Westdeen Holdings

Coolimba Lime Sand Project M70/932

Clearing application – Support Document

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Revision: 1

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Executive summary

A search was undertaken of State and National Databases for the presence of listed or threatened species likely to occur on the proposed clearing footprint on M70/932 and L70/75. The searches were carried out at a 1, 2 and 5km buffer around -29.813667, 114.985011, the central point of the tenement. The searches did not identify any species likely to be impacted by clearing for lime sand extraction on M70/932 and L70/75. One floristic species *Grevillea olivacea* and one fauna species *Synemon gratiosa* was identified by the NatureMap search in the 2 and 5km buffers, with limited potential to occur. A survey undertaken by Hart, Simpson and Associates in 1996 did not find *Grevillea olivacea* within the clearing footprint nor the host plants needed by *Synemon gratiosa* to exist. The EPBC Act Protected Matters Report 1,2 and 5km buffers found 6 species likely to occur within the vicinity of the tenement, however they are not likely to be impacted by mining operations or by clearing. Should any of the threatened species be identified during clearing then operations will halt until a management plan has been developed by WDH.

1 Introduction

Westdeen Holdings (WDH) purchased the tenements from the previous owner on the 24th of December 2020 and is now seeking approval for a purpose clearing permit for tenement M70/932 and L70/75 (**Error! Reference source not found.**) to continue Limesand mining operations. The total clearing of native vegetation within the combined 94.73 Ha boundary (both M70/932 (92.65 ha) and L70/75 (2.08 ha) is not expected to exceed 10 Ha.

This document supports this clearing amendment application and is based upon the site assessment of the vegetation and habitat types found during the 1996 Hart, Simpson and Associates site survey, as well as the desktop results of searches on the State and National databases for listed or threatened species that may occur in this vicinity with an analysis of the likely impacts of undertaking this clearing.

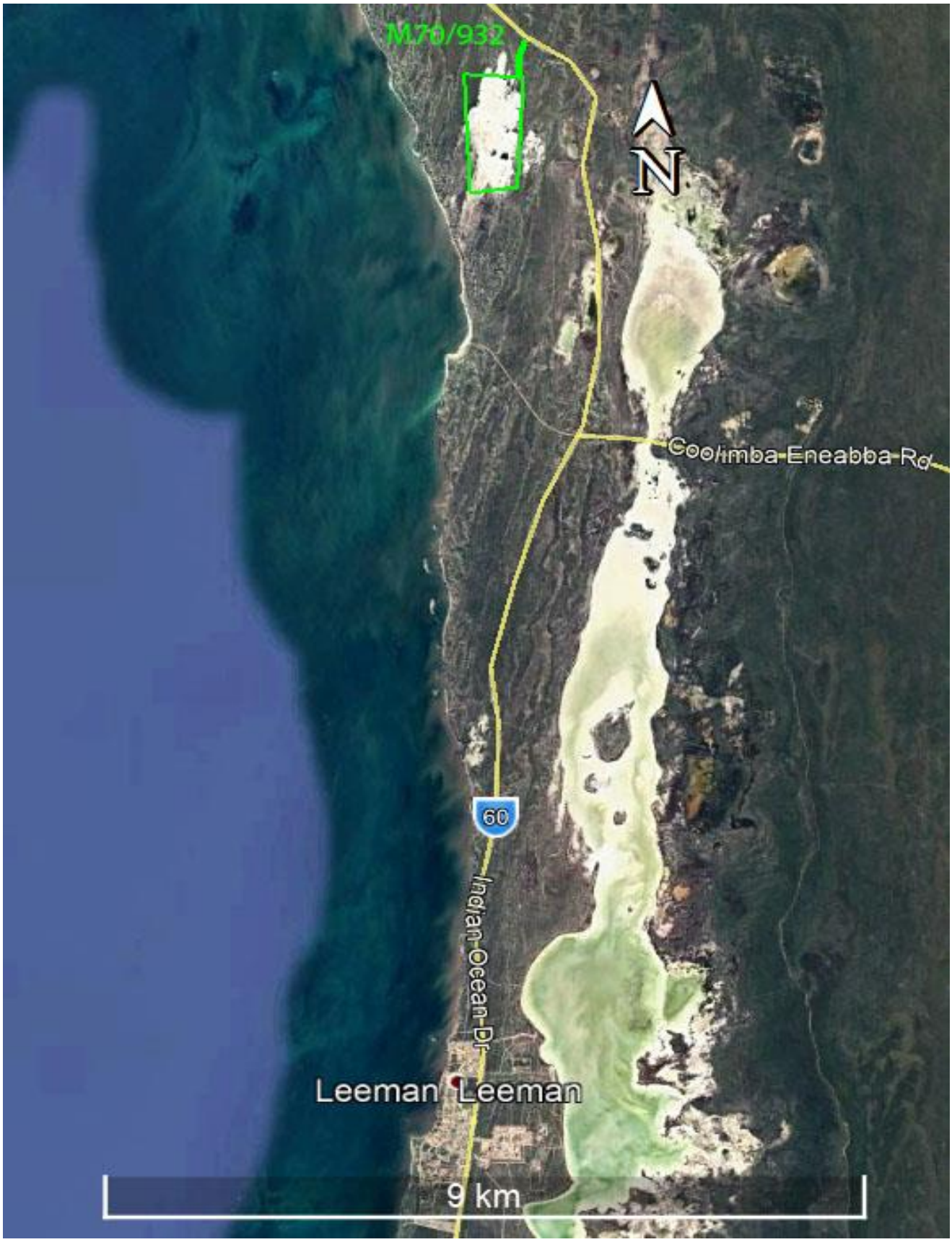

Figure 1-1 Location of tenements

1.1 Background

The mining tenement M70/932 and miscellaneous access tenement L70/75 are located approximately 11km north of the town of Leeman in the Midwest region of Western Australia. The Project consists of a limesand quarry on M70/932 and a site access road on L70/75. Tenements M70/932 and L70/75 are known collectively as the 'Coolimba Tenements' in this clearing permit.

Extraction of limesand has been taking place on M70/932 since 1996 (by others) with peak extraction times taking place during summer and autumn for the spreading on farmland prior to the growing season. Mining has been intermittent, depending on the demand from the agricultural sector that requires limesand as a soil ameliorant for soil acidification. Limesand sales are cyclical and often dependent upon the profitability of the farming sector in the preceding years. In 2015, Condition 19 on M70/932 was amended by DMIRS to lift the annual rate of tonnages to 100,000tpa (previously 50,000tpa).

Limesand from M70/932 is suited physically (very fine) and chemically (high neutralising value) proving to be an important commodity for the control of soil acidification in agriculture. The dune systems within tenement M70/932 contain very high quality limesand with an average neutralising value (NV) of 93%. As such, WDH have used modelling techniques based on data from market demand to estimate for the sale volumes of limesand supply to the agricultural market serviced by M70/932 into the future with those results triggering the need for this clearing permit application.

1.2 Floristics and climate

Tenements M70/932 and L70/75 occur in the Geraldton Sandplain IBRA Region, Lesueur Sandplain Sub Region. The following two beard vegetation associations exist within the application area (DPIRD-006):

- Cliff head vegetation association 129: Bare areas, dune sand
- Cliff head vegetation sub-association 1026.3: Mosaic: Shrublands; *Acacia rostellifera*, A. *cyclops* (in the south) & *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *Acacia lasiocarpa* & *Melaleuca acerosa* heath

Vegetation association 129 has 97.45% of pre-European vegetation remaining with 69.88% protected for conservation (Government of Western Australia, 2019). Vegetation association 1026.3 has 93.88% of pre-European vegetation remaining and 48.64% protected for conservation (Government of Western Australia, 2019). The percentage of remaining vegetation association 129 and 1026.3 at bioregional level is well above the 30% threshold recommended in the National Objectives and Targets for Biodiversity Conservation.

Vegetation cover is typically limited on the mobile dune systems with established vegetation on M70/932 being found fringing the dunes and small patches between the dunes in the swales where the vegetation is not subjected to damage from windblown sands. The high mobile dunes

typically have little or no vegetation cover and have historically been the main target areas for limesand mining on this tenement. Vegetation clearing within L70/75 will be to widen or maintain the existing access road and likely to be less than 0.75 ha in the total 10 ha footprint. An ecological appraisal of the Coolimba Tenements was conducted as part of Notice of Intent process (Hart, Simpson and Associates 1996a). The Hart, Simpson and Associates (1996) ecological appraisal follows:

"The flora of the mining area is extremely limited, with only scattered patches of a few species. The flora along the access track is also limited. There are no rare species known to be present or likely to be present. The vegetation is a widespread unit and there will be minimal impact. The site is not prone to dieback infection. Herbaceous weeds are common along the track and particularly around the entrance. These should not be disseminated unnecessarily but they are all common on the existing roadsides locally".

Clearing within the 94.73 ha footprint is not expected to exceed 10 Ha of native vegetation. The distribution of vegetation to within the 94.73 ha boundary of M70/932 and L70/75 is shown in Figure1-2.

The risk to dieback (Phytophthora) in the area is minimal, phytophthora predominantly spreads after the incidence of rainfall. The area the tenement resides in has had mean rainfall of 584.2mm over the last 37 years. Mining of lime sand on the tenement typically only occurs from January to April, due to the seasonal demand associated with agricultural practices. This means that approximately 11.3% of mean annual rainfall occurs during mining operations, greatly reducing the risk to spread pathogens such as phytophthora.

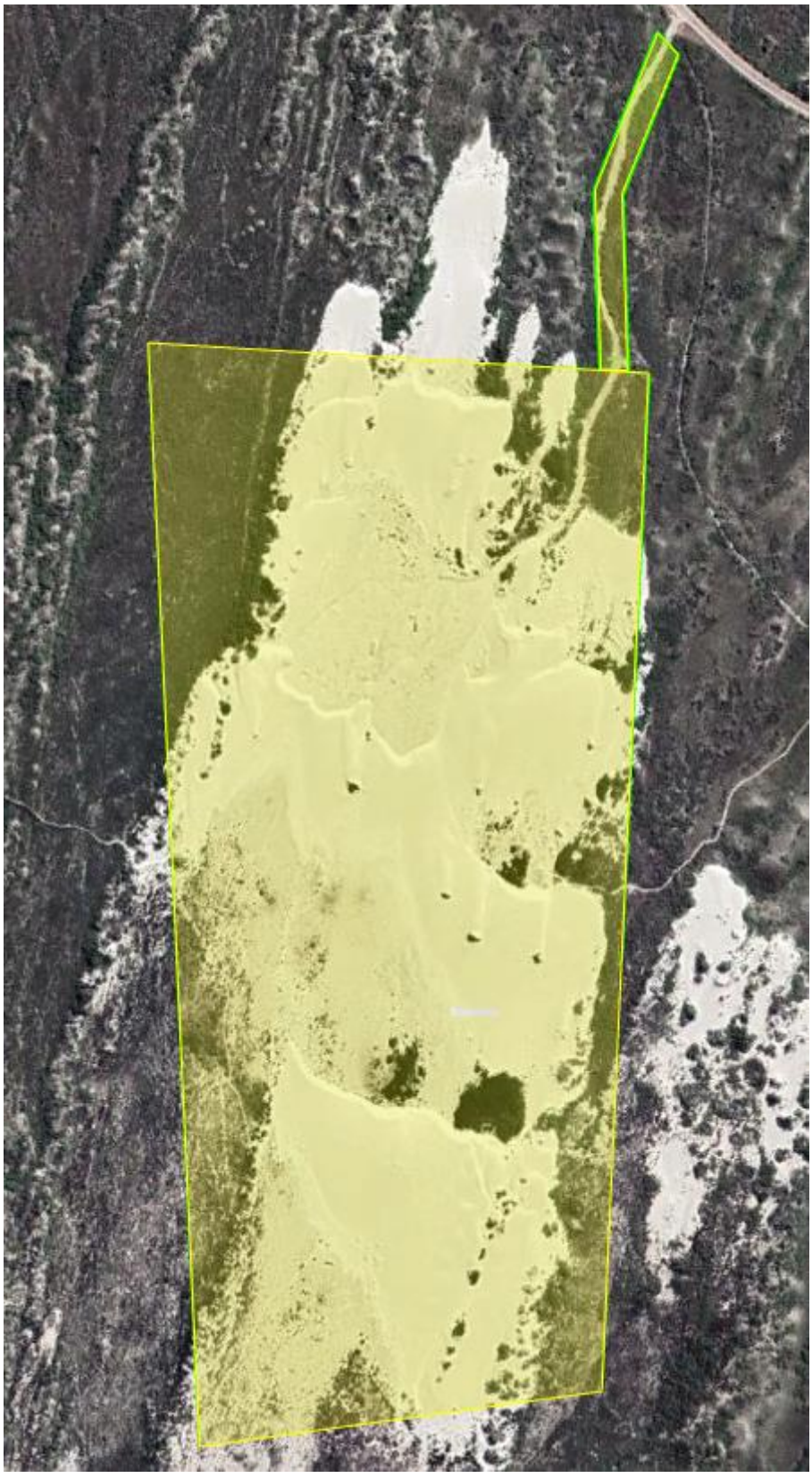

Figure 1-2 Clearing footprint for tenements

1.3 Rationale for clearing permit

Rural demand for limesand in the 1990's saw relatively small tonnages extracted (Figure 1-3) however; continued research has clearly demonstrated the environmental and economic benefits of applying limesand to agricultural soils to neutralise acidification.

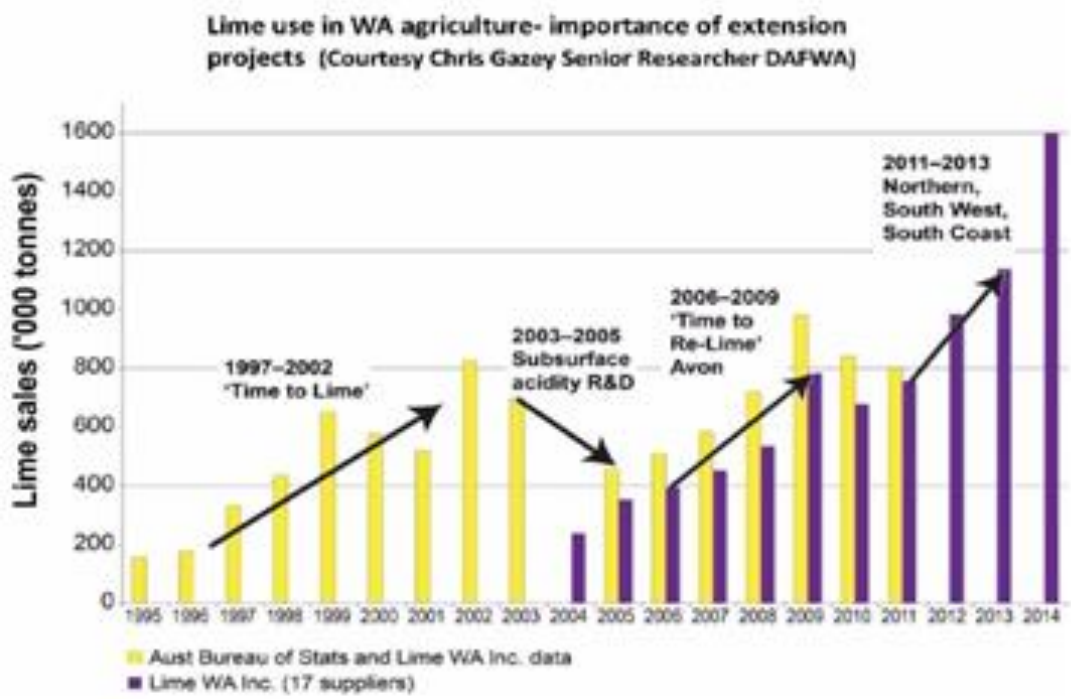

Figure 1-3 Limesand sales over time

The Department of Agriculture and Food WA (DAFWA) recently published a report using scientific and evidence-based results that highlighted the significant environmental benefits of limesand in sustainable soil management for the agricultural sector. The positive economic extension of limesand usage in agriculture also sees increased crop yield and when coupled with grain prices on export markets, the outcome has been a significant continued demand for limesand. As a result of these environmental and economic benefits, DAFWA is now working to produce a "Lime Route Strategy" which aims to secure the future safe supply of lime across the wheatbelt region of Western Australia (WA).

Based on the long-term trial data and detailed modelling, DAFWA estimates the wheatbelt of WA is likely to use circa 2.5 million tonnes per annum of limesand. Many of the smaller limesand pits in WA are close to exhausting their supplies and given the Coolimba operations within tenement M70/932 services a large agricultural catchment in WA (mid-west region), it is critical the Westdeen Holdings Pty Ltd limesand project within tenement M70/932 remains able to extract large tonnages of limesand and align with DAFWA's Lime Route Strategy.

For limesand mining to continue within tenement M70/932 and service the agricultural catchment demand servicing M70/932 from L70/75, an area of vegetation less than 10ha needs to be cleared within the 94.73 ha boundary. Drone modelling and attribute data of limesand volumes and

quality shows this area to have sufficient high grade limesand estimated to last more than 25 years (the life of the clearing permit).

The dunes in M70/932 have few scattered clumps of plants across the dunal fragmented landscape. The existing vegetation is in good condition with a variety of species occurring that are typical of Quindalup dunes. The only species found on the dunes by the Hart, Simpson and Assocaites survey were; *Spinfex longifolius, Olearia axillaris, Acacia rostellifera, Anthoercis littorea, Senecio lautus, Alyogyne huegelii, Cassytha racemose* and the weed *Cakile maritima*. The survey found no rare or endangered floral species on site and concurs that they are unlikely to occur within the tenement. A full list of floral species found in the area can be found in the Hart, Simpson and Associates survey in Appendix 3.

WDH's commitments in the Mine Closure Plan (MCP) Rev 1 and Tenement conditions (MTO Condition 3) is likely to result in the end land use of this tenement offering higher ecological value when compared to the pre-disturbed landscape. This is largely because the recolonised landscape will have a stabilised diverse vegetative cover as opposed to the mobile dune systems that are the targeted resource.

2 State and National Database Searches

Using a central point of -29.813667, 114.985011 searches were undertaken with 1, 2 and 5km buffers of both state and national databases, utilising NatureMap and the EPBC search tool. Results are summarised below. Three buffers were analysed to ensure all species potentially at risk were identified.

2.1 NatureMap

The results from the NatureMap search are summarised in Table 1 and the full reports and risk assessment are included as appendices. The 1km buffer returned results for no threatened species, all other listed species were considered non-conservation taxon.

Of the 13 species identified within the 2km buffer, only one priority 4 specie was identified, *Synemon gratiosa,* commonly referred to as the Graceful Sun moth. The Graceful Sun Moth is associated with two habitat types, coastal heathland on Quindalup Dunes and Banksia woodland on Spearwood or Bassendean Dunes. The preferred host plants within these habitats *Lomandra martima* and *Lomandra hermaphrodita* have not been found by the Hart, Simpson and Associates 1996a survey nor in the NatureMap listing. Making it highly unlikely to be found within the tenements.

The 5km buffer identified a significantly wider range of species as would be expected as this buffer intersects a wide diversity of both marine and terrestrial environments. An additional priority 4 floristic specie, *Grevillea olivacea* was identified along with an internationally protected migratory bird *Pluviallis squatarola. Grevillea olivacea* was not found in the Hart, Simpson and Associates survey (1996) of the Coolimba tenement and is unlikely to occur within an active mobile dune system. *Pluvialis squatarola* commonly referred to as the Grey Plover, is a migratory bird that breeds in the Artic islands and coastal regions of Alaska, Canada, and Russia during late May to

August. After breeding it migrates to the southern hemisphere, inhabiting marine shores, inlets estuaries, large intertidal mudflats and sandflats. The 2km and 1km buffer searches showed no records of the Grey Plover occurring and the Coolimba tenements landform is an active mobile dune system, which is not a suitable roosting or foraging ground for the Grey Plover. These broader areas are quite separate to the project area and limesand extraction activities will not impact on any of these values or habitats.

Table 2-1 NatureMap Results

Buffer	Rare	Protected	Internationally protected	Other protected	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
1km									
2km								1	
5km			1					2	

2.2 EPBC Matters of National Environmental Significance

The results of the EPBC database search are summarised in Table 2 and the full reports are included as appendices.

The 1 and 2km buffer searches identified 33 listed threatened species and 39 and 40 listed migratory species respectively. Of the 33 listed threatened species, there are 6 animals that may appear in the project area, these are;

- *Calidiris ferruginea* (Curlew Sandpiper), a migratory wading bird that breeds on the tundra of Artic Siberia and then migrates to Australia through the Australasian flight way. They mainly occur on intertidal mudflats and in sheltered coastal areas, where they forage in shallow water. The active mobile dune system of the tenement is an unsuitable foraging and roosting ground and it is unlikely that they will occur within the tenement boundary. However, if identified on site, every precaution to conserve their existence will be fulfilled in accordance with Wildlife Conservation Plan for Migratory Shorebirds

- *Calyptorhynchus latirostris* (Carnaby's Cockatoo), the vegetation within the clearing footprint is not typical of breeding or feeding grounds for this species, this project will not impact on this species. In the rare instance it is identified on site, then the national recovery plan for the Carnaby's Cockatoo will be utilised to ensure its conservation.

- *Leipoa ocellata* (Malleefowl), Mallee Fowl have not been identified in this area and the active mobile dune system is an unsuitable habitat. However, a watch will be maintained for the species and should there be evidence of mounds, then these will be protected in accordance with the national recovery plan for Malleefowl's.

- *Limosa lapponica menzbier* (Bar-tailed Godwit) is a migratory bird that breeds in northern Siberia and then migrates to the Australia through the Australasian flight way. It forages near the edge of water or in shallow water and is known to roost on sandy beaches, sandbars and coastal saltmarshes. It is highly unlikely that it will choose to roost or forage in an active mobile dune system where there is little vegetative cover or means of sustenance. If identified on site, the Wildlife Conservation Plan for Migratory Shorebirds will be utilised to ensure no threat to the existence of the Bar-tailed Godwit will occur.

- *Dasyurus geoffroii* (Chuditch, Western Quoll), no evidence of this species has been seen on site and the open fragmented landform of the tenement presents high potential for predation by foxes and cats with little vegetation cover to provide protection. If Identified within the tenements, any threat to its existence will be quelled utilising guidelines in the Chudtich national recovery plan.

- *Thalassarche steadi* (White- capped Albatross) is endemic to offshore islands of New Zealand, where it breeds biennially. There are only 6 localities under Australian jurisdiction in which the White-capped Albatross breeds; Macquarie Island (including Bishop and Clerk Islets), Albatross Island, Pedra Branca, the Mewstone, Heard and McDonald Islands and the Australian Antarctic Territory (Giganteus Island, Hawker Island and the Frazier Islands). Their foraging behaviours and ability to cover vast oceanic distances makes all waters within the Australian jurisdiction considered foraging habitat. The active mobile dune system of the tenement is an unsuitable foraging ground for the White-capped Albatross, however, if the bird is seen on site, all precautions will be taken to preserve its conservation in conjunction with the National recovery plan for threatened albatrosses and giant petrels 2011-2016.

Of the listed migratory species *Anous stolidus, Apus pacificus, Ardenna carneipes and Sterna dougallii* are listed as likely to occur in the project area, however, none of these will be impacted by the clearing for this project.

The 5km buffer identified a significantly wider range of species as would be expected as this buffer intersects a wide diversity of both marine and terrestrial environments. These broader areas are quite separate to the project area and lime sand extraction activities will not impact on any of these values or habitats.

Table 2-2 EPBC Results

Buffer	National Heritage Places	Listed Threanted Species	Listed Migratory Species
1km		33	39
2km		33	40
5km		35	41

2.3 Summary

Searches of both the State and National threatened species databases did not identify any species likely to be impacted by clearing for lime sand extraction on M70/932 and L70/75. Only one plant (*Grevillea olivacea)* and one fauna species (*Synemon gratiosa*) were identified during a NatureMap search, but with limited potential to occur, no examples were found to be present during the Hart, Simpson and Associates survey (1996). The EPBC search returned results for 6 animals that may appear occur within the area, but due to foraging requirements and the lack of habitat provided by the active parabolic dune system and/or existing access road in L70/75, it is unlikely that they will occur.

Should any of these threatened, rare or endangered species be identified during clearing or mining operations, then the footprint will be modified to avoid disturbance. A photo identification package will be provided to the clearing and mining contractors to enable them to identify these species with instructions to stop clearing and notify WDH's management team to enable a management plan to be developed in consultation with the Department of Mines, Industry Regulation and Safety (DMIRS) and the Department of Parks and Wildlife (DPAW).

3 Monitoring of vegetation recolonisation

3.1 Monitoring

- Monitoring of recolonisation will be undertaken bi-annually as per the WDH Mine Closure Plan (MCP) and continue until relinquishment by DMIRS.
- Monitoring will be reported annually in the AER.

3.2 Vegetation Recolonisation

Regarding vegetation recolonisation the requirements are considered as being relatively simple and straight forward. Natural vegetation recolonisation is aimed at returning of areas disturbance to a safe, stable and non-polluting condition:

- **For limesand mining areas:** The post mining landscape will returned to a natural bushland similar to the surrounding undisturbed areas.
- **For roads:** The access road (L70/75) will be remain open as a firebreak and for future firefighting activities, as per the Shire's requirements.

The mine closure objectives will be based on the requirements of the Shire of Carnamah as the post mining land users (PLMU), with the provision in regards to L70/75; that the access tracks are left open as a firebreak (i.e. not rehabilitated).

Post-mining landforms must be:

- Stable;
- Erosion resistant;
- Non-polluting;
- Consistent with local landscape aesthetics;
- Revegetated with native vegetation; and
- Safe.

These rehabilitation objectives are considered as being acceptable options and are unlikely to create any subsequent environmental issues. WDH will consult with the DMIRS Environmental Division and seek approval for any proposed changes to these rehabilitation objectives

4 Environmental Risk Assessment

4.1 Risk assessment approach

A structured risk-based approach based on the principles outlined in AS/NZS 4360:2004 and has been used to assess each aspect associated with the proposed clearing against the 13 clearing principles contained within Part V Division 2 of the EP Act 1986. This approach follows a systematic review and analysis of risk in environmental terms using likelihood, consequence and risk rankings presented in Tables 4-1 to 4-3. Strategies for operational key clearing risks focused on ensuring the project is managed in a way that does not compromise the environment, project, future land use or stakeholder outcomes. Assessing the risks incorporated the outcomes of stakeholder engagement, environmental guidelines and included experienced mine site staff.

Table 4-1 Likelihood levels and frequency

LEVEL	SCORE	DESCRIPTION	Frequency Equivalent
Rare	1	Environmental degradation possible, but most likely will not occur	<5% occurrence
Unlikely	2	Environmental degradation could occur, but only rarely	25% occurrence
Possible	3	Environmental degradation could occur occasionally	50% occurrence
Likely	4	Environmental degradation could occur frequently	75% occurrence
Almost Certain	5	Environmental degradation expected to occur in most cases	>90% occurrence

Table 4-2 Consequence levels and frequency

LEVEL	SCORE	DESCRIPTION
Insignificant	1	Little to no environmental damage, impacted area minimal.
Minor	2	Minimal and reversable environmental damage, impacted area minimal. Response using internal resources.
Moderate	3	Impact confined to the mine, moderate yet reversable environmental damage. Response utilising external resources.
Major	4	Major environmental impact extending beyond mining tenement with an extended environmental recovery period. Considerable response utilising external resources.
Catastrophic	5	Severe and enduring environmental impact at a large scale. Extensive response utilising ongoing external resources.

Table 4-3 Risk matrix and ranking designation

	LIKELYHOOD				
CONSEQUENCE	Rare (1)	Unlikely (2)	Possible (3)	Likely (4)	Almost Certain (5)
Catastrophic (5)	**MEDIUM**	**HIGH**	**EXTREME**	**EXTREME**	**EXTREME**
Major (4)	**MEDIUM**	**MEDIUM**	**HIGH**	**EXTREME**	**EXTREME**
Moderate (3)	**LOW**	**MEDIUM**	**MEDIUM**	**HIGH**	**HIGH**
Minor (2)	**LOW**	**LOW**	**MEDIUM**	**MEDIUM**	**HIGH**
Insignificant (1)	**LOW**	**LOW**	**LOW**	**MEDIUM**	**MEDIUM**

4.2 Risk assessment for clearing principles

Environmental Risk Assessment has been appended separately (see WDH-CP-RA-V1).

5 Clearing Principles Summary

Clearing principles as per A guide to the assessment of applications to clear native vegetation, Government of Western Australia, 2014.

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

The proposed clearing does not occur within any of the identified areas as biodiversity hotspots for priority action and the mobile dune systems naturally create a fragmented landscape that supports small patches of vegetation within dunal swales and fringes.

The two beard associations relevant to the application area;

- Cliff head vegetation association 129: Bare areas, dune sand
- Cliff head vegetation sub-association 1026.3: Mosaic: Shrublands; *Acacia rostellifera*, A*. cyclops* (in the south) & *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *Acacia lasiocarpa* & *Melaleuca acerosa* heath

Vegetation association 129 has 97.45% of pre-European vegetation remaining with 69.88% protected for conservation (Government of Western Australia, 2019). Vegetation association 1026.3 has 93.88% of pre-European vegetation remaining and 48.64% protected for conservation (Government of Western Australia, 2019). The percentage of remaining vegetation association 129 and 1026.3 at bioregional level is well above the 30% threshold recommended in the National Objectives and Targets for Biodiversity Conservation. The footprint of the application area is unlikely to impact the conservation of these vegetation associations

A DBCA NatureMap search was conducted as part of this assessment to identify any priority or significant flora with the potential to occur onsite. As explained in Section 2 of this document, it is highly unlikely that any priority or significant flora will be encountered during the proposed clearing.

Therefore, given the vegetation onsite offers low comparable diversity to vegetation founds in areas of stable landscapes and that no priority or significant flora is expected to occur within M70/932 or L70/75, the applied for clearing permit is unlikely to be at variance to this principle.

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.

The existing landform within tenements M70/932 and L70/75 is highly fragmented with little vegetation scattered throughout. The constantly changing landform of the resident active mobile dune system impacts area of vegetation less than one hectare in size. There is no continuance of natural corridors present that can sustain an enduring population of native species based on the nature of the mobile dune system. Historic mapping of M70/932 and L70/75 proves that small patches of vegetation present in the tenement do not provide any ecological linkage, given the mobile dune system prevents their survival. As per MCP Rev1, recolonisation of M70/932 will reduce landform fragmentation and will offer greater biodiversity and ecological linkage than the previous landform.

Due to the nature of the active mobile dune system and the highly fragmented landform of the tenement, it is expected that there is no significant habitat to support metapopulations. The nearest threatened ecological community is approximately 22km away and clearing of vegetation within the tenement will not impact its conservation (see principle d).

As per section 2, a DBCA NatureMap search was conducted as part of this MCP. The search was central to M70/932 (-29.831667, 114.985011), with 5, 2 and 1 km buffers. The search results for these buffers showed one conservation listed fauna species within the 2km of the Coolimba tenements, Synemon gratiosa, commonly referred to as the Graceful Sun moth. The Graceful Sun moth is listed as priority 4 by the DBCA and is associated with two habitat types, coastal heathland on Quindalup Dunes and Banksia woodland on Spearwood or Bassendean Dunes. The preferred host plants within these habitats *Lomandra martima* and *Lomandra hermaphrodita* have not been found by the Hart, Simpson and Associates 1996b survey nor in the NatureMap listing. The area to potentially be cleared in M70/932 is less than 10ha and less than 0.75ha in L70/75. It is highly unlikely that there is a presence of any host plants or suitable habitat, resulting in no detriment to the Graceful Sun Moths conservation status. The biodiversity of the tenement is considerably low due to the nature of its landform (active mobile dune system) and does not pose a significant habitat for indigenous fauna. Therefore the applied for clearing permit is unlikely to be at variance to this principle.

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

A DBCA NatureMap search was conducted as part of this MCP. The search was central to M70/932 (-29.831667, 114.985011), with 5, 2 and 1 km buffers. Search results showed

records of *Grevillea olivacea* to occur within 5km of the tenements, which is well outside of the vicinity of mining operation. The Hart, Simpson and Associates survey (1996b) did not observe *Grevillea olivacea* within the tenements and its unlikely to be impacted due to the nature of the mining operation. The vegetation within the tenement is minimal and is not necessary for continuance or existence of any rare flora. Therefore, the applied for clearing permit is unlikely to be at variance to this principle.

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.

According to available GIS databases and National Map, there are no known threatened ecological communities (TEC) within the application area. The closest TEC is approximately 22km south-east of the tenement. The vegetation in M70/932 has no association to any threatened ecological community, therefore the applied for clearing permit is unlikely to be at variance to this principle.

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.

The proposed tenements fall within the Geraldton sand plains biogeographic area regionalisation of Australia, Leseur Sandplain GS2 subregion. The following two beard vegetation associations exist within the application area (DPIRD-006):

- Cliff head vegetation association 129: Bare areas, dune sand

- Cliff head vegetation sub-association 1026.3: Mosaic: Shrublands; *Acacia rostellifera*, A*. cyclops* (in the south) & *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *Acacia lasiocarpa* & *Melaleuca acerosa* heath

Vegetation association 129 has 97.45% of pre-European vegetation remaining with 69.88% protected for conservation (Government of Western Australia, 2019). Vegetation association 1026.3 has 93.88% of pre-European vegetation remaining and 48.64% protected for conservation (Government of Western Australia, 2019). The percentage of remaining vegetation association 129 and 1026.3 at bioregional level is well above the 30% threshold recommended in the National Objectives and Targets for Biodiversity Conservation. The footprint of the application area is unlikely to have any deleterious effect on the conservation of remnant pre-European vegetation, making it unlikely to be at variance to this principle.

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.

There are no watercourses occurring within the Coolimba Tenements. The closest watercourse is Eneabba Creek that occurs approximately 15km to the east of M70/932. The water table is typically >2m below the limestone pavement and is not impacted by mining activities. No water is abstracted or used for mining activities. There are no water reserves near the Coolimba Tenements. The closest being the Eneabba Water Reserve, located approximately 28km to the east (National Map, 2021). Native vegetation within M70/932 has no association to any watercourse or wetland, making it unlikely that the applied for clearing permit is to be at variance to this principle.

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

Land capability

The area within tenement M70/932 is characterised by a mobile parabolic dune system with high levels of wind and water erosion and therefore has numerous severe limitations. There is currently no intended use for the land within the tenement area as it is unsuitable for agricultural purposes. Extraction of target resource will result in the clearing of less than 10ha as most of the tenement is largely unvegetated. It is unlikely that there will be an in increase in ground water recharge, surface water runoff, soil erosion or nutrient export. Tenement L70/75 has an already low land capability due to the existing road, that runs from Indian Ocean Drive into M70/932. As per Shire of Carnamah's (PMLU) request, the access track (L70/75) It is to be left open as a firebreak and firefighting activities. Furthermore, DMIRS directions resulting during SV-592-336-976 and DE-176-119-559 means small amounts of vegetation will need to be cleared as per maintenance activities.

Soil erosion

The application area occurs within the Geraldton sandplains bioregion, Leseur Sandplain GS2 Subregion. Consisting of parabolic dunes with sparse vegetation on the mobile front, natural limestone pavement trailing areas with recolonisation of native vegetation and areas of fringing dense coastal scrub. The landscape within M70/932 is a continually changing environment due to the parabolic dune nature, where wind and water erosion are a frequent occurrence. The rehabilitated landscape as per MCP is likely to stabilise the landscape and reduce enduring soil erosion.

Soil Acidification

The parabolic dune systems contain high quality calcium carbonate (>92%), which is primarily used in agriculture to neutralise soil acidification. As such the risk of deleterious

leachates being generated from the disturbance of this sand dune is extremely low. Additionally, the calcium carbonate is used for neutralisation of acids generated from the disturbance of acid sulphate soils. There will be no dewatering or excavation on site past the natural calcrete layer and therefore no oxidisation of in-situ soils.

Salinity

The hydrological balance of the water table within the project area is primarily influenced by its proximity to the ocean (~700m). The infiltration capacity of the area is very high due to the porous nature of the target resource and underlying calcrete layer, therefore clearing less than 10ha within the applied for area will not significantly alter the hydrological balance as there is no disturbance of the underlying geology.

The clearing of vegetation within M70/932 and L70/75 is not likely to cause appreciable land degradation, therefore unlikely to be at variance to this principle.

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

The application area does not fall within any conservation areas of Department of Parks and Wildlife managed lands. The closest conservation reserve is the Northern Beekeepers Reserve, approximately 500m to the north-east of the tenements and therefore the proposed clearing is not likely to impact the environmental values of the Northern Beekeepers Reserve. As per rationale provided in clearing principle b, clearing less than 10ha is highly unlikely to impact connectivity between the Northern Beekeepers Reserve and surrounding landscape making it unlikely that the clearing permit is at variance to this principle.

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.

The application area does not occur within a Public Drinking Water Source Area . The closest water reserve is the Leeman water reserve, approximately 23km to the south-west of the application area. The water table is typically >2m below the limestone pavement and is undisturbed during mining activities. No water is extracted and used for mining activities. The clearing of native vegetation is unlikely to cause any deleterious effects to the quality of surface or underground water. Therefore, the applied for clearing permit is unlikely to be at variance to this principle.

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

The landform within the tenements area exists on the superficial aquifer, an area characterised by easily infiltrated permeable sand and porous limestone substrate.

Annual mean rainfall for 37 years for this area was 584.2mm. Groundwater in this area flows from east to west and is predominantly discharged into the ocean, which is approximately 700m from the tenement. Excavation of target resource is only to the natural calcrete layer, which has high hydraulic transmissivity, making it unlikely that the extraction will cause, or exacerbate, the incidence or intensity of flooding. Therefore, making the applied for clearing permit unlikely to be at variance to this principle.

Conclusion

The conservation of Australia's native flora, fauna and ecology is Westdeen Holdings upmost priority. This document demonstrates that clearing activities in the Coolimba tenements are unlikely to have any deleterious effects to any of the aspects associated with the above 13 Clearing Principles. WDH will continue actively manage all environmental risks associated with the future clearing.

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Appendix 1 Results of NatureMap Search for Fauna and Flora Species 1, 2 and 5km Buffers

NatureMap

NatureMap Species Report

Created By Guest user on 15/03/2021

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 114° 59' 05" E,29° 49' 54" S
Buffer 1km

	Name ID	Species Name	Naturalised	Conservation Code	*Endemic To Query Area
1.	3409	*Acacia lasiocarpa (Panjang)*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

* For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.

Page 1

NatureMap

NatureMap Species Report

Created By Guest user on 15/03/2021

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 114° 59' 06" E,29° 49' 54" S
Buffer 2km

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1.	3409	*Acacia lasiocarpa (Panjang)*			
2.	24316	*Anas superciliosa (Pacific Black Duck)*			
3.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
4.	25087	*Cyclodomorphus celatus (Western Slender Blue-tongue)*			
5.	24959	*Gehyra variegata*			
6.	6234	*Hydrocotyle medicaginoides (Trefoil Pennywort)*			
7.	25005	*Liolis burtonis*			
8.	24409	*Phaps chalcoptera (Common Bronzewing)*			
9.	13152	*Scaevola thesioides subsp. thesioides*			
10.	25267	*Simoselaps littoralis (West Coast Banded Snake)*			
11.	24942	*Strophurus spinigerus subsp. spinigerus*			
12.	33992	*Synemon gratiosa (Graceful Sunmoth)*		P4	
13.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.

Page 1

NatureMap

NatureMap Species Report

Created By Guest user on 18/03/2021

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 114° 59' 05" E,29° 49' 54" S
Buffer 5km

	Name ID	Species Name	Naturalised	Conservation Code	'Endemic To Query Area
1.	3409	*Acacia lasiocarpa (Panjang)*			
2.	3604	*Acacia xanthina (White-stemmed Wattle)*			
3.	4582	*Adriana quadripartita (Bitter Bush)*			
4.	13908	*Allocasuarina lehmanniana subsp. lehmanniana*			
5.	2375	*Amyema linophylla*			
6.	13287	*Amyema linophylla subsp. linophylla*			
7.	13288	*Amyema miraculosa subsp. miraculosa*			
8.	2383	*Amyema preissii (Wireleaf Mistletoe)*			
9.	24312	*Anas gracilis (Grey Teal)*			
10.	24316	*Anas superciliosa (Pacific Black Duck)*			
11.	7833	*Anglanthus preissianus*			
12.	6949	*Anthocercis littorea (Yellow Tailflower)*			
13.	24561	*Anthochaera carunculata (Red Wattlebird)*			
14.	3180	*Aphanopetalum clematideum*			
15.	6210	*Apium annuum*			
16.		*Apocyclops dengizicus*			
17.	24285	*Aquila audax (Wedge-tailed Eagle)*			
18.	24340	*Ardea novaehollandiae (White-faced Heron)*			
19.		*Australocypris insularis*			
20.		*Austrochiltonia subtenuis*			
21.		*Austrolestes annulosus*			
22.	24318	*Aythya australis (Hardhead)*			
23.	4601	*Beyeria viscosa (Pinkwood)*			
24.		*Brachionus plicatilis s.l.*			
25.	253	*Bromus rubens (Red Brome)*	Y		
26.	2845	*Calandrinia brevipedata (Short-stalked Purslane)*			
27.	2948	*Cassytha aurea*			
28.	12073	*Cassytha aurea var. aurea*			
29.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
30.	2957	*Cassytha racemosa (Dodder Laurel)*			
31.		*Cassytha sp.*			
32.	1742	*Casuarina obesa (Swamp Sheoak, Kuli)*			
33.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
34.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
35.		*Chroicocephalus novaehollandiae*			
36.	10804	*Clematis linearifolia*			
37.	25592	*Corvus coronoides (Australian Raven)*			
38.	7946	*Cotula coluloides (Smooth Cotula)*			
39.	25039	*Ctenotus fallens*			
40.		*Culicoides sp.*			
41.	25087	*Cyclodomorphus celatus (Western Slender Blue-tongue)*			
42.	24322	*Cygnus atratus (Black Swan)*			
43.	24999	*Delma grayii*			
44.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
45.	17663	*Desmocladus asper*			
46.		*Diacypris compacta*			
47.		*Dolichopodidae sp.*			
48.	25096	*Egernia kingii (King's Skink)*			
49.		*Enchytraeidae sp.*			
50.	24652	*Eopsaltria georgiana (White-breasted Robin)*			
51.		*Ephydridae sp.*			
52.		*Ephydridae sp. 6 (SAP)*			
53.	5209	*Frankenia pauciflora (Seaheath)*			

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.

Page 1

Appendix 2 Results of EPBC Database results for 1, 2 and 5km Buffers

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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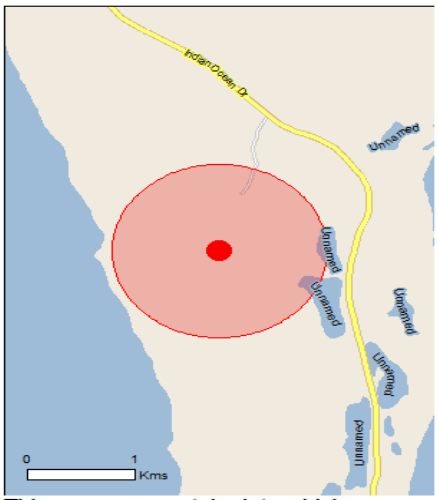

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

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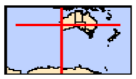

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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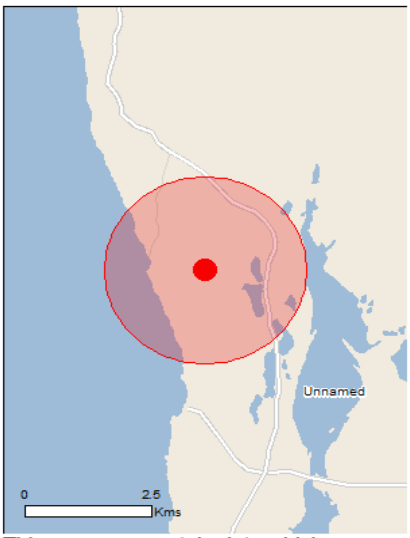

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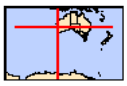

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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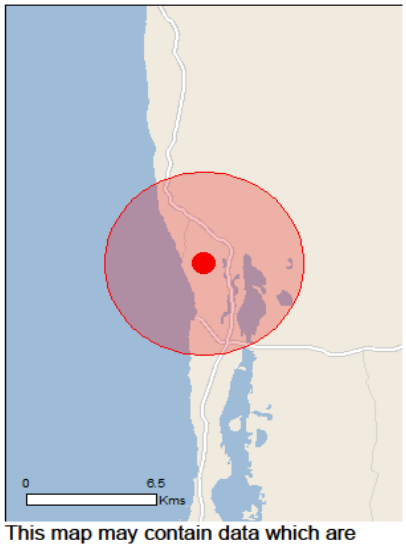

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Coordinates
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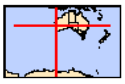

Appendix 3 Hart, Simpson and Associates survey 1996

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September 1996