Biodiversity Surveys for Assessment (IBSA).

4.2 Field investigation: possible ecological impacts

The site was initially inspected on 22/01/2020, by the Shire of Esperance's Environmental Officers, Katie White and Rachael White. An assessment of possible ecological impacts included historical clearing, artificial water way constructions, impact of fire regimes, regeneration from disturbance, waterlogging, senescence, weeds, erosion, sedimentation, invasive fauna, *Phytophthora cinnamomi* Dieback, and illegal dumping of rubbish.

Flora and vegetation community were assessed during the field survey for the new application in 25/9/2020. Broad vegetation types defined by structure and composition were recorded and described. Condition of vegetation was assessed using Keighery (1994) categories, as 'Excellent', 'Very Good', 'Good', 'Degraded' or 'Completely Degraded'. This illustrates how healthy vegetation is, determined by number of dead or dying plants, weed cover and other forms of degradation. Additionally, possible environmentally sensitive areas, such as wetlands or granite, were noted. Overall, an assessment of environmental impacts to Department of Water and Environmental Regulation's (DWER) biodiversity values were inspected and valued.

Only a very basic fauna survey was conducted as per EPA (2020) guidelines. Observations of fauna presence, such as call sounds, footprints and scats were also noted, and the area assessed for suitability of endangered Carnaby's Black Cockatoo (*Calyptorhynchus latirostris)* feeding, roosting and nesting habitat. Additionally, species that corresponded with suitable habitat within 'Site E – Grass Patch Material Storage Project' identified in the desktop 20 km radius search were assessed, including Carnaby's Cockatoo and the inland Western Rosella.

4.3 Field investigation: Assessing Threatened and Priority Ecological Communities

The vegetation community of 'Site E – Grass Patch Material Storage Project' was assessed for the presence a TEC or PEC, using published conservation advice for TEC's known to occur in the Esperance region (Commonwealth of Australia, 2014).

PEC's do not have published approved conservation advice. Comparison of the vegetation community occurred using 'Priority Ecological Communities for Western Australia Version 30 (DBCA 2020A)' definitions.

4.4 Field Investigation: Targeted flora survey

The targeted flora survey was undertaken following the Environmental Protection Authority's (EPA) 'Technical Guidance, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (2016)'. The entirety of the proposed impact area was surveyed on foot in mid-spring, 25/09/2020 by Danika Penson & Sophie Willsher, Shire of Esperance's Environmental Assistants. This complimented the survey completed by Shire of Esperance's Environmental Officers, Katie White and Rachael White on 22/01/2020, which was completed during the CPS 7548/1 application. Due to the timing, the majority of species were flowering, decreasing the likelihood of missing species. The project area was sampled as a large quadrat, with both field assistants completing random traverses that accurately covered the area surveyed. Suitable associated habitat for TF or PF identified in the desktop study were particularly focused on, and extensively searched.

Due to the high diversity and complexity of Esperance's flora, all species were recorded to compile an incidental species list (Appendix 7.1) All species unknown in the field were collected and identified exsitu, using keys, WA Herbarium's Florabase (DBCA 2020C), manuals and Esperance District Herbarium, to ensure no TF or PF were missed. Material was collected under Katie White's Regulation 61, Biodiversity Conservation Regulations 2018 Licence for Flora Taking, FT61000029, Danika Penson's, FB62000277, and Sophie Willsher's FB2000278. Any species that were unable to be identified were submitted to the WA Herbarium for identification.

Over the course of the 2020 wildflower season, surveyors re-familiarised themselves with key taxonomic indicators and associated habitat, by visiting verified populations of *Acacia bartlei.* For other PF or TF species identified in the desktop survey as possible to occur, scans of pressed specimens from the local Esperance District Herbarium were taken into the field. Any flora thought to be TF or PF was formally collected, counted and mapped using a Panasonic FS-G1 Toughpad with the program ROAM or a GPS Garmin GPS64. Specimens were then lodged with the WA Herbarium for formal verification. When PF were confirmed, TPFL forms were completed and submitted to the DBCA's district Conservation Officer, and Species and Communities Branch.

5 Results and Discussion

5.1 Ecological Impact

5.1.1 Vegetation Communities

One vegetation community was identified within the 'Site E – Grass Patch Material Storage Project', as defined by structure and composition. It is described as, "Semi-open Mallee Eucalyptus woodland with very sparse to bare under and mid story" (Figure 3). The incidental flora list identified relatively low diversity with a total of 67 native species. It is believed that the Beard (1973) vegetation association identified in Section 3.6, VA512, described as "Shrublands: Mallee scrub, *Eucalyptus eremophilia* and Forrest's Marlock (*e. forrestiana)"* is an appropriate match for the vegetation type observed.

Figure 3. Vegetation identified in 'Site E – Grass Patch Material Storage' project, described as *semi-open mallee Eucalyptus woodland with very sparse to bare under and mid story.* Photo taken facing in a westerly direction at 380256.2X, 6322286.4 (UTM Zone 51H, GDA94) on 22/01/2020.

5.2 Vegetation Condition

Vegetation condition varied from totally destroyed to good condition (Figure 4). Areas that had been historically cleared for previous storage and vehicle movement were totally destroyed, creating small vegetation islands that are in poor condition because of their fragmentation. The largest area of intact vegetation within the proposed project area was in good condition, limited by evidence of human disturbance, litter, tracks and clearing. Quantifying vegetation condition, there is:

- 1.022 ha of vegetation within a 2.28 ha footprint (44%) is in good condition,
- 0.466 ha of vegetation within a 2.28 ha footprint (20%) is in poor condition and
- 0.792 ha of vegetation within a 2.28 ha footprint (35%) is totally destroyed.

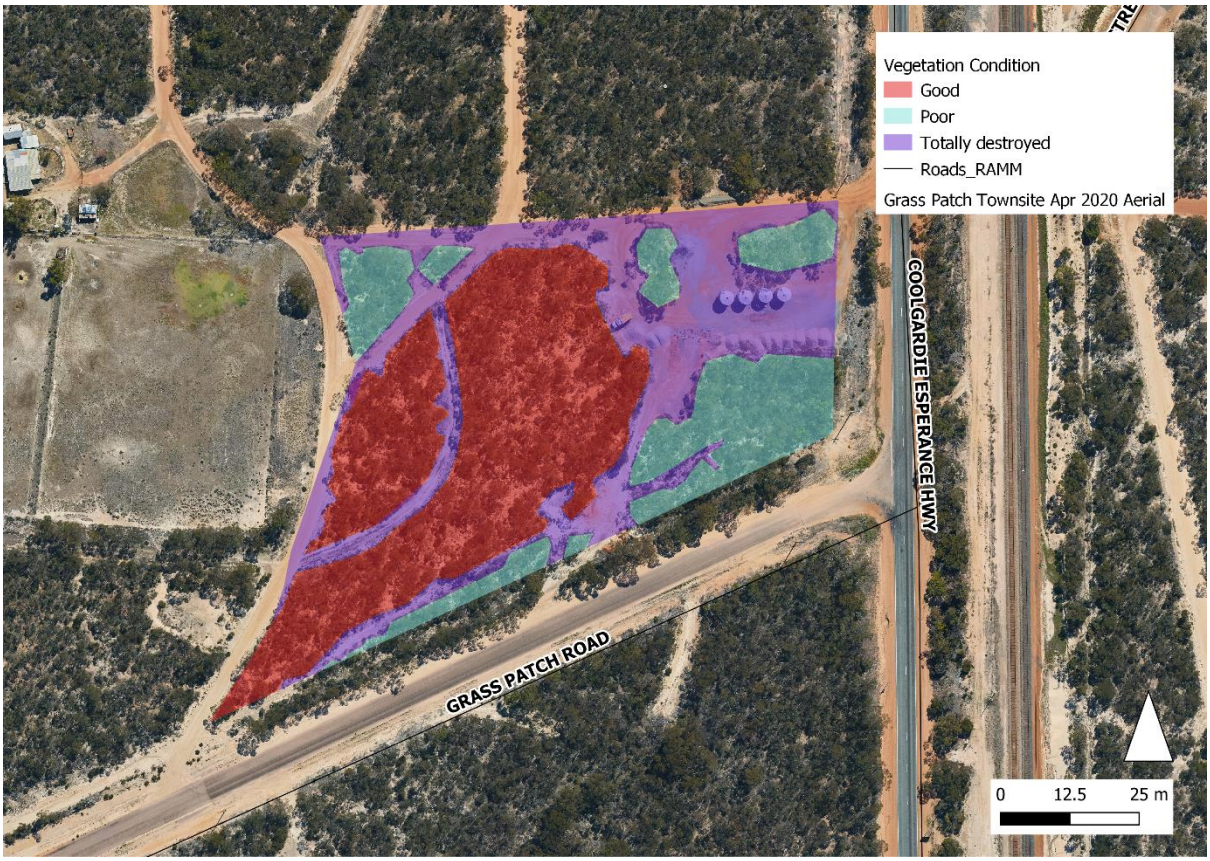

Figure 4. Vegetation condition across 'Site E – Grass Patch Material Storage' project, ranging from totally destroyed to good condition, due primarily to degradation from vehicle movement and littering.

5.3 Other Environmental Considerations

There was low weed invasion across the entirety of the proposed 'Site E – Grass Patch Material Storage' area. Overall, six invasive species were identified within the project area (Appendix 7.1). Of these, the most extensive and of serious concern were annual veldt grass (*Ehrharta longiflora)* and Prairie grass (*Bromus catharticus)*. However, both are unlikely to outcompete the natural bush and will not invade the surrounding bushland. The minimal degree of weed invasion has a low impact on the sites overall condition. Given the final end use of the site is as a machinery storage area, it is unlikely that weeds will persist as an issue.

The vast majority of vegetation within this site is not susceptible to *Phytophthorra* cinnamomi Dieback, and is unlikely to be recorded in this area due to the persisting dry nature of the soil. Dieback Information Delivery and Management System (DIDMS; GAIA Resources, SCNRM & State NRM 2020) data shows no *P. cinnamomi* or other *Phytophthora* sp. Dieback sample results in the immediate area. Proposed works will be conducted using appropriate hygiene measures to limit spreading of other plant pathogens or diseases, including clearing in dry conditions and clean down of vehicles and machinery before entering the site.

It is unlikely proposed works will impact natural hydrological regimes of the area. It is also highly unlikely acid sulphate soils will develop, being the incorrect soil type present. No evidence of invasive fauna, such as scats or digging, were observed. However, it is highly likely that foxes, rabbits and feral

cats are extensive throughout the area. There is no indication of fire history at the site.

5.4 Threatened and Priority Ecological Communities

The desktop study identified the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed threatened ecological community (TEC) 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' within 20km of the 'Site E – Grass Patch Material Storage' project area. No other TECs or PECs were identified during the desktop survey. During the field survey, it was determined that the single vegetation community unit identified, described as 'semi-open mallee Eucalyptus woodland', did not meet criteria to be considered as Kwongkan TEC. In summary, no PEC or TEC were within 'Site E– Grass Patch Material Storage Project' area.

5.5 Threatened and Priority Flora

Three threatened flora and 40 priority flora (PF) were recorded within a 20 km radius of the proposed impact site (Table 3; DBCA 2020B, DBCA 2020D, DBCA 2020F). Of these, six PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of 'Site E – Grass Patch material Storage' project. Confirmed records, indicating known populations, of *Goodenia laevis and Eucalyptus dolicorhyncha* were directly located within the clearing permit area.

Table 3. Threatened or priority flora identified by the desktop study to be present within a 20 km radius of 'Site E – Grass Patch Material Storage' project area, using Threatened and Priority Flora Reporting (TPFL; DBCA 2020D), WA Herbarium (DBCA 2020F) and Esperance District Threatened Flora (DBCA 2020B).
Nt. Acronyms used in the table include priority flora (P), threatened flora (TF), Biodiversity Conservation (BC) Act 2018, Environmental Protection and Biodiversity Conservation (EPBC) Act 1999, critically endangered (CN) and endangered (EN).

Species	Conservation Status	Associated Habitat	Likely to occur
Acacia bartlei	P3	Grows in sandy or clay loam, associated with *Eucalyptus occidentalis* (flat topped yate) and salt depressions between Salmon Gums and Scaddan areas.	Unlikely
Acacia euthyphylla	3	Grey/white sand or clay loam on the margins of salt lakes, marshes & seasonal swamps	No
Anigozanthos bicolor subsp. minor	T	Sandy, well watered sites	Unlikely
Atriplex muelleri	1	Undulating clay plain	possible
Baeckea sp. Gibson	1	Brown sandy loam over laterite & granite on moderately exposure hills or cleared bushland	unlikely
Beyeria physaphylla	1	Mallee woodlands – only known to Scaddan	Possible
Boronia baeckeacea subsp. patula	1	Clay-loam in mallee	Possbile
Brachyloma mogin	3	Grey, clayed sand and swamp flats	No
Dampiera sericantha	1	Sand sometimes with gravel. Plains.	yes

Darwinia sp. Gibson	1	Margins of salt lakes and road verges on grey-brown sandy loan and white sand	Unlikely
Darwinia sp. Mt Burdett	4	Open shrub mallee on sandy loams	Yes
Daviesia pauciflora	3	White or grey sand over laterite or limestone on flats	possible
Eremophila glabra subsp. Scaddan	T	Open mallee woodland opn grey/brown clay soils – only in the Scaddan area	yes
Eucalyptus aquilina	4	Shallow soils over granite, shallow valleys, creek beds and hillsides	no
Eucalyptus dolicorhyncha	P4	Flats with white to yellow sandy clay restricted to a small area to the south of Salmon Gums	Yes. Known within application area
Eucalyptus foliosa	3	Only in small area around Gibson/Scaddan	yes
Eucalyptus ligulata subsp. ligulata	4	Cape le Grande – Lucky Bay, moist granitic sand around peaks and outcrops	no
Eucalyptus semiglobosa	3	White sand over laterite, silty sand on edge of granite shelf, limestone. Hillslopes, gullies and cliffs	no
Eucalyptus sweedmaniana	2	Only in coastal areas	No
Gonocarpus pycnostachyus	3	Only known in Israelite Bay	No
Goodenia laevis	P3	Sandy loam or laterite associated with mallee	Yes. Known within application area
Grevillea baxteri	4	Truslove-scaddan area east to Israelite bay. Sand, sandy loam and granitic loam in low heath to tall open shrubland and open mallee	yes
Isopogon alcicornis	3	Grey/brown sandy loams in mallee shrubland. North & East of Esperance, around Scaddan, Mt Burdett and east to Cape Arid	possible
Kunzea salina	3	Scaddan area and east to Mt Heywood. White sand over clay at margins of salt playa lakes on sand dune rises (these marginal dune rises are not common in Esperance)	No
Lambertia echinata subsp. echinata	DRF - Crit	Gravelly sandy loam to granite or laterite. Below and between rock outcrops, slopes and hill crests	possible
Leucopogon interruptus	3	Grey sand over granite	Unlikely
Leucopogon rotundifolius	3	Skeletal soils around granite outcrops between Cape Le Grande & Israelite Bay	No
Melaleuca eximia	2	5 locations from the Mt Burdett area, east to Mt Buraminya & Clyde Hill. Sandy soils associated with granite outcrops	No
Melaleuca fissurata	4	Mt Ney to Lake King	No

Melaleuca viminea subsp. appressa	2	Near creeks or wet depressions in clayey soils, possibly associated with granite	No
Microtis quadrata	4	Wide spread in many habits	Possibly
Myoporum turbinatum	4	Sandy soils in moist areas – along creeks & rivers, near pools, margins of saline depressions	No
Myriophyllum petraeum	4	Strictly confined to ephemeral rock pools on granite outcrops	No
Persoonia cymbifolia	3	Sandy soils on flats or in rock crevices	Possible
Persoonia scabra	3	Granite or limestone shrublands	Possible
Pultenaea adunca	3	White/grey sand	Unlikely
Pultenaea brachyphylla	2	Pale brown sandy loam, sandy clay, gravel, granite, quartz, laterite. Gently undulating loam.	Possible
Rumicastrum chamaecladum	2	Winter wet creek edges	No
Scaevola archeriana	1	Sandy and sandy-clay loam soils. Sand plains, road verges.	Possible
Stachystemon vinosus	4	Ravensthorpe – Cape Arid sandy duplex and gravelly soils in scrub heath with associated sp, eucalyptus, hakea cinerea, banksia media,	No
Thysanotus parviflorus	4	Grey sand	No
Trachymene anisocarpa var. trichocarpa	3	Fire opportunist, fine windblown clay, mixed with sand often windblown or of larger alluvial grains eroded from granite outcrops	Unlikely

Two TF species *Goodenia laevis* subsp. *laevis* (P3), and *Eucalyptus dolicorhyncha* (P4), were recorded within the proposed clearing permit footprint. Queries of spatial datasets were requested specifically for these species, to interrogate impact of proposed works on species sustainability (DBCA 2020B; DBCA 2020D; DBCA 2020F). DBCA do not actively manage or monitor the majority of low priority species, due to their prevalence in the landscape relative to TF. There are 136 species recorded as priority three or four conservation status within the Shire of Esperance boundaries (DBCA 2020B).

Specimens unknown to surveyors were collected and verified at the WA Herbarium as non-threatened species, including;

- *Acacia cyclops*, which is very similar to the P3 *Acacia bartlei* (Accession #8774; KW0128, specimen not retained).
- *Enchylaena tomentosa* (Accession #8888; JW01621)
- *Dillwynia* sp. Mallee, which is similar to P3 *Pultenaea adunca* (Accession #8888; JW02021)

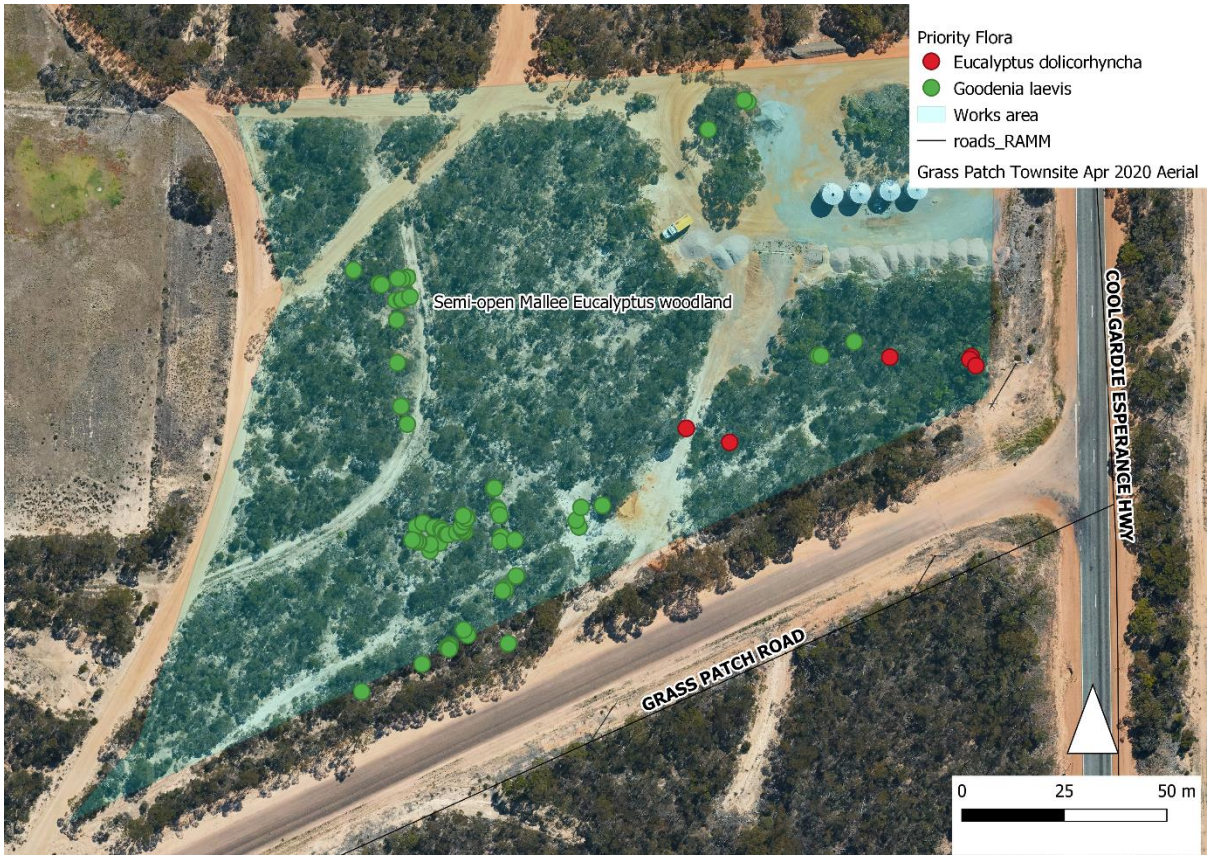

Figure 5. Location of priority flora identified in flora surveying at 'Site E – Grass Patch Material Storage'

5.5.1 *Goodenia laevis* subsp. *laevis*, Priority Three species

It was determined that within the proposed CPS 7548/1 Grass Patch Material Storage Site permit area that 94 plants of the priority three species, *Goodenia laevis* subsp. *laevis* was present. A formal specimen was collected (Accession #8334; KW061), and was confirm by Micheal Hislop at the WA herbarium on 04/03/2020 with specimen not retained. A Threatened and Priority Reporting (TPFL) Form was submitted to the District Conservation Officer at Department of Biodiversity, Conservation and Attractions (DBCA) on 04/03/2020.

Figure 6. *Goodenia laevis* subsp. *laevis* specimen was collected (Accession #8334; KW061), identification confirmed by Micheal Hislop at the WA herbarium.

An extract of data from the WA Herbarium and TPFL spatial datasets was received from DBCA 19/02/2020 (20-0221FL). The 94 plants are present directly within the area and will be cleared, located throughout most of the site, clearing would impact upon 87 o fthese..

During the September 2019 flora season there was five new populations of *G. laevis* subsp. *laevis* discovered. Only one of these had been entered into TPFL on 19/2/2021.

At all sites, the plants were present in the road active footprint that is regularly graded or in dam catchments – all sites with a high level of disturbance. These are specifically outlined below. It could therefore be inferred that the presence of *G. laevis* subsp. *laevis* in the disturbed vegetated island at the existing storage site is due to disturbance.

- On the intersection of Norwood and Dempster Rd, located within an old road that was ripped when the intersection was realigned. 100 to 150 plants present. No proposed impacts.
- In the Cascade town-site on Wilhaust St, in the back-slopes of the road that are regularly maintained with heavy machinery. 15+ plants present.
- On Neds Corner Rd, approximately 2.4 to 3.5 km north of Cascade Rd. All plants were present in the back-slopes of the road, that are regularly maintained with heavy machinery. 82 plants present.
- Grass Patch Rd, 2.2 km west of Bishops Rd. All plants were present in the back-slopes of the road that are regularly maintained with heavy machinery. 50+ plants present.
- An old government dam on the intersection of Dalyup and Rasyk Rd, which had historically been ripped, hard-standed and cleared to form a catchment for a Dam. 200 to 250 plants were present.

Using the WA Herbarium spatial data, the below inferences can be discussed:

- *G. laevis* subsp. *laevis* is geographically restricted to the Esperance mallee area, extending from Scaddan to Norseman, and the Cascade region to the edge of Cape Arid. In total this covers 18,000 km^2.

- Almost all associated vegetation is described as a variation of mixed Melaleuca shrubland with Eucalyptus woodland over-storey. Extensive areas of this vegetation type remain, providing likely habitat, with similar soil type and associated vegetation.
- 20 records of populations are recorded on DBCA databases, with 10 records collected prior to 2000. 4 new populations discovered by Shire of Esperance in recent years have not added to DBCA data.
- Of the 20 recorded specimens, six records are directly described as being within a previously disturbed site, such as old limestone pits or along firebreaks.
- 11 sites are described as along a road and may have been impacted upon during road widening or maintenance. 5 sites are within reserves and likely remain intact. 5 sites cannot be determined tenure status, and is unknown of potential impacts.

5.5.2 *Eucalyptus dolicorhyncha,* Priority 4

A specimen of *E. dolichorhyncha* was sent to the WA Herbarium for identification confirmation (KW096; Accession 8652 with specimen not retained). It was confirmed as *E. dolichorhyncha* by Michael Hislop on 10/12/20. A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 15/01/21 (Appendix 2). If proposed works occur, six plants will be impacted upon, from a population total of six.

Figure 6. *Eucalyptus dolichorhyncha collected from* Site E – Grass Patch Material Storage' (Accession #8652; KW096), identification confirmed by Micheal Hislop at the WA herbarium

E. dolichorhyncha is endemic to a restricted distribution to the South of Salmon Gums. The Grass Patch town site meets this distribution perfectly. The site description matches the associated habitat for *E. dolichorhyncha* with flat topography, with white to yellow sandy clay. The adjacent land surrounding the project site would also be highly suitable to this species. *E. dolichorhyncha* is often confused with *Eucalyptus forrestiana,* which it once was included in, but can be distinguished by its operculum, which is beaked in *E. dolichorhyncha* but shallow and disc-like in *E. forrestiana.*

There are 46 records on Florabase and in 2019 DBCA Esperance District had the following summary of populations of *E. dolichorhyncha*. It is likely that the 5 plants located within the application area make up part of a larger population including populations 3, 4 and 18, 4 listed below (which contain at least 69 plants in 2019).

Table 4. *Eucalyptus dolichorhyncha* Population Summary, 2019 (DBCA, 2019)

Pop #	LOCATION	Tenure	Last survey & no. plants	Date Surveyed	TPFL entered
1	Rolland Rd. 4.2km west of Swan Lagoon Rd	Shire Road Reserve	2019 = 100+	5/11/2019	YES
2.	Grass Patch Rd. 11km west of Grass Patch	Shire Road Reserve	1983 = common	10/9/1983	NO Herb record
3.	Grass Patch Rd. 1.9-3.0km west of townsite.	Shire Road Reserve	2019 = 60	5/9/2019	YES
4.	Grass Patch townsite. Located on Richardson St. 60m N and S of intersection with Shephard St.	Shire road reserve	2019 = 9	11/9/2019	YES
4.	Grass Patch Rd, between Williams and Belgian Rd.	Shire Road Reserve	2007 = UNK (A. Cochrane)	7/12/2007	NO Herb record
5.	Grass Patch Rd, west of Belgian Rd (10km SSW of Roberts Swamp)	Shire Road Reserve	1983 = UNK		NO Herb record
6.	18km west of Roberts Swamp (Rolland Rd??).	Shire Rd Reserve?	1980 = UNK		NO Herb record
7.	7.5km north of Rollands Rd along track which is 4km east of Fields Rd.	UCL?	1999 = occasional (M. French)	11/1999	NO Herb record
8.	14.7km north along Fields Rd, then east along gridline 1.9km.	UCL?	1999 = frequent (M. French)	11/1999	NO Herb record
9.	On edge of Lort River, 11.5km north of Rolland Rd.	UCL?	1999 – occasional 9M. French)	11/1999	NO Herb record
10.	Corner of Williams Rd and Bishop Rd.	Shire Rd Reserve? PP?	1981 = 21 (CJ Robinson)	22/01/1981	NO Herb record

11.	Bishop Rd. 1.1km south of Arnold Rd. Bishops NR29012. Long term monitoring plot 02VA	Shire Rd Reserve/NR	2005 = UNK (M. French)	04/2005	NO Herb record
12.	Thomas Rd. 7km south of Truslove NR.	?MRWA Shire?	1981 = UNK (CJ Robinson)	21/1/1981	NO Herb record
13.	35 miles (56km) south of Salmon Gums	MRWA?	1962 = UNK	5/11/1962	NO Herb record
14.	Esperance-Coolgardie Hwy. 5km north of Truslove Rd	MRWA?	2005 = UNK 9M. French)	10/2005	NO Herb record
15.	Esperance Coolgardie Hwy, 9km N of Scaddan	MRWA?	1998 = abundant (R.Cranfield)	04/1998	NO Herb record
16.	Esperance-Coolgardie Hwy, 7.3km south of Grass Patch, 1.3km S of Sime Rd.	MRWA	2002 = UNK (M. French)	06/2002	NO Herb record
17.	Esperance-Coolgardie Hwy. 30/34km? south of Salmon Gums.	MRWA	1968 = UNK	1/4/1968	NO Herb record
18.	Grass Patch townsite	Shire?	1957 = UNK	16/3/1957	NO Herb record
19.	Esperance-Coolgardie Hwy. 2 miles (3.2km) south of Red Lake.	MRWA?	1953 = UNK	18/4/1953	NO Herb record
20.	Main road south of Salmon Gums (Esperance-Coolgardie Hwy?)	MRWA?	1976 = UNK	18/9/1976	NO Herb record
21.	Salmon Gums	?	1924!	17/7/1924	NO Herb record
22.	14.5km NE of Scaddan (Lignite Rd?)	Shire Rd Reserve?	2008 = UNK (J. Williams)	14/8/2008	NO Herb record
23.	Wittenoom Hills.	?	1975 = UNK	08/1975	NO Herb record

5.6 Fauna

Within a 20 km radius of the 'Site E – Grass Patch Material Storage Project', six species are threatened fauna, priority fauna and fauna protected under international agreement have been recorded (Table 5). Three of these species have suitable habitat within the proposed clearing permit area, including Carnaby's Cockatoo, Chuditch or the Western Quoll and the inland Western Rosella.

Table 5. Potential threatened, priority and protected under international agreement fauna recorded within a 20 km radius of the proposed 'Site E – Grass Patch Material Storage'.
Nt. Acronyms used include priority (P), threatened (T), and protected under international agreement (IA).

Scientific Name	Common Name	Conservation Status	Likelihood of occurring	Associated habitat
Calyptorhynchus latirostris	Carnaby's Cockatoo	T	Possible	Eucalyptus woodlands, shrublands and kwongkan heath
Dasyurus geoffroii	Chuditch, Western Quoll	T	Possible	Forest and woodland habitats
Falco peregrinus	Peregrine Falcon	S	Unlikely	Broad habitat range, but prefer woodlands or tall trees for nesting
Leipoa ocellata	Malleefowl	T	Unlikely	Semi-arid shrublands and low woodlands dominated by mallee and/or acacia
Platycercus icterotis subsp. xanthogenys	Inland Western Rosella	P4	Yes	Eucalypt and Casuarina open woodlands and shrublands
Thinornis rubricollis	Hooded Plover, Hooded Dotterel	P	No	Ocean beaches and the edges of near-coastal and inland salt lakes

5.6.1 Chuditch, Dasyurus geoffroii, threatened fauna

Chuditch have diminished from approximately 95% of their former ranges over the last 200 years, and now has its second national recovery plan in action (Western Australian Department of Environment and Conservation, 2012). Active translocation and some increase in natural populations has improved the standing for Chuditch in Western Australia, but not enough to downgrade the species IUCN listing. Free ranging populations of the Chuditch, previously found in diverse habitats across Australia are now restricted to the South West corner of Western Australia in primarily forested (*E. marginata)* woodlands, although it has been recorded from mallee shrublands in the Ravensthorpe-Esperance region. The woodland and mallee shrubland would be a suitable vegetation type for the Chuditch. No evidence of their presence were observed within the project boundaries.

5.6.2 Inland Western Rosella, Platycercus icterotis subsp. Xanthogenys, Priority 4

The Western Rosella is endemic to Southern Western Australia and is thought to be declining across the Western Wheatbelt due to clearing, and loss of habitat. The vegetation found at Site E – Grass Patch Material Storage project is suitable for the Rosella to both nest in the taller Eucalypts and feed amidst the lower, open shrubland. It has decline or become extinct from more than 25% of the Western Australian Shire's it was once distributed across.

5.6.3 Carnaby's Black Cockatoo, *Calyptorhynchus latirostris*, threatened fauna

Carnaby's Black Cockatoo's are unlikely to nest within the 'Site E – Grass Patch Material Storage' project area, as no large trees are present with hollows. Medium sized Eucalypts are present in the surrounding area, which means Carnaby's Black Cockatoo are likely to frequent the area by roosting in these trees. However, there were no large trees or observed hollows that would be suitable for nesting. Carnaby's Black Cockatoos forage on Proteaceae species nuts, such as Hakea or Banksia species. No proteaceous species were observed in the application area, and therefore Carnaby's would unlikely frequent the area to feed.

5.7 Conclusion; assessment of Department of Water and Environmental Regulations clearing principles

The 'Site E – Grass Patch Material Storage' project may be at variance to some of the clearing principles that the Department of Water and Environmental Regulations (DWER) assess applications, as listed under Schedule 5 of the Environmental Protection Act 1986 (DWER 2019).

Table 6. Shire of Esperance Assessment against Clearing Principles of the proposed 'Site E – Grass Patch Material Storage'

Assessment against Clearing Principles	Conclusion
Principle (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	Biodiverisity at this site is relatively low with 67 native species recorded. There was a high diversity of Melaleuca and Eucalyptus spp. from the application area.
Principle (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.	Three threatened or priority fauna were identified as likely to occur in this area, including Chuditch, Carnaby's black Cockatoo and the inland Western Rosella. No evidence of these species was found within the project area. The small size of the application area and the presence of large amounts of intact vegetation, of the same vegetation type surrounding the project area provides an alternate nesting and foraging place for these fauna, should they occur in the area.
Principle (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	No threatened flora was recorded within the application area. 87 individuals of the Priority 3 species Goodenia levis ssp laevis and 6 individuals the Priority 4 species *Eucalyptus dolichorhyncha* were recorded in the application area but this is unlikely to have any significant impact on the long term survival of these species
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.	No Priority of Threatened Ecological communities were recorded from the application area
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.	There is large areas of uncleared vegetation immediately adjacent to the application area.
Principle (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	No riparian vegetation was recorded from the application area
Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Soil types in the area are unlikely to erode or become degraded due to this project.
Principle (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values	Clearing of the vegetation is unlikely to have an impact on the environmental values of any nearby conservation reserves

of any adjacent or nearby conservation area.	
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.	There is unlikely to be any impacts to surface or groundwater due to groundwater depths in the area and flat terrain
Principle (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	There is unlikely to be any flooding in this area.

Additionally there is very low risk of spreading dieback disease, however the clearing of vegetation could encourage the increase in weed presence and possibly their dispersal. Management steps will be taken to ensure the minimising of weeds. Further, no evidence of disease is found in or around the project area, so development is unlikely to spread disease such as *Phytopthera cinnamomi* however, precautions such as washing down tyres, and avoiding wet days to reduce mud distribution will be in place to minimises the risk.

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7 Appendix

7.1 Incidental species list

Family	Genus	Species	Common Name	Invasive	WAConstStatus
Aizoaceae	Carpobrotus	virescens	Inland Pig face		
Apocynaceae	Alyxia	buxifolia	Dysentry Bush		
Asparagaceae	Thysanotus	patersonii			
Asteraceae	Arctotheca	calendula	Cape weed	X	
Asteraceae	Gazania	linearis	Treasure Flower	X	
Asteraceae	Olearia	muelleri	Goldfields daisy		
Asteraceae	Olearia	ramosissima	Much-branched Daisy		
Asteraceae	Siemssenia	capillaris	Wiry Podolepis		
Brassicaceae	Rhaphanus	raphniastrum	Wild radish	X	
Chenopodaceae	Atriplex	semibaccata	berry saltbush		
Chenopodaceae	Enchylaena	tomentosa			
Chenopodaceae	Enchylaena	tomentosa			

Ericaceae	Leucopoon	Coujinup	Beard Heath		
Fabaceae	Acacia	brachyclada			
Fabaceae	Acacia	crassuloides			
Fabaceae	Acacia	cyclops			
Fabaceae	Acacia	fragilis			
Fabaceae	Acacia	pritzeliana			
Fabaceae	Acacia	andrewsii			
Fabaceae	Acacia	cyclops	Coastal Wattle		
Fabaceae	Daviesia	lancifolia			
Fabaceae	Daviesia	scoparia	Bitter Pea		
Fabaceae	daviesia	aphylla			
Fabaceae	Dillwynia	sp. Mallee	Sp.1		
Fabaceae	Pultenaea	purpurea			
Goodeniaceae	Goodenia	laevis			P3
Hemerocallidaceae	Dianella	brevicaulis	Blueberry Lilly; Flax Lilly		
Hemerocallidaceae	Dianella	revoluta	Australian Blue Bell		
Iridaceae	Freesia	freesia alba x leichtlinii	Freesia	X	
Lamiaceae	Westringia	rigida			
Lauraceae	Cassytha	sp.	Dodder Laurel		
Loganiaceae	Logonia	stenophylla			
Myrtaceae	Baeckea	latens			
Myrtaceae	Beyeria	lechenaultii			
Myrtaceae	Cyathostemon	ambiguus			
Myrtaceae	Eucalyptus	brachycalyx	Gilja, Chindoo mallee		
Myrtaceae	Eucalyptus	cylindriflora	White mallee		
Myrtaceae	Eucalyptus	dolicorhyncha	Fuschia Gum		P4
Myrtaceae	Eucalyptus	eremophila	Tall Sand Mallee		
Myrtaceae	Eucalyptus	incrassata	ridged fruited mallee		
Myrtaceae	Eucalyptus	phaenophylla			
Myrtaceae	Eucalyptus	platycorys	Boorabin mallee		
Myrtaceae	Eucalyptus	sp. Southern Wheatbelt	Cup Mallee		
Myrtaceae	Eucalyptus	sporadica	Burngup Mallee		
Myrtaceae	Eucalyptus	valens			
Myrtaceae	Lissanthe	rubicunda			
Myrtaceae	Melaleuca	accuminata			
Myrtaceae	Melaleuca	bromelioides			
Myrtaceae	Melaleuca	podiocarpa			

Myrtaceae	Melaleuca	sapientes	Silver Mallee		
Myrtaceae	Melaleuca	sapientes			
Myrtaceae	Melaleuca	societatis	Soccer Ball Melaleuca		
Myrtaceae	Melaleuca	subfalcata			
Myrtaceae	Melaleuca	uncinata			
Myrtaceae	Melaleuca	glaberrima	boom bush		
Myrtaceae	Melaleuca	calycina			
Myrtaceae	Tetrapora	verrucosa			
Poaceae	Austrostipa	hemipogon	annual veltd grass	X	
Poaceae	Austrostipa	sp.			
Poaceae	Austrostipa	elegantissima			
Poaceae	Bromus	catharticus			
Poaceae	Ehrharta	longiflora	prairie grass	X	
Poaceae	Poaceae	sp.			
Polygalaceae	Comesperma	spinosum			
Proteaceae	Grevillea	huegelii	Spiny Milkwort		
Proteaceae	Grevillea	oligantha	Little comb-leaved grevillea		
Proteaceae	Grevillea	plurijuga subsp . superba			
Rhamnaceae	Pomaderris	rotundifolia			
Rhamnaceae	Spyridium	minutum			
Rutaceae	Boronia	inornata			
Rutaceae	Cyanothamnus	baeckeaceus subsp. baeckeaceus			
Santalaceae	Leptomeria	pachyclada			
Scrophulariaceae	Eremophila	psilocalyx	Currant Bush		
Solanaceae	Lycium	ferocissimum		x	

7.2 TPFL Forms

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.3 August 2017

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at http://www.dpaw.wa.gov.au/ under *Standard Report Forms*

TAXON: Eucalyptus dolichorhyncha **TPFL Pop. No:**

OBSERVATION DATE: 25/09/20 **CONSERVATION STATUS:** P4 New population ☒

OBSERVER/S: Sophie Willsher and Danika Penson **PHONE:** 9083 1518

ROLE: Environmental Field Assistants **ORGANISATION:** Shire of Esperance

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place): Within the Grass Patch townsite. On Crown reserve 19624. NW corner of grasspatch road reserve and Coolgardie-Esperance Hwy.

Reserve No:

DBCA DISTRICT: **LGA:** Land manager present: ☐

DATUM: GDA94 / MGA94 ☐ AGD84 / AMG84 ☐ WGS84 ☐ Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required) DecDegrees ☒ DegMinSec ☐ UTMs ☐

Lat / Northing: 33 13'56" S

Long / Easting: 121 42'54" E

ZONE: 51 H

METHOD USED: GPS ☐ Differential GPS ☐ Map ☐

No. satellites: Map used:

Boundary polygon captured: ☐ Map scale:

LAND TENURE:

Nature reserve ☐ Timber reserve ☐ Private property ☐ Rail reserve ☐ Shire road reserve ☒

National park ☐ State forest ☐ Pastoral lease ☐ MRWA road reserve ☐ Other Crown reserve ☐

Conservation park ☐ Water reserve ☐ UCL ☐ SLK/Pole ____ to ____ Specify other:

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²):

EFFORT: Time spent surveying (minutes): No. of minutes spent / 100 m²:

POP'N COUNT ACCURACY: Actual ☒ Extrapolation ☐ Estimate ☐ Count method: (Refer to field manual for list)

WHAT COUNTED: Plants ☐ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	1			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. Size Data attached ☐ Total area of quadrats (m²):

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐

Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: %

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme. Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Increasing the footprint of the material storage area adjacent and present within the reserve, will clear plant	?	H	S
•			
•			

Please return completed form to **Species And Communities Branch** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au
RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Branch.
Record entered by:_____ Sheet No.:_____ Record Entered in Database ☐

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.3 August 2017

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK: (on soil surface; eg gravel, quartz fields)	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest ☐	Granite ☐	0-10% ☐	Sand ☐	Red ☐	Well drained ☒
Hill ☐	Dolerite ☐	10-30% ☒	Sandy loam ☒	Brown ☐	Seasonally inundated ☐
Ridge ☐	Laterite ☐	30-50% ☐	Loam ☐	Yellow ☒	Permanently inundated ☐
Outcrop ☐	Ironstone ☐	50-100% ☐	Clay loam ☐	White ☒	Tidal ☐
Slope ☐	Limestone ☒		Light clay ☐	Grey ☐	
Flat ☒	Quartz ☐		Peat ☐	Black ☐	
Open depression ☐	Specify other:		Specify other:	Specify other:	
Drainage line ☐					
Closed depression ☐					
Wetland ☐					

Specific **Landform** Element: ☐
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: 1. Banksia woodland (B. attenuata, B. ilicifolia); 2. Open shrubland (Hibbertia sp., Acacia spp.); 3. Isolated clumps of sedges (Melaleuca teiragona)

1. Semi-open Eucalyptus woodland with sparse to no under and mid story.
2. ☐
3. ☐
4. ☐

ASSOCIATED SPECIES: ☐

Other (non-dominant) spp ☐

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT: ☐

FIRE HISTORY: **Last Fire:** Season/Month: ☐ Year: ☐ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: ☐

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: ☐

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.) ☐

Collected specimen as KW096, Accession 8652. Confirmed by Michael Hislop 10/12/20. Specimen not retained by WA herb

DRF PERMIT/ LICENCE No: FT61000029 Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _____ WA Herb. ☒ Regional Herb. ☐ District Herb. ☐ Other: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other:

COPY SENT TO: Regional Office ☒ District Office ☒ Other: ☐

Submitter of Record: Katie White Role: Environmental Officer Signed: KW Date: 17/12/20

Please return completed form to **Species And Communities Branch** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au
RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Branch.
Record entered by:_____ Sheet No.:_____ Record Entered in Database ☐

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.3 August 2017

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TAXON: Goodenia lewisii ssp. lewisii — TPFL Pop. No:

OBSERVATION DATE: 22 / 6 / 20 — CONSERVATION STATUS: P3 — New population ☑

OBSERVER/S: Kate White, Rachael White — PHONE: 90831548

ROLE: Environmental Officers — ORGANISATION: Shire of Esperance.

DESCRIPTION OF LOCATION (Provide at least nearest townnames/ locality, and the distance and direction to that place): Grass Patch town site - in crown Reserve 19624. NW corner of intersection of Grass Patch Rd + Esperance - Coolgardie Hwy.

Reserve No:

DBCA DISTRICT: South Coast — LGA: Esperance — Land manager present: ☐

DATUM: GDA94 / MGA94 ☑ ; AGD84 / AMG84 ☐ ; WGS84 ☐ ; Unknown ☐

COORDINATES: (If UTM coords provided, Zone is also recorded) DecDegrees ☐ DegMinSec ☐ UTMs ☑

Lat / Northing: 6380291.3

Long / Easting: 6322314.4

ZONE: 51H.

METHOD USED: GPS ☐ Differential GPS ☐ Map ☑

No. satellites: — Map used: QGIS

Boundary polygon captured: ☐ — Map scale: —

LAND TENURE:

Nature reserve ☐ Timber reserve ☐ Private property ☐ Rail reserve ☐ Shire road reserve ☐

National park ☐ State forest ☐ Pastoral lease ☐ MRWA road reserve ☐ Other Crown reserve ☑

Conservation park ☐ Water reserve ☐ UCL ☐ SUP/Pole ____ to ____ Specify other: —

AREA ASSESSMENT: Edge survey ☐ Partial survey ☐ Full survey ☑ Area observed (m²): —

EFFORT: Time spent surveying (minutes): 40 Min. No. of minutes spent / 100 m²: —

POP'N COUNT ACCURACY: Actual ☑ Extrapolation ☐ Estimate ☐ Count method: ____ (Refer to help manual for list)

WHAT COUNTED: Plants ☑ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:
Alive	3			
Dead				

Area of pop (m²): ____

Note: Please record count as number (not percentages) for database.

QUADRATS PRESENT: No. ____ Size ____ Data attached ☐ Total area of quadrats (m²): ____

Summary Quad. Totals:	Alive			

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐ Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: ____ %

CONDITION OF PLANTS: Healthy ☑ Moderate ☐ Poor ☐ Senescent ☐

COMMENT: All plants in previously disturbed footprint of gravel road storage area

THREATS - type, agent and supporting information: For clearing, list the relevant fire, weed, disease. Refer to help manual for list of threats & agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme. Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Clearing to widen road, material storage/stock pile area. Will impact all three plants. Clearing permit submitted under CPS 7548.	—	H	S
•	—	—	—
•	—	—	—

Please return completed form to **Species And Communities Branch** DBCA,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.

Record entered by: — Sheet No: — Record Entered in Database: ☐

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.3 August 2017

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK: (on soil surface, eg gravel, quartz fields)	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest ☐	Granite ☐	0-10% ☐	Sand ☐	Red ☐	Well drained ☑
Hill ☐	Dolerite ☐	10-30% ☑	Sandy loam ☐	Brown ☐	Seasonally inundated ☐
Ridge ☐	Laterite ☐	30-50% ☐	Loam ☐	Yellow ☑	Permanently inundated ☐
Outcrop ☐	ironstone ☐	50-100% ☐	Clay loam ☑	White ☐	Tidal ☐
Slope ☐	Limestone ☑		Light clay ☐	Grey ☐	
Flat ☑	Quartz ☐		Peat ☐	Black ☐	
Open depression ☐	Specify other:		Specify other:	Specify other:	
Drainage line ☐					
Closed depression ☐					
Wetland ☐	Specific Landform Element: (Refer to field manual for additional values)				

CONDITION OF SOIL: Dry ☑ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
1. Semi-open Eucalyptus wallee woodland w sparse
2. understorey due to disturbance
3.
4.

Eg. 1. Banksia woodland (Banksia sessilis var. dilatata); 2. Open shrubland (Hibbertia sp., Acacia spp.); 3. Isolated dumps of sedges (Meeboldina laxa spp.)

ASSOCIATED SPECIES: Eucalyptus creanophila, Pultenaea purpurea, Melaleuca acerosa, Borya inornata

Other (non-vascular and soil)

* Please record up to four of the most dominant vegetation layers (with up to three dominant species in each layer). Structural formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☑ Degraded ☐ Completely degraded ☐

COMMENT: Old rubbish dumped + likely understorey cleared in part

FIRE HISTORY: Last Fire: Season/Month: ____ Year: ____ Fire Intensity: High ☐ Medium ☐ Low ☐ No signs of fire ☑

FENCING: Not required ☑ Present ☐ Replace / repair ☐ Required ☐ Length req'd: ____

ROADSIDE MARKERS: Not required ☑ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: ____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Verified by WA Herbarium (Mike Hislop) 04/03/20. Accession # 8334 KAW

DRF PERMIT/ LICENCE No: FB000219 (Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: KW 061 WA Herb ☑ Regional Herb. ☐ District Herb. ☐ Other: ____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☑ Field notes ☐ Other ____

COPY SENT TO: Regional Office ☑ District Office ☑ Other: ____

Submitter of Record: Katie Wintle Role: Environmental Officer Signed ____ Date: 09/03/20.

Please return completed form to **Species And Communities Branch** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

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