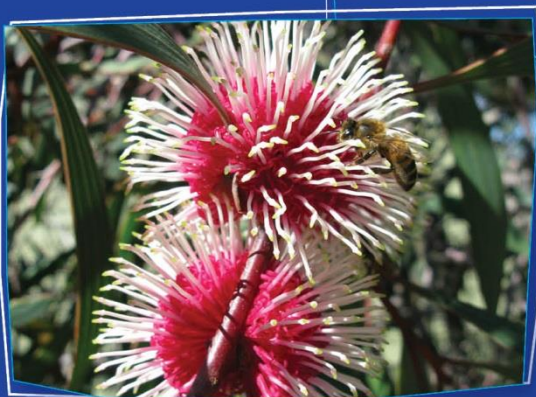
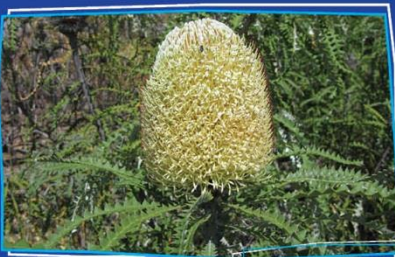


Rehabilitation Plan
CPS 10158/1
Site A – Cascade Road Gravel Pit

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April 2024



1 Executive Summary

This 'Rehabilitation Plan' has been undertaken in accordance with the 'DWERs Guide to Preparing Revegetation Plans for Clearing Permits' as part of the Shire of Esperance's CPS 10158/1 Strategic Purpose Permit application to the Department of Water and Environmental Regulation (DWER). This plan relates to the gravel pit portion (2.894 ha) of 'Site A – Cascade Road Dog Fence and Gravel Pit' - under CPS 10154/1, which proposes 2.894 ha of native vegetation clearing for the purpose of gravel extraction.

2 Location

The site is located ~110 km north west of Esperance, within the Shire of Esperance managed road reserves of Cascade and West Point roads. Specifically, it is north-west of the intersection of West Point and Cascade roads.

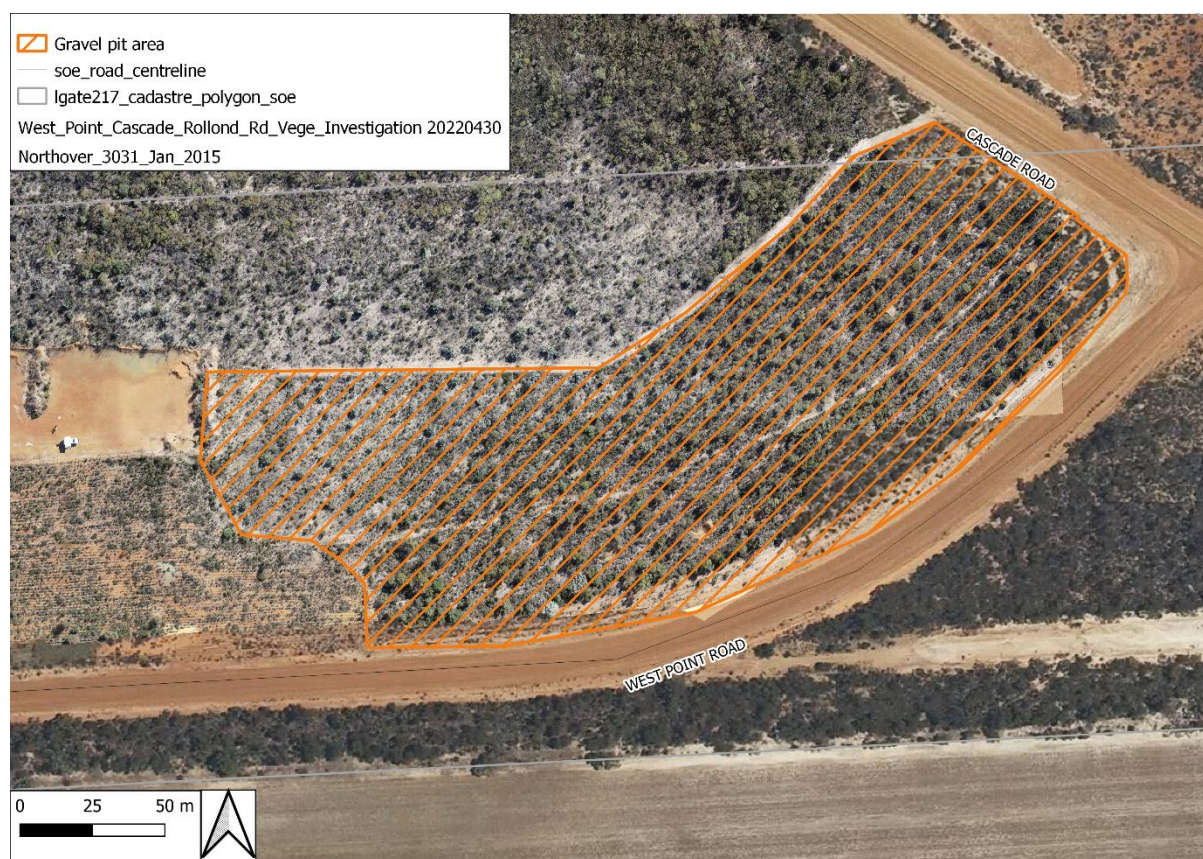


Figure 1. Location of gravel pit within 'Site A - Cascade Road Dog Fence and Gravel Pit' project area clearing permit application, submitted under the Strategic Purpose Permit CPS 10158/1.

2.1 Revegetation area:

Only the gravel pit section (2.894 ha) within 'Site A Cascade Road Dog Fence and Gravel Pit' project will be revegetated. The dog fence component (0.357 ha) will remain un-rehabilitated so routine fence maintenance can be carried out.

2.2 Revegetation objective:

The 100 m wide Cascade road reserve and 200 m wide West point and Rollonds road reserves are an important wildlife corridor for fauna. They also contain the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' Threatened Ecological Community'. The environmental values specific to this area include conserving the high diversity of Proteaceous species in the area and the critical role Kwongkan plays for Carnaby Black Cockatoo, *Calyptorhynchus latirostris*, foraging grounds, and sufficient cover for mallee-fowl.

The Shire of Esperance aims to restore the ecological values of the ecosystem present within the gravel pit, post gravel extraction by rehabilitating areas to become self-sustaining and representative of the original vegetation units.

3 Background information of the Pre-Clearing Environment

3.1 Vegetation

Two vegetation communities were identified within the Site A – Cascade Road Gravel Pit as defined by structure and composition (Table 1).

Table 1. Vegetation communities identified within proposed Site A – Cascade Road Gravel Pits project area.

Type	Description	Figure	Area (ha)
A	Open <i>Eucalyptus pleurocarpa</i> and <i>Banksia media</i> dominated mallee woodland with Acacia, Proteaceae and Goodeniaceae understorey	3	2.253
B	Mixed Mallee over Mixed Melaleuca shrubland with Acacia and Goodeniaceae understorey	4	0.641

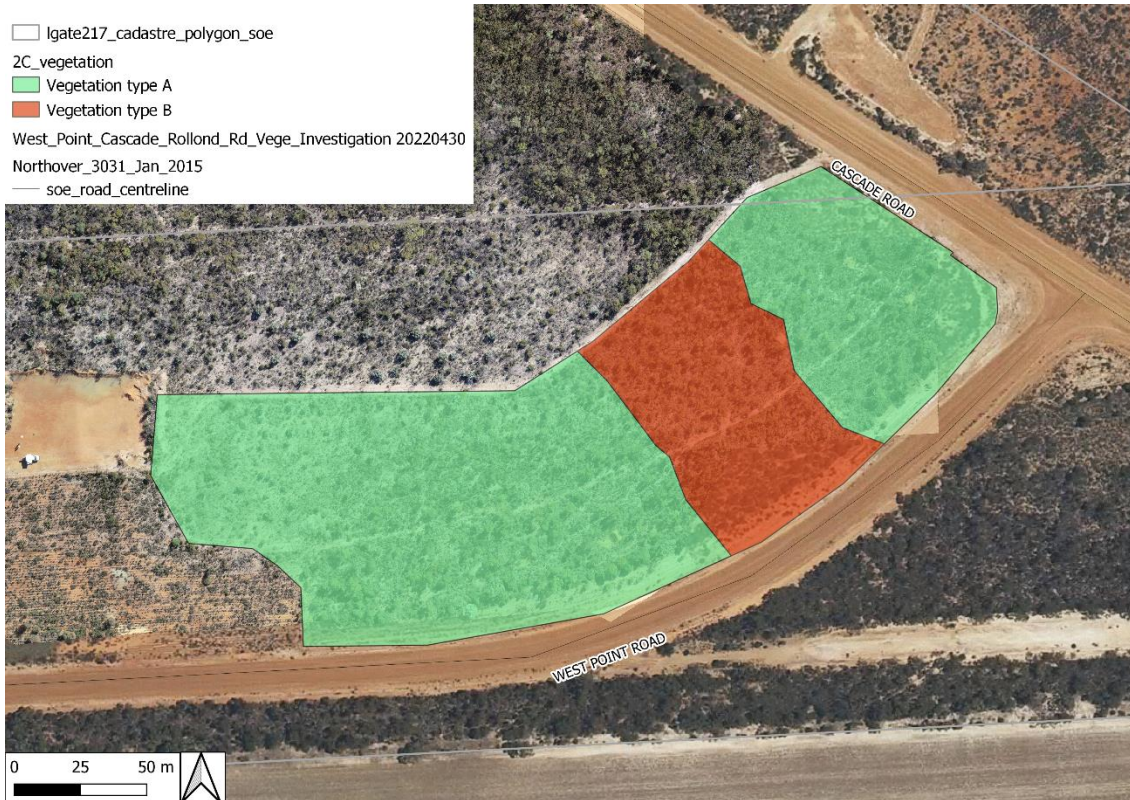


Figure 2. Vegetation types within the 'Site A – Cascade Road Gravel Pit' area.

The site has a high species richness, with a total of 114 native species identified within the gravel pit area, and additional 58 species recorded in the dog fence area (Appendix 1).



Figure 3. Vegetation type A identified in 'Site A – Cascade Road Dog Fence and Gravel Pit' project, described as 'Open *Eucalyptus pleurocarpa* and *Banksia media* dominated mallee woodland with *Acacia*, *Proteaceae* and *Goodeniaceae* understory'.



Figure 4. Vegetation type B identified in 'Site A – Cascade Road Dog Fence and Gravel Pit' project, described as 'Mixed Mallee over Mixed *Melaleuca* shrubland with *Acacia* and *Goodeniaceae* understory'.

3.2 Threatened Ecological Communities

One vegetation community (Vegetation type A), described as 'Open *Eucalyptus pleurocarpa* and *Banksia media* dominated mallee woodland with *Acacia*, Proteaceae and Goodeniaceae understorey' met the criteria to be considered as Kwongkan TEC. Within the gravel pit this vegetation community only contained three diagnostic species, however the dominance of Proteaceous species was noticeable. The species composition differed from those in the published Conservation Advice for this TEC, due to how far north it is located.

3.3 Vegetation Condition

Vegetation condition across the whole site can be classified as Excellent. Whilst there are some noticeable impacts to species composition from previous chaining and road maintenance operations, these effects are minimal.

3.4 Phytophthora Dieback

Very limited data collection on the presence of *Phytophthora cinnamomi* Dieback has been conducted on roadsides in Western Australia. No positive or negative sample points are collated on the Dieback Information Delivery and Management System (DIDMS; GAIA Resources, State NRM & SCNRM 2021). Vegetation is largely *P. cinnamomi* dieback susceptible, dominated by Proteaceae species. All susceptible species were extremely healthy, showing no signs of stress or key Dieback infection indicators. It is therefore probable the site remains un-infected by *P. cinnamomi*.

4 Implementation Plan

To meet the objectives of a successful scientific-based Revegetation Plan for CPS 10158/1 'Site A - Cascade Road Gravel Pit', numerous factors need to be considered and will be implemented, including the reference site, weed control, pest and disease hygiene practices, site preparation, species selection, completion criteria, monitoring and adaptive management practices in the need of contingency measures. These are outlined in Sections 4.1 to 4.4, with key points highlighted below:

- Revegetation works will consist of spreading the stockpiled vegetation and topsoil containing the natural stored soil seed bank directly from the site accumulated during gravel extraction works.
- Revegetation works will be carried out over April-June prior to the onset of the main winter rains in the year post clearing.
- The site will be monitored at 24, 48 and 72 months after the rehabilitation is completed, to be measured as successful against the completion criteria.

4.1 Pre-clearing vegetation assessment

The comprehensive vegetation community, ecological value and targeted flora surveys conducted in 2022 and outlined in 'Vegetation, Flora, Fauna and Environmental Considerations Report, Site A – Cascade Road Dog Fence and Gravel Pit (2023)' will be used as the baseline data for the site to assess against the completion criteria. No other reference site is required due to sufficient information on pre-clearing state.

4.2 Rehabilitation Methodology

The pit will be cleared within a single operation. A dozer will be used to remove vegetation, topsoil and the overburden (consisting of approximately 300 mm deep of soil before gravel layer). This valuable layer that contains large reservoirs of the soil seed bank and live clonal tissue will be stockpiled separately for re-spreading over the site at the completion of gravel extraction activities. The gravel layer within the soil profile will then be mined and stockpiled until used.

Rehabilitation works will commence at the site between April – June, following the removal of gravel from the site. This will involve spreading the stockpiled topsoil containing the soil seed bank from prior to clearing evenly across the site. The dozer will batter the edges of the extracted area to avoid erosion and attempt to blend the area into the natural contours of the surrounding road reserve. The site will be ripped to a depth of 200-350mm deep and topsoil spread over the area. No direct tube stock planting or direct seeding will occur immediately, and only be used as a contingency technique if this method fails.

4.3 Weed Control

Weed invasion across the site was extremely low with no weeds. However, given that the site is on the side of a public road it is possible that weeds could be introduced by farmers moving machinery around in the local area.

The following steps will be taken to minimise the risk of introduction and spread of weeds at the site:

- All machinery, plant and equipment used in clearing, extractive and rehabilitation activities shall be cleaned down and free of soil and vegetative matter prior to entering and leaving the site.
- If any weeds are found in revegetation areas, these will be removed by hand or herbicide.

4.4 Disease Hygiene Management

There are a large number of plant pathogens that can be spread by moving infected soil and plant material. Specifically, of focus is *Phytophthora* Dieback, such as *P. cinnamomi*. The project falls within the rainfall zone in which *Phytophthora* dieback may occur. Hygiene measures to minimise the risk of diseases are a standard part of Shire of Esperance's practices when clearing vegetation, including:

- All machinery, plant and equipment shall be free of soil and vegetative matter prior to entering and leaving the site.
- The movement of soil shall be avoided in wet conditions.

5 Completion criteria

Prior to clearing, vegetation type met the criteria for the 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' Threatened Ecological Community (TEC) criteria, due to Criterion 2a "Proteaceous species having a foliage cover of greater than 30%" (Commonwealth of Australia, 2014). Rehabilitation is considered to successfully return the site to pre-clearing ecological values when the rehabilitated vegetation once again meets the Kwongkan TEC criteria. However, Criterion 2b, described as: 'two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated' will be used as a measure of whether the returning vegetation meets Kwongkan TEC criteria. The use of diagnostic species is for situations in which the cover of Proteaceae species is reduced due to recent disturbance, such as gravel extraction. It is worth noting that Site A Gravel Pit only contained three diagnostic species, however the dominance of Proteaceous species was obvious. The species

composition differed from those in the published Conservation Advice for this TEC, due to how far north it is located.

The Site A Gravel Pit is part of the chained strategic firebreak maintained by DBCA and will not return to a natural state as a result of the regular chaining. A high species richness was present at the site however dominant eucalypt species are unlikely to reach a reproductive age and surveying for dominant species is not practical due to difficulties in accurate identification without mature fruit.

Table 2. Completion criteria following the SMART (specific, measurable, achievable, relevant, time-bound) principles for the rehabilitation of the gravel pit.

Criterion	Baseline Floristic data	Completion Target	Completion Criteria
1	Vegetation type A meets the key diagnostic characteristics and condition thresholds for Kwongkan TEC (CoA 2014).	50% of the Gravel Pit meets the key diagnostic characteristics and condition thresholds for Kwongkan TEC, using criterion 2b of the Approved Conservation advice for Kwongkan TEC. Note criterion 2b is used due to the disturbance.	50% of the Gravel Pit has two or more diagnostic Proteaceae species present (See Appendix 2) that are likely to form a significant vegetative component.
2	A total of 16 Proteaceous species were recorded within the application area	60% of Proteaceous species return to the site	A total of at least 10 Proteaceous species present throughout the site.
3	A total of 114 species are present in Site A	Return of 66% of species richness	A total of 75 species are present in the Rehabilitated Gravel Pit
4	6 different Eucalyptus spp. are present at low density as overstory canopy	Return of Eucalyptus spp. to revegetation area	Return of Eucalyptus spp. to revegetation area

6 Monitoring

Monitoring of the rehabilitated area following gravel extraction will determine if completion criteria have been achieved and if contingency measures are required (Section 7). The methodology for monitoring will involve onsite visual assessments to determine whether revegetation has been implemented as planned and that completion criteria have been met, as outlined in Table 2. A permanent photo point will be set up in the area. Monitoring will occur annually by the Shire of Esperance's Environmental Officers, who have a tertiary level education in Environmental Science. Monitoring will coincide with the inspection period of the calendar year Annual Compliance report for CPS 10158/1, normally conducted between January and March. This will continue for up to six years following the rehabilitation event or rehabilitation has been deemed successful.

7 Contingency measures

Where the rehabilitation is deemed unsuccessful by comparison to the completion criteria (Section 5), contingency measures will be undertaken, until the completion criteria are met sufficiently. This is an adaptive process and dependent on what completion criteria has failed. A few standard techniques are outlined below:

- If the composition of species does not meet criteria, such as return of at least 10 Proteaceous species, or 2 or more Eucalyptus species then specific species will be infill planted or seeded during the next revegetation season from April to June.
- If listed environmental weeds exist in the site then herbicide and or manual control will be applied to affected areas.

8 Species selection

Keystone and dominant species will be selected as a contingency measure if respreading topsoil and stockpiled vegetation has unsuccessful germination and does not meet the completion criteria. The incidental species list from the 2023 survey (Appendix 1) will be the basis for determining species selection for seed and tubestock seedlings, based on availability. Seed can also be collected from the adjacent road reserve.

9 Reporting

The Annual Compliance Report for CPS 10158/1 will include a report on revegetation activities, outlining the measurable targets outlined in Table 2 as the completion activities and results of the monitoring.

10 Responsibilities

Table 4. Responsible roles at the Shire of Esperance to implement the Revegetation Activities outlined in the Rehabilitation Plan for 'Site A - CPS 10158/1, Cascade Road Dog Fence and Gravel Pit'

Role	Responsible Actions
Rural Maintenance Supervisor	Revegetation implementation, record keeping and internal reporting
Environmental Coordinator / Environmental Officer	Monitoring rehabilitation and assessment against completion criteria Reporting to DWER on rehabilitation success (completed through annual reporting of CPS 10158/1)

11 References

Beard J.S. (1973), *The vegetation of the Esperance and Malcom areas, Western Australia, 1:250 000 series*, Vegmap Publications Perth

Commonwealth of Australia (2014), *Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia*, Department of Agriculture, Water and the Environment, <<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf>>

Commonwealth of Australia, *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), <<https://www.legislation.gov.au/Details/C2019C00275>>

Department of Environment Regulation. (2018). *A guide to preparing revegetation plans for clearing permits under Part V of the Environmental Protection Act 1986*. Department of Environment Regulation, Perth, WA. Retrieved from: https://www.der.wa.gov.au/images/documents/our-work/consultation/Revegetation-plan/A_Guide_to_Preparing_Revegetation_Plans_for_Clearing_Permits.pdf

Main Roads of Western Australia (2024), *Standard Line Kilometres online application*, Government of Western Australia. <<https://mrapps.mainroads.wa.gov.au/gpsslk>>

Appendix 1 Incidental species list

Flora species present within 'Site A - Cascade Road and Gravel Pits' application area. (2022)

Family	Genus	Species	Weed	WA Cons Status	Herbarium Reference	Dog Fence	Gravel Pit
Anarthriaceae	<i>Anarthria</i>	<i>laevis</i>					x
Apiaceae	<i>Platysace</i>	<i>effusa</i>				x	x
Asparagaceae	<i>Laxmannia</i>	<i>omnifertilis</i>				x	x
Asparagaceae	<i>Lomandra</i>	<i>hastilis</i>					x
Asparagaceae	<i>Lomandra</i>	<i>mucronata</i>				x	x
Asparagaceae	<i>Thysanotus</i>	<i>parviflorus</i>		P4	KSW17322 ACC9857	x	
Asparagaceae	<i>Thysanotus</i>	<i>patersonii</i>				x	x
Asphodelaceae	<i>Asphodelus</i>	<i>fistulosus</i>	X			x	
Asteraceae	<i>Argentipallium</i>	<i>niveum</i>				x	x
Asteraceae	<i>Brachyscome</i>	<i>ciliaris</i>					x
Asteraceae	<i>Dittrichia</i>	<i>graveolens</i>					x
Asteraceae	<i>Pterochaeta</i>	<i>paniculata</i>				x	
Brassicaceae	<i>Lepidium</i>	<i>africanum</i>					x
Casuarinaceae	<i>Allocasuarina</i>	<i>acutivalvis</i> ssp. <i>acutivalvis</i>					x
Casuarinaceae	<i>Allocasuarina</i>	<i>microstachya</i>				x	
Celastraceae	<i>Stackhousia</i>	<i>scoparia</i>				x	
Cupressaceae	<i>Callitris</i>	<i>roei</i>				x	x
Cyperaceae	<i>Caustis</i>	<i>dioica</i>					x
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW17622 - BIS22130	x	
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW17522 - BIS22130	x	
Cyperaceae	<i>Gahnia</i>	<i>ancistrophylla</i>				x	x
Cyperaceae	<i>Lepidosperma</i>	<i>carphoides</i>			KSW19522 ACC9857	x	x
Cyperaceae	<i>Lepidosperma</i>	<i>pruinatum</i>					x
Cyperaceae	<i>Lepidosperma</i>	<i>sanguinolenta</i>				x	
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW15822 ACC 9841		x
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW17722 - BIS22130	x	
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW17422 - BIS22130	x	
Cyperaceae	<i>Lepidosperma</i>	sp.			KSW17822 BIS22130	x	
Cyperaceae	<i>Mesomelaena</i>	<i>stygia</i>					x
Cyperaceae	<i>Schoenus</i>	<i>sesquispiculus</i>			KSW19422 ACC 9857	x	
Cyperaceae	<i>Schoenus</i>	<i>submicrostachyus</i>				x	
Cyperaceae	<i>Schoenus</i>	<i>brevisetis</i> s. lat			KSW19322 ACC9857	x	

Cyperaceae	<i>Schoenus</i>	<i>racemosus</i>			KSW19222 ACC9857	x	
Dilleniaceae	<i>Hibbertia</i>	<i>exasperata</i>				x	x
Dilleniaceae	<i>Hibbertia</i>	<i>gracilipes</i>				x	x
Ericaceae	<i>Leucopogon</i>	<i>obtusatus</i>				x	
Ericaceae	<i>Leucopogon</i>	sp. Coujinup				x	
Ericaceae	<i>Leucopogon</i>	sp. Frank Hann			KSW15322, KSW15422 ACC 9841	x	
Ericaceae	<i>Lissanthe</i>	<i>rubicunda</i>					x
Ericaceae	<i>Lysinema</i>	<i>pentapetalum</i>				x	x
Ericaceae	<i>Lysinema</i>	<i>rubicunda</i>				x	
Ericaceae	<i>Styphelia</i>	<i>breviflora</i>					x
Ericaceae	<i>Styphelia</i>	<i>exserta</i>				x	x
Ericaceae	<i>Styphelia</i>	<i>lissanthoides</i>					x
Euphorbiaceae	<i>Beyeria</i>	<i>sulcata</i>				x	x
Euphorbiaceae	<i>Stachystemon</i>	<i>brachyphyllus</i>				x	x
Fabaceae	<i>Acacia</i>	<i>fragilis</i>				x	x
Fabaceae	<i>Acacia</i>	<i>gonophylla</i>				x	x
Fabaceae	<i>Acacia</i>	<i>octonervia</i>				x	x
Fabaceae	<i>Acacia</i>	<i>pravifolia</i>				x	
Fabaceae	<i>Acacia</i>	<i>dermatophylla</i>					x
Fabaceae	<i>Chorizema</i>	<i>aciculare</i>					x
Fabaceae	<i>Daviesia</i>	<i>aphylla</i>					x
Fabaceae	<i>Daviesia</i>	<i>lancifolia</i>				x	x
Fabaceae	<i>Daviesia</i>	<i>teretifolia</i>				x	x
Fabaceae	<i>Dillwynia</i>	<i>divaricata</i>					x
Fabaceae	<i>Gastrolobium</i>	<i>nutans</i>				x	x
Fabaceae	<i>Isotropis</i>	<i>cuneifolia</i>					x
Fabaceae	<i>Isotropis</i>	<i>drummondii</i>				x	
Fabaceae	<i>Pultenaea</i>	<i>indira ssp. indira</i>				x	x
Fabaceae	<i>Templetonia</i>	<i>sulcata</i>				x	x
Goodeniaceae	<i>Anthotium</i>	<i>humile</i>					x
Goodeniaceae	<i>Dampiera</i>	<i>lavandulacea</i>				x	x
Goodeniaceae	<i>Goodenia</i>	<i>incana</i>				x	
Goodeniaceae	<i>Goodenia</i>	<i>laevis</i>		P4			x
Goodeniaceae	<i>Goodenia</i>	<i>pterigosperma</i>				x	
Goodeniaceae	<i>Goodenia</i>	<i>scapigera</i>				x	x
Goodeniaceae	<i>Lechenaultia</i>	<i>formosa</i>				x	
Haloragaceae	<i>Glischrocaryon</i>	<i>angustifolia</i>					x
Hemerocallidaceae	<i>Dianella</i>	<i>brevicaulis</i>				x	
Hemerocallidaceae	<i>Dianella</i>	<i>revoluta</i>					x
Lamiaceae	<i>Hemigenia</i>	<i>teretiuscula</i>				x	x
Lauraceae	<i>Cassytha</i>	<i>glabella</i>					x
Lauraceae	<i>Cassytha</i>	<i>racemosa</i>				x	
Loganiaceae	<i>Logania</i>	<i>micranthera</i>				x	

Loganiaceae	<i>Logania</i>	<i>stenophylla</i>					X
Loganiaceae	<i>Orianthera</i>	<i>tortuosa</i>				X	X
Malvaceae	<i>Androcalva</i>	<i>cuneata</i>					X
Malvaceae	<i>Guichenotia</i>	<i>asteriskos</i>		P2			X
Malvaceae	<i>Lasiopetalum</i>	<i>compactum</i>				X	X
Malvaceae	<i>Lasiopetalum</i>	<i>indutum</i>					X
Myrtaceae	<i>Astus</i>	<i>tetragonus</i>					X
Myrtaceae	<i>Austrobaeckea</i>	<i>latens</i>				X	
Myrtaceae	<i>Beaufortia</i>	<i>micrantha</i>				X	X
Myrtaceae	<i>Beaufortia</i>	<i>schaueri</i>				X	X
Myrtaceae	<i>Calothamnus</i>	<i>gibbosus</i>				X	X
Myrtaceae	<i>Calothamnus</i>	<i>gracilis</i>					X
Myrtaceae	<i>Calytrix</i>	<i>leschenaultii</i>					X
Myrtaceae	<i>Chamelaucium</i>	<i>ciliatum</i>				X	X
Myrtaceae	<i>Cyathostemon</i>	<i>ambiguus</i>					X
Myrtaceae	<i>Cyathostemon</i>	sp.			KSW17122 ACC9857	X	
Myrtaceae	<i>Eucalyptus</i>	<i>eremophila</i>				X	X
Myrtaceae	<i>Eucalyptus</i>	<i>flocktoniae</i> subsp. <i>hebes</i>					X
Myrtaceae	<i>Eucalyptus</i>	<i>incrassata</i>				X	X
Myrtaceae	<i>Eucalyptus</i>	<i>kessellii</i> subsp. <i>kessellii</i>				X	X
Myrtaceae	<i>Eucalyptus</i>	<i>pleurocarpa</i>				X	X
Myrtaceae	<i>Eucalyptus</i>	<i>tumida</i>				X	X
Myrtaceae	<i>Hypocalymma</i>	<i>stricta</i>					X
Myrtaceae	<i>Leptospermum</i>	<i>erubescens</i>				X	X
Myrtaceae	<i>Leptospermum</i>	<i>maxwellii</i>				X	
Myrtaceae	<i>Leptospermum</i>	<i>spinescens</i>					X
Myrtaceae	<i>Melaleuca</i>	<i>glaberrima</i>				X	X
Myrtaceae	<i>Melaleuca</i>	<i>lateriflora</i>				X	X
Myrtaceae	<i>Melaleuca</i>	<i>plumea</i>					X
Myrtaceae	<i>Melaleuca</i>	<i>plumosa</i>				X	
Myrtaceae	<i>Melaleuca</i>	<i>rigidifolia</i>				X	X
Myrtaceae	<i>Melaleuca</i>	<i>societatis</i>				X	X
Myrtaceae	<i>Melaleuca</i>	<i>subfalcata</i>				X	X
Myrtaceae	<i>Melaleuca</i>	<i>tuberculata</i> subsp. <i>macrophylla</i>				X	
Myrtaceae	<i>Melaleuca</i>	<i>uncinata</i>				X	X
Myrtaceae	<i>Micromyrtus</i>	<i>imbricata</i>				X	
Myrtaceae	<i>Rinzia</i>	<i>icosandra</i>					X
Myrtaceae	<i>Tetrapora</i>	<i>preissiana</i>				X	X
Myrtaceae	<i>Verticordia</i>	<i>acerosa</i> var. <i>preissii</i>				X	X
Olacaceae	<i>Olax</i>	<i>benthamiana</i>				X	

Orchidaceae	<i>Pterostylis</i>	<i>roensis</i>					x
Orchidaceae	<i>Pterostylis</i>	sp.				x	
Pittosporaceae	<i>Cheiranthra</i>	<i>filifolia</i>				x	
Poaceae	<i>Austrostipa</i>	<i>hemipogon</i>				x	
Poaceae	<i>Neurachne</i>	<i>alopecuroidea</i>				x	x
Poaceae	<i>Rytidosperma</i>	<i>setacea</i>				x	
Polygalaceae	<i>Comesperma</i>	<i>calymega</i>				x	
Polygalaceae	<i>Comesperma</i>	<i>drummondii</i>				x	x
Polygalaceae	<i>Comesperma</i>	<i>spinosum</i>					x
Proteaceae	<i>Banksia</i>	<i>cirsioides-xylothemelia</i>		P3		x	
Proteaceae	<i>Banksia</i>	<i>media</i>					x
Proteaceae	<i>Grevillea</i>	<i>aneura</i>		P3		x	x
Proteaceae	<i>Grevillea</i>	<i>nudiflora</i>				x	x
Proteaceae	<i>Grevillea</i>	<i>oligantha</i>					x
Proteaceae	<i>Grevillea</i>	<i>pectinata</i>					x
Proteaceae	<i>Grevillea</i>	<i>teretifolia</i>				x	
Proteaceae	<i>Grevillea</i>	<i>acuarina</i>					x
Proteaceae	<i>Hakea</i>	<i>corymbosa</i>					x
Proteaceae	<i>Hakea</i>	<i>cygna</i>				x	x
Proteaceae	<i>Hakea</i>	<i>ilicifolia</i>				x	x
Proteaceae	<i>Hakea</i>	<i>laurina</i>					x
Proteaceae	<i>Hakea</i>	<i>lissocarpha</i>					x
Proteaceae	<i>Hakea</i>	<i>marginata</i>				x	
Proteaceae	<i>Isopogon</i>	<i>formosus</i>				x	x
Proteaceae	<i>Isopogon</i>	sp. Fitzgerald River				x	x
Proteaceae	<i>Persoonia</i>	<i>helix</i>				x	x
Proteaceae	<i>Persoonia</i>	<i>striata</i>			KSW15522 ACC 9841	x	x
Proteaceae	<i>Synaphea</i>	<i>divaricata</i>				x	
Proteaceae	<i>Synaphea</i>	<i>favosa</i>					x
Proteaceae	<i>Hakea</i>	<i>newbeyana</i>				x	
Restionaceae	<i>Desmocladus</i>	<i>myriocladus</i>				x	x
Rhamnaceae	<i>Cryptandra</i>	<i>nutans</i>					x
Rhamnaceae	<i>Cryptandra</i>	<i>recurva</i>					x
Rhamnaceae	<i>Pomaderris</i>	<i>brevifolia</i>					x
Rhamnaceae	<i>Spyridium</i>	<i>microcephalum</i>					x
Rhamnaceae	<i>Stenanthemum</i>	<i>notiale</i> subsp. <i>notiale</i>				x	
Rutaceae	<i>Boronia</i>	<i>crassifolia</i>				x	x
Rutaceae	<i>Cyanothamnus</i>	<i>baeckeaceus</i>					x
Rutaceae	<i>Microcybe</i>	<i>pauciflora</i> subsp. <i>pauciflora</i>				x	
Rutaceae	<i>Phebalium</i>	<i>lepidotum</i>				x	x
Santalaceae	<i>Exocarpos</i>	<i>sparteus</i>				x	

Sapindaceae	<i>Dodonaea</i>	<i>bursariifolia</i> , <i>female</i>				x	
Sapindaceae	<i>Dodonaea</i>	<i>divaricata</i>				x	x
Sapindaceae	<i>Exocarpos</i>	<i>sparteus</i>					x
Solanaceae	<i>Solanum</i>	<i>hoplopetalum</i>				x	
Stylidiaceae	<i>Stylidium</i>	<i>turleyae</i>				x	
Stylidiaceae	<i>Stylidium</i>	<i>breviscapum</i>				x	x
Stylidiaceae	<i>Stylidium</i>	<i>involutatum</i>				x	
Stylidiaceae	<i>Stylidium</i>	<i>piliferum</i>				x	
Stylidiaceae	<i>Stylidium</i>	<i>zeicolor</i>			KSW17222 ACC 9857	x	
Thymelaeaceae	<i>Pimelea</i>	<i>imbricata</i> var <i>piligera</i>				x	
Thymelaeaceae	<i>Pimelea</i>	<i>sulphurea</i>				x	
Thymelaeaceae	<i>Pimelea</i>	<i>aeruginosa</i>					x
Thymelaeaceae	<i>Pimelea</i>	<i>brevifolia</i>					x

Appendix 2 - Key diagnostic characteristics of the Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia

(Adapted from Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia (Commonwealth of Australia, 2014).

A patch must include the following key diagnostic characteristics to be considered the ecological community:

1) Occurs within the Southeast Coastal Floristic Province (*sensu* Hopper and Gioia, 2004; relating to south west Australian phytogeographic boundaries. Includes the islands of the Recherche Archipelago).

AND

2a) Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers where these shrubs occur (crowns measured as if they are opaque),

OR

2b) Two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated (see list of diagnostic species in Table 1). The use of diagnostic species is for situations in which the cover of Proteaceae species is reduced due to recent disturbance (e.g. fire).

List of diagnostic species (Esperance (east))

Adenanthos cuneatus
Banksia alliacea
Banksia armata
Banksia cirsioides
Banksia media
Banksia nivea
Banksia nutans
Banksia obovata
Banksia occidentalis
Banksia petiolaris
Banksia pilostylis
Banksia plumosa
Banksia prolata
Banksia pulchella
Banksia speciosa
Banksia tenuis
Grevillea concinna
Hakea cinerea
Hakea corymbosa
Hakea drupacea
Hakea nitida
Hakea obliqua
Hakea pandanicaarpa
Hakea trifurcata
Isopogon formosus
Isopogon heterophyllus
Isopogon polycephalus
Isopogon trilobus
Lambertia inermis

