

Fish Nurseries Flora and Fauna

Desktop Assessment

PREPARED FOR MARINE PRODUCE AUSTRALIA | SEPTEMBER 2021

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Marine Produce Australia (MPA) plan to construct three fish nurseries along the Kimberley Coast of Western Australia that will supply barramundi to several sea fish farms within the Buccaneer Archipelago. BMT have been engaged by MPA to provide environmental approvals under Part IV of the *Environmental Protection Act 1986* (EP Act) for the proposal. As part of the environmental approval process Stantec Australia Pty Ltd (Stantec) was commissioned by BMT to conduct a flora and vegetation and terrestrial vertebrate fauna desktop assessment to determine the likelihood of significant flora, fauna or threatened ecological communities occurring in or around the proposed nursery sites.

This memorandum presents outcomes of the environmental desktop assessment for the three proposed nursery site areas (the Study Area): Ardyaloon, Arrowhead Pearling, and Broome (**Figure 1-1**).

1.2 STUDY AREAS

The Study Area comprises three proposed nursery site areas: Ardyaloon, Arrowhead Pearling, and Broome (**Figure 1-1**). Ardyaloon (One Arm Point) and Arrowhead pearling are located approximately 115 km and 196 km north east of Broome, respectively. The proposed Ardyaloon site is next to the existing Ardyaloon Hatchery at the tip of the Dampier Peninsula, consisting of mixed vegetation and cleared areas, although a small area of vegetation has been identified which must be retained. Shown in a red circle in **Figure 1-2**. The Arrowhead Pearling site proposed nursery is located at the back of an existing shed facility and car park that overlaps with a previously cleared area, presently with scattered rubbish (**Figure 1-3**). The proposed nursery location within the Broome site is located adjacent to the Northwest regional TAFE aquaculture facility in Broome, and historically was a small marine aquarium set up as a tourist attraction (**Figure 1-4**).



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Figure 1-1: Location of the Study Area.



1.3 REPORT SCOPE AND OBJECTIVES

The scope of works for the environmental assessment included:

- Conducting a desktop assessment of publicly available information on flora, vegetation, and fauna values to inform a likelihood of occurrence assessment of conservation significant flora, vegetation and fauna occurring within the proposed Study Area;
- Identifying and recommending if there is a requirement for survey work at the proposed nursery sites;
- Preparing a brief technical memo to be reviewed by BMT and MPA (one review); and
- Providing GIS mapping in IBSA format to BMT.

The recommendations provided within this memorandum are based upon the following guidelines and policies:

- *Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act);
- *Environmental Protection Act 1986* (WA) (EP Act);
- *Biodiversity Conservation Act 2016* (WA) (BC Act);
- Matters of National Environmental Significance - Significant Impact Guidelines 1.1 EPBC Act. (DoE, 2013);
- Environmental Factor Guideline: Flora and Vegetation. (EPA, 2016);
- Technical Guidance: Flora and Vegetation Study's for Environmental Impact Assessment. (EPA, 2020b);
- A Guide to the Assessment of Applications to Clear Native Vegetation. (DER, 2014);
- Environmental Factor Guideline: Terrestrial Fauna. (EPA, 2020c);
- Technical Guidance: Terrestrial vertebrate fauna Study's for environmental impact assessment (EPA, 2020a);
- Biodiversity Conservation Regulations 2018;
- Biodiversity Conservation (Exemptions) Order 2018;
- Environmental Protection (Clearing of Native Vegetation) Regulations 2004;
- Environmental Protection (Environmentally Sensitive Areas) Notice 2005; and
- Environmental Protection Regulations 1987.



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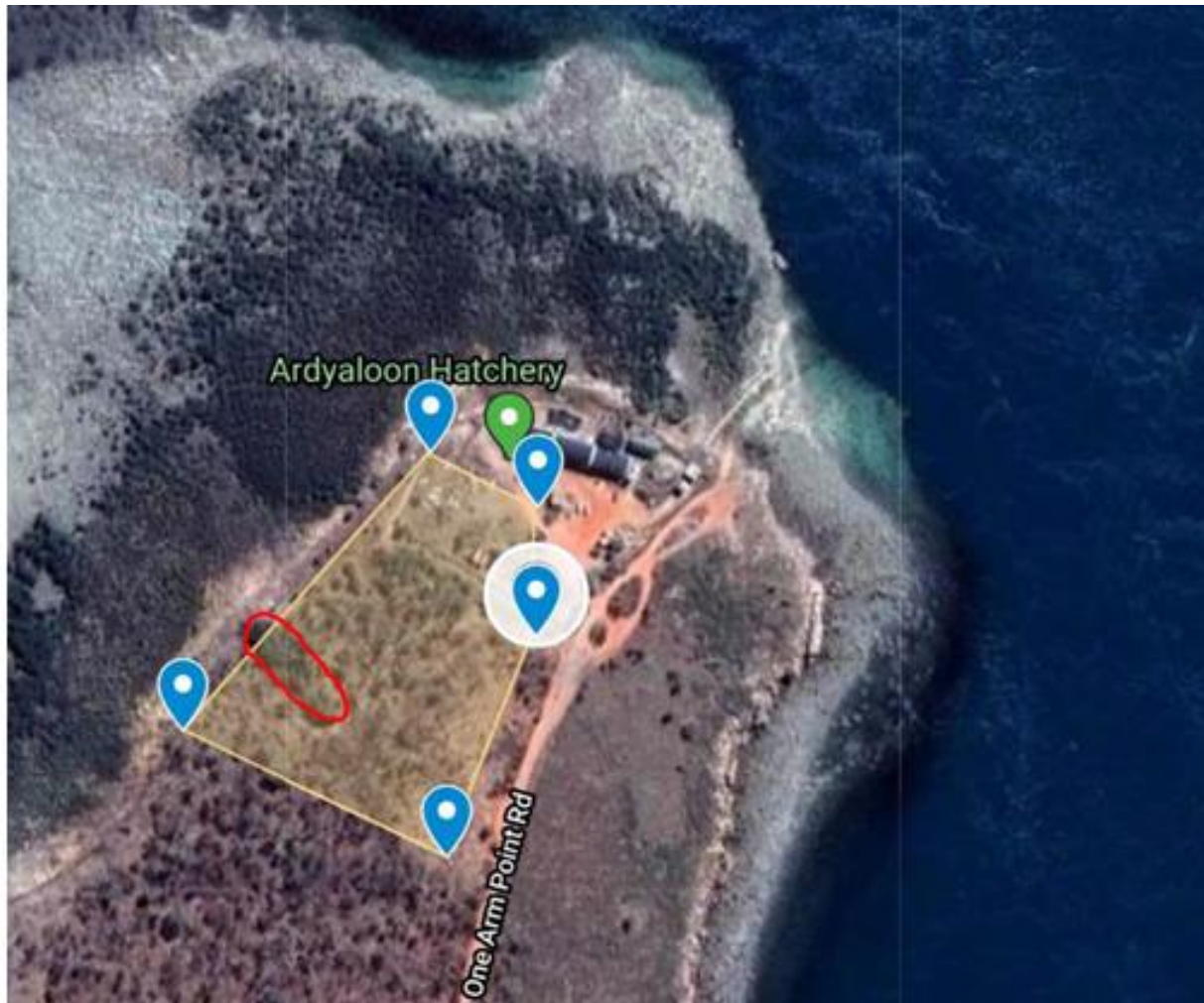


Figure 1-2 Ardyaloon site. Vegetation outlined in red must be retained by MPA.



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Figure 1-3: Arrowhead pearling site photographs. Site photos provided by MPA.



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Figure 1-4: Broome DPIRD site. Site photos provided by MPA.



2.0 DESKTOP ASSESSMENT

2.1 METHODS

A desktop assessment was conducted using government database searches and Stantec's internal EnviroExplore™ program for each of the three proposed nursery sites. Significance and rankings used under the EPBC Act and BC Act, as well as the Department of Biodiversity, Conservation and Attractions (DBCA) Priority list, are defined in **Appendix A**.

2.1.1 Database Searches

Database searches were completed to generate species lists of previous records within, and in the vicinity of, each site. The focus was on species and communities of significance and introduced species. Six database searches were conducted in relation to the three potential nursery sites. Buffer distances for threatened species/communities searches have been specified by specialists at DBCA depending on volume of records (**Table 2-1**).

Table 2-1: Summary of databases and associated buffers for the three proposed sites.

Database	Authority	Date of Receipt	Buffer (km)		
			Ardyaloon	Arrowhead Pearling	Broome
Threatened and Priority Flora Database	Department of Biodiversity, Conservation and Attractions (DBCA 2021a)	17 August 2021	80 – 90 km joint buffer		
Western Australian Herbarium Specimen Database					
NatureMap	Department of Biodiversity, Conservation and Attractions (DBCA 2021b)	8 September 2021	40		
Threatened & Priority Ecological Communities List	Department of Biodiversity, Conservation and Attractions (DBCA 2021c)	13 August 2021	50		
Threatened & Priority Fauna List	Department of Biodiversity, Conservation and Attractions (DBCA 2021d)	19 August 2021	30	30	15
Protected Matters Search Tool (PMST)	Department of the Environment and Energy (DAWE 2021)	8 September 2021	40		



2.1.2 Likelihood of Occurrence

The likelihood of occurrence of each species of significance that were identified from the database searches was assessed in relation to each of the proposed nursery sites. Rankings were assigned using the definitions and criteria provided in **Table 2-2**.

Table 2-2: Criteria for assessing the likely presences of significant flora and fauna.

Likelihood: Confirmed
The species has been recorded unambiguously (i.e. during recent assessments of the Study Area or from reliable records obtained via database searches or from current vouchered specimen at WA Herbarium) in the Study area.
Likelihood: Likely
There is a medium to high likelihood that the species occurs in the Study Area as it occurs within the known distribution of the species, contains suitable habitat (either year round or intermittently, such as temporary water sources or features that are only relied upon during certain times of the year e.g. breeding caves, for fauna) and the species has been recorded recently nearby.
Likelihood: Possible
<p>There is a potential for the species to occur in the Study area, as:</p> <p>The species has been recorded recently nearby, however;</p> <ul style="list-style-type: none"> • the species may not have been detectable during current or previous studies (e.g. rare, patchily distributed, highly mobile (fauna), non-optimal study timing). • the species is known to be cryptic and may not have been detectable despite extensive studies. <p>The species has been recorded recently nearby and species presence cannot be ruled out due to factors such as species ecology or distribution, however;</p> <ul style="list-style-type: none"> • doubt remains over taxonomic identification. • the majority of habitat does not appear suitable. • coordinates are doubtful.
Likelihood: Unlikely
<p>The species is unlikely to occur in the Study Area as:</p> <ul style="list-style-type: none"> • the species has not been recorded locally through DBCA database searches; • the Study Area lacks potential or critical habitat, supporting at best marginally suitable habitat, and/or being severely degraded; • only recorded from a few historic record/s and no other collections in the area; and • the species has not been recorded in the Study Area despite adequate Study efforts, such as a standardised methodology or targeted searching within potentially suitable habitat.



2.2 RESULTS AND DISCUSSION

2.2.1 Significant Flora

A total of 67 significant flora species were identified from the desktop assessment as having been recorded within the vicinity of Ardyaloon, Arrowhead Pearling, and the Broome Site (**Table 2-3; Figure 2-1**). The likelihood of occurrence of these species is presented in **Table 2-3** and includes 19 species listed as Priority 1 (P1), 6 species listed as Priority 2 (P2), 40 species listed as Priority 3 (P3), and one species listed as Priority 4 (P4). Within Ardyaloon, nine species each are considered likely or possible to occur, and 58 are considered unlikely to occur. One species is considered possible to occur in the Arrowhead Pearling site, with the remaining 66 considered unlikely to occur, and four species are considered possible to occur in the Broome Site, with the remaining 63 considered unlikely to occur (**Table 2-3**).

One of these species, *Seringia exastia*, is listed as Threatened under the provisions of the BC Act and Critically Endangered under the EPBC Act (DoAWE 2020a, WAH 2020). Following molecular studies by Binks *et al.* (2020) the widespread *Seringia elliptica* was incorporated into *Seringia exastia*; a species previously known from only two locations near Broome. The newly circumscribed *Seringia exastia* will represent a common, widespread species that would not meet the criteria for conservation significance and should be delisted (Binks *et al.* 2020). Although FloraBase (WAH 2020) and Species Profile and Threats Database (SPRAT) (DoAWE 2020a) currently¹ maintain *Seringia exastia* as a listed species, this represents a lag in the updating of state and federal significant species lists which is planned for early 2021 (DBCA pers. comm. 2020). *Seringia exastia*, is considered unlikely to occur at all of the three potential sites.



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Table 2-3: Likelihood of occurrence of significant flora within the Study Area.

Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardayaloon	Arrowhead pearling	Broome		Ardayaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Seringia exastia</i>	T	CR	>100	>100	0.34	Hairy shrub. Flowering time April, May, June, July, August, September, October, November or December. Distribution Botanical Province Northern or Eremaean, IBRA Bioregion Great Sandy Desert or Dampierland	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Aphyllodium parvifolium</i>	1	-	>100	>40	36.86	Trailing shrub, up to 0.3 m high. Flowers are purple-pink, in either April or July. Grows on sand and sandhills.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site, the species has not been recorded recently within 100km.	Unlikely to occur. The species has not been recorded recently within 40 km and suitable habitat for this species is unlikely to occur in the nursery site	Unlikely to occur. Within the species has not been recorded in proximity to the nursery site, and suitable habitat for this species is unlikely to occur
<i>Atriplex eremitis</i>	1	-	>100	>100	>40	Erect, open shrub. Disturbed soil, semi-saline plains.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site, the species has not been recorded recently within 100 km.	Unlikely to occur. Although suitable habitat for this species may occur in the nursery site, the species has not been recorded recently within 100 km.	Possible to occur. Within the species potential range and suitable habitat is possible to occur at the nursery site.
<i>Byblis guehoi</i>	1	-	>40	27.31	>100	Carnivorous plant, flowers lilac-pink/pink-mauve with branching stems. In open ground on beige sand and loam silt in a part of watershed that is waterlogged in the wet season but dry soon after.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Corymbia paractia</i>	1	-	>100	>40	1.07	Tree (often several-stemmed), ~4-6 m high. Flowers are white occurring between April and May or October to December. Skeletal soils. In transition zone between coastal beach dunes & red pindan soils.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40 km. mostly comprised of very little vegetation.	Possible to occur. Although the nursery site is mostly comprised of cleared areas with very little vegetation, suitable habitat may occur and the species has been recorded in proximity to the nursery site.
<i>Corymbia</i> sp. Yampi Peninsula (R.L. Barrett & A.N. Start RLB 2280)	1	-	>40	>100	>100	Small single-stemmed tree to 4 m. Bark grey, rough. Flat sandstone plateau on top of mesa.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km. of very little vegetation.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.
<i>Cullen candidum</i>	1	-	0.09	>40	>100	Shrub, to 3 m high. Flowers white, from September to October. Clayey sand.	Likely to occur Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.
<i>Cyperus haspan</i> subsp. <i>Haspan</i>	1	-	>40	16.12	>100	Grass-like or herb (sedge). Peat. On bank at edge of spring, Dampierland.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.
<i>Eragrostis petraea</i>	1	-	>40	>100	>100	Tussocky, spreading perennial, grass-like or herb, 0.7-1.5 m high. Flowers from May to Jun. Black, peaty, waterlogged soil. Permanent flowing springs, sandstone hills.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardyaloon	Arrowhead pearling	Broome		Ardyaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Haemodorum capitatum</i>	1	-	15.68	4.79	>40	Bulbous perennial up to 50 cm. Flowers maroon. Sandy clay soil, damp sand. Dampier Peninsula.	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Ipomoea tolmerana</i> subsp. <i>occidentalis</i>	1	-	>40	21.2	>40	Creeper/vine, up to ~50 cm. Flower blue-purple to pale mauve. Ironstone and gullies near drainage.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Jacquemontia</i> sp. Broome (A.A. Mitchell 3028)	1	-	>100	>40	10.06	Low lying, creeping herb up to 30 cm, up to 100 cm diameter. Flowers light mauve. Brown-orange sand.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Jacquemontia</i> sp. Keep River (J.L. Egan 5015)	1	-	>40	>100	>100	Perennial shrub, up to 50 cm high and 50 cm wide. Flowers white, yellow, mauve. Black sand, sandstone, slopes, brown loam. Near drainage.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Parsonsia kimberleyensis</i>	1	-	11.78	>40	>100	Climber, to 3 m high. Flowers yellow/green, May to June. Vine thickets.	Possible to occur. Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Thespidium basiflorum</i>	1	-	>40	14.77	16.49	Densely tufted, multi-stemmed perennial, herb, to 0.2 m high. Flowers green, May to August. Sandy soils. Creeks. West Kimberly, Northern Territory, Queensland.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Tribulopsis</i> sp. Koolan Island (K.F. Kenneally 8278)	1	-	11.89	>40	>100	Prostrate herb. Flowers yellow, June. Skeletal sand, sandstone. Gorges, shelly beaches, mudflats, mangroves. Bardi Jawi.	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Triodia</i> sp. Hidden Island (T. Handasyde TH 6109)	1	-	>40	>100	>100	Only recorded from Hidden Island interspersed between rocky outcrops and rugged sandstone.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Utricularia stellaris</i>	1	-	>40	18.3	>100	Floating aquatic perennial, herb. Flower yellow, June to July. Swamps, lagoons. West and east Kimberly regions	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardayaloon	Arrowhead pearling	Broome		Ardayaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Utricularia tubulata</i>	1	-	>40	>40	>100	Submerged aquatic perennial, herb. Flower purple-blue, Feb to March or June. Ephemeral swamps. West and east Kimberley.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Vincetoxicum polyanthum</i>	1	-	>40	>100	>100	Perennial vine, up to 6 m tall. Flowers cream. Hummock grassland. Buccaneer archipelago, North Kimberleys.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Alysicarpus suffruticosus</i>	2	-	12.37	>40	>100	Erect, compact shrub, ~30 cm high. Flowers pink in April. Sandy clay. Creek crossing.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. The species has not been recorded recently within 40 km and suitable habitat for this species is unlikely to occur in the nursery site.	Unlikely to occur. The species has not been recorded in proximity to the nursery site, and suitable habitat for this species is unlikely to occur in the nursery site.
<i>Gomphrena pusilla</i>	2	-	>100	>40	10.05	Slender branching annual, herb, to 0.2 m high. Flowers white, from March to April or June. Fine beach sand. Behind foredune, on limestone.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Schoenoplectiella humillima</i>	2	-	>100	>100	>40	Sedge 5 cm high. Near ephemeral water sources on brown-red clays. West Kimberley region.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Peripleura spechtii</i> var. <i>kimberleyensis</i>	2	-	>40	>100	>100	Erect herb, ~0.7 m tall. Rugged rocks, sandstone slope. Coastal islands.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Solanum carduiforme</i>	2	-	>40	>100	>100	Erect, prickly, clonal perennial, herb or shrub, 0.1-1 m high. Flowers blue-purple, occurring either July or December. Clayey sand or sandstone. West Kimberley region, Halls Creek.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Solanum vansittartense</i>	2	-	>40	>100	>100	Erect shrub, 1-3 m high. Flower purple-violet-blue, January to February or June or August or November. Sand over sandstone. West and east Kimberley regions.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Acacia monticola</i> x <i>tumida</i> var. <i>kulparn</i>	3	-	>40	20.29	2.99	Multi-stemmed shrub, usually 0.5 – 2 m high. Occurs in coastal bushland and windswept coastal habitats.	Unlikely to occur. Although suitable habitat for this species may occur in the nursery site, the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur as the nursery site is mostly comprised of cleared areas with very little vegetation.	Possible to occur. Although the nursery site is mostly comprised of cleared areas with very little vegetation, suitable habitat may occur and the species has been recorded in proximity to the nursery site.

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardyaloon	Arrowhead pearling	Broome		Ardyaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Acmella grandiflora</i> var. <i>brachyglossa</i>	3	-	>40	>100	>100	Tall erect herb. Flower bright yellow. on flats and damp soils.	Unlikely to occur. The species has not been recorded recently within 40 km and suitable habitat for this species is unlikely to occur in the nursery site	Unlikely to occur. The species has not been recorded in proximity to the nursery site, and suitable habitat for this species is unlikely to occur in the nursery site	Unlikely to occur. The species has not been recorded in proximity to the nursery site, and suitable habitat for this species is unlikely to occur in the nursery site
<i>Aphyllodium glossocarpum</i>	3	-	>40	13.64	12.01	Spreading or erect shrub, up to 1.2 m high, flowers pink-purple from April to October. Grows on sand, pindan.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site, the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Bonamia oblongifolia</i>	3	-	>100	>40	>40	Perennial, herb or shrub. Flowers blue, occurring in February. Sandy or gravelly soils.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Possible to occur. Within the species potential range and suitable habitat is possible to occur at the nursery site.	Possible to occur. Within the species potential range and suitable habitat is possible to occur at the nursery site.
<i>Colocasia esculenta</i> var. <i>aquatilis</i>	3	-	>40	15.64	>100	Upright, mesophytic herb. Pools of swampy creek, permanent springs, creekbeds.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely occur at the nursery site and the species has not been recorded recently within 100 km.
<i>Croton aridus</i>	3	-	>100	>100	>40	Monoecious, multistemmed, evergreen shrub, to 1.5 m high. Flowers yellow, occurring in August. Deep red sand, pindan soil. Sandplains or ridges, spinifex sandplains.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Dendrolobium cheelii</i>	3	-	>40	>100	>100	Erect, multi-stemmed shrub, 0.15-0.6 m high. Flowers white-pink-red-yellow-orange, July to August or December - January. Red clay, loam.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Dendrophthoe odontocalyx</i>	3	-	>40	16.12	>100	Aerial shrub, hemiparasitic on stems. Flowers orange, June to August. On Melaleuca.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Eragrostis spartinoides</i>	3	-	>40	>100	>100	Caespitose perennial, grass-like or herb, 0.5-0.85 m high. Red clay over basalt, loam, sandy clay. Creek banks.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Fuirena incrassata</i>	3	-	>100	>40	>40	Annual, grass-like or herb (sedge), 0.1-0.3 m high. Flowerins from May to August. Inhabits sand, sandy clay. Swamps, creek beds, claypans, semi-saline lakes.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardyaloon	Arrowhead pearling	Broome		Ardyaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Gardenia gardneri</i>	3	-	>40	>100	>100	Tree, 2-6 m high. Sandstone.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Glycine pindanica</i>	3	-	>40	15.88	4.43	Prostrate or scrambling perennial, herb or climber. Flowers pink/blue-purple, occurring from Febuary to March and June. Pindan soils.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Gomphrena cucullata</i>	3	-	>40	>100	>100	Spreading or erect annual, herb, to 0.25 m high, bracteoles forming hoods over the tepals. Flowers white/pink/purple occurring in either February or May. Red sandy loam, clayey sand. Open floodplains.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Goodenia byrnesii</i>	3	-	>100	>100	3.44	Prostrate to decumbent herb, stems to 30 cm. Flowers are yellow, occurring January to February. Sand, creek edges.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Helicteres</i> sp. Mertens Falls (K.F. Kenneally 7887)	3	-	>40	>100	>100	Shrub or tree, flowering in March.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Helminthostachys zeylanica</i>	3	-	>40	>100	>100	Rhizomatous, perennial, herb or (fern), 0.4-0.6 m high, sterile frond palmately divided; fertile blade spike-like; vernation not circinnate. Flowers in May. Occupies black peat, shady sites in gallery forest, margins of creeks.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Hibiscus kenneallyi</i>	3	-	33.48	>100	>100	Shrub, to 2 m high. Flowers pink, occurring May to June. Occupies coastal soils, sandstone. In rock crevices, cliff tops.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 30 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Hibiscus marenitensis</i>	3	-	>40	>100	>100	Shrub, to 2 m high. Flowers. pink, May to June. Alluvial soils, sandstone. Rises, along watercourses, coastal areas.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Hibiscus panduriformis</i>	3	-	>40	>40	>40	Erect shrub, growing to up to 2.5m high. Flowers yellow with red-purple centres.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardayaloon	Arrowhead pearling	Broome		Ardayaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
							been recorded recently within 40 km.	been recorded recently within 40km.	been recorded recently within 40km.
<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>	3	-	15.84	>40	48.44	Tree, 4-8 m high. Flowers, cream-white, believed to flower January to December. Damp habitats (swamps, seepages).	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Nymphoides beaglensis</i>	3	-	>40	14.77	>40	Aquatic annual, herb. Flowers white/white-pink-purple, March to June. In shallow freshwater. Edges of permanent waterholes or in seasonally inundated claypans & depressions.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Olearia arguta</i> var. <i>arguta</i>	3	-	>40	>100	>100	Erect, aromatic shrub, to 1 m high. Flowers white-blue-purple-pink, January to February or April to May or July to September or December. Skeletal sandy soils, red clay or loam. Stony slopes.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Paranotis halfordii</i>	3	-	1.14	>40	37.11	Small herb, up to 30 cm. Flower white-pink. Rocky standstone, rocky soils, cliffs. Dampier Peninsula.	Likely to occur. Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 30km.
<i>Pentalepis walcottii</i>	3	-	>40	>100	>100	Upright open annual, up to 100 cm. Flower yellow. Sands between rocks, sandstone, near drainage lines.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759)	3	-	>100	>40	4.92	Sprawling herb. Near drainage, or coastal plains on red-orange loamy sands. Port Hedland to west Kimberley.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Schoenus punctatus</i>	3	-	>40	>100	>40	Shortly rhizomatous, tufted perennial, grass-like or herb (sedge), ca 0.6 m high. Flowers brown, occurring in August. Near watercourses. West and east Kimberley regions.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Solanum leopoldense</i>	3	-	>40	>100	>100	Intricate, spreading shrub, 0.5-1 m high. Flowers. blue-purple, May to August. Sandstone. Rocky gullies & creeklines. West Kimberley region, Halls Creek.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardyaloon	Arrowhead pearling	Broome		Ardyaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
<i>Stylidium costulatum</i>	3	-	>40	14.39	>40	Erect, tufted annual, herb, to 0.1(-0.2) m high. Flowers yellow & orange & red, April to August. Sandy or clayey soils. Creeks or seasonally wet areas. Broome to east Kimberley.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Stylidium pindanicum</i>	3	-	6.65	26.93	25.22	Annual herb, growing up to 25 cm. Flower pink. Clay flats, sandy clays, seasonal swamps. West Kimberley, Dampier Peninsula.	Likely to occur. Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Tephrosia andrewii</i>	3	-	>100	>100	40.8	Ascending, multistemmed shrub, to 0.8 m high. Flowers orange, April or October. Sand. In pindan country. Broome area.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Tephrosia pedleyi</i>	3	-	>100	>100	>40	Prostrate, spreading or scrambling, shrub, spindly shrub (broom-like) or herb. Flowers in June, July and August. West Kimberley.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Tephrosia funicularis</i> (previously <i>Tephrosia</i> sp. Yampi (A.N. Start per R.L. Barrett RLB 2291))	3	-	>40	>100	>100	Data deficient.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Tephrosia valleculata</i>	3	-	2.8	>40	>100	Erect, few-stemmed shrub, to 2 m high. Flowers . orange & green, April to September. Sandy, often shallow, soil around sandstone. Rock outcrops. West and east Kimberley.	Likely to occur. Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Terminalia kumpaja</i>	3	-	>100	>100	5.51	Tall shrub/tree up to ~4 m. Flowers cream-green. Red sands and red sandy loam. Between Port Hedland and Broome.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
<i>Tetragonia coronata</i>	3	-	>40	>40	>40	Annual herb blooming in July and producing yellow flowers. Often found in Calcrete outcrops. Carnarvon, Shark Bay, Upper Gascoyne.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Trachymene dusenii</i>	3	-	35.05	>100	>100	Erect perennial, herb, 0.6-1 m high. Flowers white/yellow, May to July. West and east Kimberley regions, Halls Creek.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not

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Scientific Name	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Ardayaloon	Arrowhead pearling	Broome		Ardayaloon	Arrowhead Pearling (comprised mostly of cleared areas with very little remnant vegetation)	Broome Site (comprised mostly of cleared areas with very little remnant vegetation)
							been recorded recently within 30 km.	been recorded recently within 100km.	been recorded recently within 100km.
<i>Tribulopsis marliesiae</i>	3	-	>100	>100	>40	Prostrate herb, ~1 m wide. Flower yellow. Sand plains, <i>Triodia</i> grasslands. Red brown loamy sands. Between Port Hedland and Broome.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
<i>Triodia acutispicula</i>	3	-	1.27	>40	>100	Tussock-forming resinous perennial, grass-like or herb, 0.5-1.5 m high. Flower cream-brown, January to April. Sandy soils. River levees, pindan plains, rocky hillslopes & outcrops. West and east Kimberley regions.	Likely to occur. Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Utricularia bidentata</i>	3	-	15.27	39.98	>100	Small herb, up to 15 cm. Flowers purple-mauve. Wet clays, soils and grasslands, creekbanks. Northern Kimberley.	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 30km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Vittadinia</i> sp. A Kimberley Flora (R.J. Cranfield 6527)	3	-	>40	>100	>100	Erect herb, to 0.5 m high. Flower white, April. Sandy clay. Gorges. West Kimberleys, Halls Creek.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
<i>Pittosporum moluccanum</i>	4	-	>100	>40	>40	Tree, 2-6 m high. Flowers white, occurring from February to August. White sand. Sand dunes. West and east Kimberley regions.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.

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Figure 2-1: Significant flora identified from the desktop assessment in relation to the Study Area.

2.2.2 Threatened and Priority Ecological Communities

One State or Commonwealth listed Threatened Ecological Community (TEC), and three State-listed Priority Ecological Communities (PECs) have been previously recorded within the three nursery sites. Six terrestrial priority-listed, and one vulnerable-state-listed listed PECs have been identified within 20 km of the proposed sites (Error! Reference source not found.). Suitable habitat may occur in the Ardyaloon Site to support the TEC; however all TECs and PECs are considered unlikely to occur in the Arrowhead Pearling and Broome Site due to a lack of optimal habitat and extensive clearing (Error! Reference source not found.).

Table 2-4: TEC/PEC Communities within 20 km from each proposed nursery site.

TEC/PEC	BC Act	EPBC Act	Distance from project sites (km)		
			Ardyaloon	ArrowHead Pearling	Broome
Assemblages of Bunda Bunda organic mound springs	Vulnerable	-	110.41	29.72	93.19
Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula	Vulnerable	Endangered	0.0	3.7	0.0
Species-rich faunal community of the intertidal mudflats of Roebuck Bay	Vulnerable	-	173.31	105.16	0.0
<i>Corymbia paractia</i> dominated community on dunes	Priority 1	-	165.51	87.63	0.0
Dwarf Pindan community of Broome Coast	Priority 1	-	194.22	119.66	2.04
Kimberley Vegetation Association 770	Priority 1	-	173.76	97.70	9.80
Relict dune system dominated by extensive stands of Minyjuru (Mangarr) Sersalisia (formerly Pouteria) sericea.	Priority 1	-	177.43	102.47	0.0
Assemblages of Lolly Well Springs wetland complex	Priority 3	-	70.93	15.23	121.44
Eighty Mile Land System	Priority 3	-	220.46	149.17	26.39
Gourdon Land System	Priority 3	-	235.40	160.30	39.32
Kimberley Vegetation Association 37	Priority 3	-	23.9	15.94	23.98
Kimberley Vegetation Association 67	Priority 3	-	44.42	9.72	44.84
Kimberley Vegetation Association 73	Priority 3	-	168.05	92.03	6.77
Roebuck Land System	Priority 3	-	159.96	99.29	15.08
Nimalaica (Nimalarragun) claypan and associated wetland assemblages	Priority 4	-	170.64	96.21	26.4

2.2.3 Vertebrate Fauna

2.2.3.1 Significant Fauna

The desktop assessment identified a total of 105 terrestrial vertebrate fauna species of significance with the potential to occur within the Proposed sites (**Table 2-5**) comprising 11 mammal, 82 bird, and 11 reptile species. Previously recorded significant fauna species are presented in **Figure 2-2**.

The likelihood of significant fauna species occurring within the Proposed sites was assessed against the criteria provided in **Section 2.1.2** and is detailed in **Table 2-2**. Of these species, within the Ardyaloon site, 2 are considered likely to occur, 34 are considered possible to occur, and 68 are considered unlikely to occur. All species are considered unlikely to occur within both Arrowhead Pearling and the Broome Site (**Table 2-5**). Some migratory shorebird species have been recorded in close proximity and may utilise the mangrove and shoreline habitat nearby. These species are therefore included as possible to occur, but are unlikely to be depended on habitat within the Study Area.

Some significant species listed as Threatened, Migratory, and/or Priority fauna may be included in multiple categories. Several species are excluded from the likelihood of occurrence as they have no probability of occurring within the Study Area due to being marine species. These species included;

- Brown Booby (*Sula leucogaster*)
- Common Noddy (*Anous stolidus*)
- Northern Giant Petrel (*Macronectes halli*)
- Masked Booby (*Sula dactylatra*)

Table 2-5: Likelihood of occurrence of terrestrial fauna of significance within each of the Proposed sites.

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
Mammals									
Bare-rumped Sheath-tailed Bat (<i>Saccolaimus saccolaimus nudicluniatus</i>)	P3	Vu	>40	>40	>40	Large insectivorous bat found in mostly lowland areas in a range of woodland, forest, and open environments across northern Australia (Schulz & Thomson 2007; Reardon et al. 2010; Dennis 2012). Species is data deficient and distribution not accurately known.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Bilby, Dalgyte, Ninu (<i>Macrotis lagotis</i>)	Th, Vu	VU	14.95	6.43	4.92	The bilby used to exist across most of the arid and semi-arid areas of mainland Australia. The bilby occupies a wide range of vegetation types, mostly open tussock grassland on uplands and hills, mulga woodland/shrubland growing on ridges and rises, and hummock grassland (spinifex) growing on sandplains and dunes, salt lake systems and other alluvial areas	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Ghost Bat (<i>Macroderma gigas</i>)	Vu	Vu	>40	>40	>40	Found in scattered areas of northern Australia across both arid and rainforest areas. Occurs in the northern Pilbara and Kimberley regions of Western Australia, roosting in deep caves or disused mines.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Golden-backed Tree Rat (<i>Mesembriomys macrurus</i>)	P4		>40	>40	>40	Species of rodent endemic to Australia. Distributed in the Northern Territory, coastal areas of north Kimberley region of Western Australia, and several offshore islands. Presumed extinct across most of its range, thought to occur only in remote northwest Kimberley region.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Nabarlek (Kimberley) (<i>Petrogale concinna monastria</i>)	En	En	>40	>40	>40	Small Rock Wallaby species found only in the Kimberley region of Western Australia. Nocturnal macropod residing in rocky hollows.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Northern Brushtail Possum (<i>Trichosurus cula arnhemensis</i>)	Th, Vu	VU	>100	>100	1.15	The Brushtail Possum occupies a variety of habitats from forest and woodlands with hollows and hollow logs, rock piles, the burrows of other animals including Boodies. The Brushtail Possum remains restricted to tree hollows in areas where foxes occur.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Northern Quoll (<i>Dasyurus hallucatus</i>)	Th, En	En	>100	>100	6.25	The northern quoll occupies a range of habitats, including sclerophyll forest and woodland, riparian woodland, low dry vine thicket, mangroves, sugarcane farms and urban areas. They can be abundant in hilly and rocky areas close to permanent water sources. Quolls are likely to disappear in areas where less than 50-70% woodland remains within a 4km radius.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
North-western Free-tailed Bat (<i>Ozimops cobourgiensis</i>)	P1		12.95	>40	6.5	The North Western Free-tail Bat is considered restricted to mangrove and adjoining habitats. The species roosts in small spouts and crevices in dead branches of mangrove trees.	Unlikely to occur Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Scaly-tailed Possum (<i>Wyulda squamicaudata</i>)	P4		>100	>100	3.09	The Wyulda lives exclusively in rocks, inhabiting structurally complex, rocky landscape and shelters during the day in deep rock crevices and piles, in	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the	Unlikely to occur.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
						open woodland, closed forest and rainforest pockets. It forages mainly in trees for flowers, seeds and fruit.	species has not been recorded recently within 100km.	species has not been recorded recently within 100km.	Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Water Mouse, False Water Rat, Yirrkoo (<i>Xeromys myoides</i>)	Vu	Vu	>40	>40	>40	Small rodent with short, dense fur. Occurs in three regions of coastal Australia: Northern Territory, central south Queensland, and south-east Queensland. May occur in the Kimberley region due to close proximity to Northern Territory and location of suitable habitat (Morris 2000).	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Yellow-lipped Cave Bat (<i>Vespadelus douglasorum</i>)	P2		>40	25.85	>100	Yellow-lipped Bats roost are restricted to the Kimberley region, roosting in sandstone and limestone caves in colonies of up to 80 individuals. The species is vulnerable to disturbance by human visitors to cave roosts and changes to feeding areas by agricultural activities.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
Birds									
Arctic Jaeger, Arctic Skua (<i>Stercorarius parasiticus</i>)	Mi	Mi	>100	>100	7.71	Breeds on Arctic tundra; spends the rest of the year at sea.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Abbott's Booby (<i>Papasula abbotti</i>)	En	En	>40	>40	>40	Known to breed only on Christmas Island and to forage in the waters surrounding the island. Most nests are found in tall rainforest trees and nest trees are associated with uneven terrain created by gullies, hillsides, or cliffs.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Asian Dowitcher (<i>Limnodromus semipalmatus</i>)	Mi	Mi	>100	>100	4.71	After the breeding season in Mongolia and Siberia, this species migrates southwards to overwinter in Asia and Australia. Generally solitary or in small flocks along sheltered coastline on mudflats and intertidal habitats close to the sea-edge.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Australian Lesser Noddy (<i>Anous tenuirostris melanops</i>)	En	Vu	>40	>40	>40	The Australian Lesser Noddy is confined to the tropical and subtropical Indian Ocean, and breeds on only three islands in the Houtman Abrolhos of Western Australia.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Australian Little Bittern (<i>Ixobrychus dubius</i>)	P4		>100	>100	6.48	Mostly found in Freshwater wetlands, amongst dense emergent vegetation of reeds, sedges and inundated shrub thickets. Occasionally found in brackish and saline wetlands such as mangrove swamps, salt marshes and woodland margins of coastal lagoons. Most records in Australia are from the south-east of the continent, with some records from the Kimberley.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Australian Painted Snipe (<i>Rostratula australis</i>)	En	En	>40	>40	>40	Stocky wading bird occurring in wetlands across Australia. Inhabits shallow terrestrial freshwater, including lakes, swamps, and claypans.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Barking Owl (southwest subpop.) (<i>Ninox connivens connivens</i>)	P3		>40	>40	>40	Data deficient.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
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Barn swallow (<i>Hirundo rustica</i>)	Mi	Mi	>100	>100	1.28	Barn swallows occupy a wide range of habitats, nesting in most environments with open areas for foraging, a water source and sheltered ledge.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Bar-tailed Godwit (<i>Limosa lapponica</i>)	Mi	Mi	6.12	15.86	0.45	Bar-tailed Godwits inhabit estuarine mudflats, beaches or mangroves. Common in coastal areas around Australia, often in large flocks.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Bar-tailed Godwit (northern Siberian) (<i>Limosa lapponica menzbieri</i>)	Cr	Cr	>100	>100	4.86	Mostly occurs in coastal areas, namely intertidal sandflats, banks, mudflats, estuaries, coastal lagoons, salt lakes and brackish wetlands, sandy beaches and coral reef-flats.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Black-naped Tern (<i>Sterna sumatrana</i>)	Mi	Mi	>100	>100	10.75	Black-naped terns are largely found along stretches of coast with granite boulders or rocky outcrops off the shore, not more than a few hundred metres from the larger landmass	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Black-tailed Godwit (<i>Limosa limosa</i>)	Mi	Mi	17.31	>100	1.15	Primarily occupies coastal habitat environments, commonly found in sheltered bays, estuaries lagoons with large intertidal mudflats or spits and banks of mudflats or sandflats, sand or shell-grit; occasionally recorded on rocky coasts of coral islets. The use of habitat often depends on the stage of the tide. Also inhabits sparsely vegetated near-coastal wetlands, river pools, swamps and lagoons. There are a few inland records, around shallow freshwater and saline lakes, swamps and dams.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Bridled Tern (<i>Onychoprion anaethetus</i>)	Mi	Mi	4.55	27.79	0.36	Tropical, subtropical and offshore. Breeds on islands and, in some areas, on mainland, nesting under bushes on sand and coral islets, but using a crevice under a ledge or the floor of a cave on limestone islands or stacks. At sea it commonly rests on floating objects, not on water.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Broad-billed Sandpiper (<i>Limicola falcinellus</i>)	Mi	Mi	>100	>100	1.32	Most commonly seen feeding and roosting in estuarine mudflats, saltmarshes and reefs. Individuals have occasionally been recorded at sewage farms and freshwater lagoons. Intertidal mudflats along the north coast of Australia are preferred, especially areas of soft mud on the seaward side of mangroves.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Brown Booby (<i>Sula leucogaster</i>)	Mi	Mi	1.52	15.86	0.33	Strictly marine, generally feeding on inshore waters. Nests are built on the ground in the midst of vegetation on rocky islands or coral atolls.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Bulwer's Petrel (<i>Bulweria bulwerii</i>)	Mi	Mi	>100	>100	8.02	Pantropical species occurring in all oceans outside of breeding seasons. The species is marine and highly pelagic, usually found far from land except during the breeding season. During breeding seasons individuals form colonies in a wide variety of habitats on offshore islands. Nests can be burrows, crevices, cracks or caves under debris or vegetation cover.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
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Caspian Tern (<i>Hydroprogne caspia</i>)	Mi	Mi	16.62	16.33	0.45	The Caspian Tern is the largest tern in Australia and are widespread. The species is usually found near the coast, in extensive wetlands on coastal and interior beaches and sheltered estuaries. They can survive equally well in freshwater and saline environments.	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Common Greenshank (<i>Tringa nebularia</i>)	Mi	Mi	0.38	2.58	0.45	Common Greenshanks are found both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Common Noddy (<i>Anous stolidus</i>)	Mi	Mi	6.87	15.86	0.52	The Common Noddy is a tropical bird found on coastal and oceanic islands, or along coasts, nesting on steep cliffs.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Common Redshank (<i>Tringa totanus</i>)	Mi	Mi	12.79	>100	4.71	The species is fully migratory, travelling on a broad front over land and along coasts, breeding in coastal salt marshes and wet grasslands. They often inhabit rocky, muddy and sandy beaches, grassy marshes, tidal mudflats, saline and freshwater coastal lagoons.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Common Sandpiper (<i>Actitis hypoleucos</i>)	Mi	Mi	1.47	15.86	0.33	In Australia, the Common Sandpiper is found in coastal or inland wetlands, both saline or fresh. It is found mainly on muddy edges or rocky shores.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Common Tern (<i>Sterna hirundo</i>)	Mi	Mi	1.47	15.86	0.33	Coastal habitats such as offshore waters, beaches, reefs, bays, estuaries and sandflats as well as sewage ponds, salt fields and freshwater wetlands (Pizzey and Knight 2007).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Crested Tern (<i>Thalasseus bergii</i>)	Mi	Mi	1.47	15.86	0.33	Sea and coastal birds. Some species are known to occasionally travel inland (Simpson and Day 2010).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Curlew Sandpiper (<i>Calidris ferruginea</i>)	Cr	Cr	6.4	>40	0.7	Mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters (Higgins & Davies 1996).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Eastern Curlew (<i>Numenius madagascariensis</i>)	Cr	Cr	2.85	12.6	0.71	Found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Fork-tailed Swift (<i>Apus pacificus</i>)	Mi	Mi	12.46	17.12	0.45	An aerial species which forages high above the tree canopy and rarely lower (Johnstone and Storr 1998). Occurs over a range of habitats including	Possible to occur Within the species potential range. Suitable foraging and roosting habitat	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

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FLORA AND FAUNA DESKTOP ASSESSMENT

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	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
						islands, open country, coasts, semi-deserts, urban, forests (Pizzey and Knight 2007).	nearby; however, majority of the nursery site does not appear suitable. May overfly the area occasionally, but not be dependent on any particular habitat in the Study Area.		
Garganey (<i>Anas querquedula</i>)	Mi	Mi	>40	>40	>40	Small dabbling duck. Breeds in much of Europe and across the Palearctic, but is strictly migratory.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Glossy Ibis (<i>Plegadis falcinellus</i>)	Mi	Mi	2.85	27.17	3.78	Tends to inhabit inundated areas including well vegetated wetlands, wet pastures, ricefields, floodwaters, floodplains, mangroves and mudflats, however may also occur in grasslands (Pizzey and Knight 2007).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Gouldian Finch (<i>Erythrura gouldiae</i>)	P4	En	5.36	13.01	4.92	Previously widespread, this species is now isolated mostly within the top end of the Northern Territory and Kimberley region of Western Australia. Gouldian finches inhabit savanna woodlands where they nest in the hollows of smooth-barked eucalypts.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Great Frigatebird (<i>Fregata minor</i>)	Mi	Mi	>100	>100	3.91	The Great Frigatebird occurs within marine, pelagic and aerial environments within the tropics. Breeding occurs on isolated oceanic and continental islands	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Great Knot (<i>Calidris tenuirostris</i>)	Cr	Cr	10.26	25.61	0.14	The Great Knot is a shorebird, occupying sheltered intertidal mangroves, mudflats and sand-flats along the northern coastline of Australia.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Greater Sand Plover (<i>Charadrius leschenaultii</i>)	Vu	Mi	1.69	15.86	0.14	Highly migratory species, predominantly occupying sandy beaches and mudflats along the northern coasts of Australia. The species has also been recorded using inland saline wetlands close to the coast.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Grey Falcon (<i>Falco hypoleucos</i>)	Vu		>100	>100	4.98	Mainly lightly wooded coastal and riverine plains (Johnstone and Storr 1998). Rarely occurs in drier deserts (Pizzey and Knight 2007).	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Grey Plover (<i>Pluvialis squatarola</i>)	Mi	Mi	6.4	15.86	0.14	Shallow aquatic habitats, such as estuaries and mudflats (Pizzey and Knight 2007).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Grey Wagtail (<i>Motacilla cinerea</i>)	Mi	Mi	>40	>40	>40	Similar to the Yellow Wagtail, but the yellow on its underside is restricted to the throat and vent. Migratory species breeding in Eurasia.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Grey-tailed Tattler (<i>Tringa brevipes</i>)	P4	Mi	0.56	7.26	0.33	Shallow aquatic habitats, such as estuaries and mudflats (Pizzey and Knight 2007).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
							nearby; however, majority of the nursery site does not appear suitable.		
Gull-billed Tern (<i>Gelochelidon nilotica</i>)	Mi	Mi	13.19	2.58	0.45	Gull-billed Terns occupy freshwater swamps, brackish and saline lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands. They are rarely found over the ocean (Birdlife)	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Hutton's Shearwater (<i>Puffinus huttoni</i>)	En		>100	>100	4.91	Highly migratory, this species breeds off the south island of New Zealand, spending non-breeding season off southern and north-west Australia.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Lesser Frigatebird (<i>Fregata ariel</i>)	Mi	Mi	1.69	16.33	0.73	The Lesser Frigatebird has a very large range, breeding on small, remote tropical and sub-tropical islands, in mangroves or bushes, and even on bare ground.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Lesser Sand Plover (<i>Charadrius mongolus</i>)	En	En	1.69	17.08	0.45	Shallow aquatic habitats, such as estuaries and mudflats (Pizzey and Knight 2007).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Letter-winged Kite (<i>Elanus scriptus</i>)	P4		>100	>100	1.77	Treed grasslands and watercourses (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Little Curlew (<i>Numenius minutus</i>)	Mi	Mi	10.72	16.47	1.11	Smallest of the Asian curlews, just larger than a snipe. Found in open fields, grasslands, and pastures and also on coastal mudflats during migration.	Possible to occur Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Little Ringed Plover (<i>Charadrius dubius</i>)	Mi	Mi	>100	>100	3.74	Open muddy or sandy lake, swamp and tidal area shores, sewage ponds, and farm dams (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Little Tern (<i>Sternula albifrons</i>)	Mi	Mi	10.86	15.86	0.45	Predominantly a coastal species, inhabiting beaches, sheltered inlets, estuaries, lakes, sewage farms, lagoons, river mouths and deltas.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Long-toed Stint (<i>Calidris subminuta</i>)	Mi	Mi	>100	>100	3.22	Non-breeding habitats include edges of permanent and temporary lakes, ponds, reservoirs, lagoons, swamps and streams, shallow wetlands, salt pans and sewage ponds. The species also less frequently occurs around tidal estuaries on intertidal mudflats. Considered to prefer freshwater habitats over saline. During breeding prefers habitats with soft, muddy shorelines and short grass with no salinity preferences.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Little Greenshank (<i>Tringa stagnatilis</i>)	Mi	Mi	>40	27.18	0.45	Occurs throughout Australia, preferring mudflats of northern Australia. Often found occupying coastal	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

MARINE PRODUCE AUSTRALIA
FLORA AND FAUNA DESKTOP ASSESSMENT

Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
						habitats, salt lakes, sewage works, wetlands and interior rivers.	species has not been recorded recently within 40 km.		
Masked Booby (<i>Sula dactylatra</i>)	Mi	Mi	>40	>40	>40	Large seabird found primarily in the Atlantic and Pacific oceans. Prefer to live on small, flat islands without trees, and nest on the edges of cliffs or in flat-areas.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Masked Owl (northern) (<i>Tyto novaehollandiae kimberli</i>)	P1	Vu	>100	>100	4.92	Inhabits forests, open woodlands, farmland with large trees, treed watercourses and caves (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Night Parrot (<i>Pezoporus occidentalis</i>)	Cr	En	>40	>40	>40	Highly elusive nocturnal ground dwelling parrot found in the arid and semi-arid zones of Australia. Thought to be extinct until rediscovery in Queensland in 2013, with recent recordings in western Queensland, and central and northern Western Australia (Burbidge 2018)	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Northern Giant Petrel (<i>Macronectes halli</i>)	Mi	Mi, Vu	>40	>40	>40	Large seabird with circumpolar pelagic distribution, primarily in sub-Antarctic to Antarctic waters. Range extends into subtropical waters in winter and early spring.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Oriental Cuckoo (<i>Cuculus optatus</i>)	Mi	Mi	>100	>100	3.71	Inhabits areas such as monsoon forests, rainforests, paddocks with leafy trees, river flats, roadsides and mangroves (Pizzey and Knight 2007).	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Oriental Plover (<i>Charadrius veredus</i>)	Mi	Mi	>40	29.61	1.86	Open plains comprising rolling country, particularly far from water, ploughed areas, muddy and sandy wastes near swamps or tidal mudflats, bare claypans, coastal marshes and grassy airfields, sportsfields and lawns (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Oriental Pratincole (<i>Glareola maldivarum</i>)	Mi	Mi	>40	16.27	0.8	Inhabits plains, open wetlands, tidal mudflats and beaches (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Osprey (<i>Pandion cristatus</i>)	Mi	Mi	0.27	15.86	0.14	Associated with waterbodies, particularly coastal areas, mangroves, inshore seas, rivers and estuaries (Simpson and Day 2010).	Likely to occur. Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Pacific Golden Plover (<i>Pluvialis fulva</i>)	Mi	Mi	6.4	23.13	0.45	Areas associated with water, such as estuaries, mudflats, saltmarshes, mangroves, shallow inland swamps, sewage ponds, coastal areas such as reefs and ocean shores with seaweed and fields (Pizzey and Knight 2007).	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Pectoral Sandpiper (<i>Calidris melanotos</i>)	Mi	Mi	>100	>100	3.22	Extremely large global range, occupying wetlands and grasslands.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Peregrine Falcon (<i>Falco peregrinus</i>)	OS		16.44	27.06	0.83	Occurs along cliffs, gorges, wooded rivers, wetlands, plains and open woodlands, as well as in association with man-made structures such as	Possible to occur Within the species potential range. Suitable foraging and roosting habitat	Unlikely to occur.	Unlikely to occur.

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						pylons and buildings (Pizzey and Knight 2012). Nests on cliffs, in crevices, large tree hollows or on building ledges (Pizzey and Knight 2012).	nearby; however, majority of the nursery site does not appear suitable.	Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Pin-tailed Snipe (<i>Gallinago stenura</i>)	Mi	Mi	>100	>100	3.66	Small stocky wader, breeding in Russia and vagrant to north Australia.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Princess Parrot (<i>Polytelis alexandrae</i>)	P4	Vu	>40	>40	>40	Slim, medium sized parrot confined to the arid regions of Western Australia, the Northern Territory, and South Australia (Barrett et al. 2003; Blakers et al. 1984; Higgins 1999).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Red Goshawk (<i>Erythrotriorchis radiatus</i>)	VU	VU	>40	>40	>40	Large, swift, and powerful rufous-brown hawk endemic to Australia. Sparsely dispersed across coastal and sub-coastal Australia, from western Kimberley Division to northeastern NSW, and occasionally continental islands.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Red Knot (<i>Calidris canutus</i>)	En	En	>100	>100	0.52	Gather in large flocks on the coast in sandy estuaries with tidal mudflats.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Red-footed Booby (<i>Sula sula</i>)	Mi	Mi	>40	>40	>40	Slender bird with conspicuous red feet. Confined to tropical waters between 30° N and 30° S in the Atlantic, Indian and Pacific Oceans.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Mi	Mi	>40	>40	>40	Widely distributed with a circumpolar distribution across both boreal and tundra zones.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Red-necked Stint (<i>Calidris ruficollis</i>)	Mi	Mi	6.39	15.85	0.72	Found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation (Higgins & Davies 1996).	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Red-rumped Swallow (<i>Cecropis daurica</i>)	Mi	Mi	>40	>40	>40	Small passerine migratory bird breeding in open hilly country in southern Europe and Asia. Vagrants to Christmas Island and northern Australia.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Red-tailed Tropicbird (<i>Phaethon rubricauda</i>)	P4	Mi	6.25	>40	>100	Typically found at sea in the tropics. Breeding occurs in coastal habitats in the south of Western Australia.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.
Roseate Tern (<i>Sterna dougallii</i>)	Mi	Mi	11.16	2.58	0.36	Extremely large global range, mostly occurring on offshore islands and foraging by plunge diving into marine environments.	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

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Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
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Ruddy Turnstone (<i>Arenaria interpres</i>)	Mi	Mi	1.80	15.85	0.33	A small shorebird, found singly or in small groups along the coastline and occasionally inland. Typically found on exposed rocks or reefs, with shallow pools and on beaches. In north Australia they're found on mudflats.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Ruff (<i>Philomachus pugnax</i>)	Mi	Mi	>100	>100	2.59	Extremely large global range, fully migratory, occurring in large flocks. Foraging habitats are mostly freshwater wetlands with limited vegetation. Outside of breeding season the species occupies muddy margins of brackish, saline and alkaline lakes, ponds, pools, rivers, marshes and food-plains.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Sanderling (<i>Calidris alba</i>)	Mi	Mi	11.16	>40	0.8	Species is almost always found on the coast, mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed. There are rare inland records from sandy shores of ephemeral brackish lakes and brackish river-pools (Higgins & Davies 1996).	Possible to occur Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	Mi	Mi	5.07	>40	1.85	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or sedges, grass, saltmarsh, or other low vegetation. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beach cast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs (Higgins & Davies 1996).	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Short-tailed Shearwater (<i>Ardenna tenuirostris</i>)	Mi	Mi	>100	>100	9.5	A variety of coastal marine environments.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Streaked Shearwater (<i>Calonectris leucomelas</i>)	Mi	Mi	>100	>100	4.92	Extremely large range, typically foraging at sea in the southern hemisphere and breeding occurs on islands throughout Asia.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Swinhoe's Snipe (<i>Gallinago megala</i>)	Mi	Mi	>100	>100	3.61	Shallow aquatic habitats such as inundated grasses, swamp margins and sewage ponds (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Terek Sandpiper (<i>Xenus cinereus</i>)	Mi	Mi	5.02	25.61	0.45	Extremely large throughout the Indo-Pacific. Inhabits boreal habitats during breeding season and occupies the coastal tropics during non-breeding season. Typically found on a variety of coastal tropical habitats and rarely more than 10 km inland.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Wedge-Tailed Shearwater (<i>Ardenna pacifica</i>)	Mi	Mi	>100	>100	5.71	Extremely large range across the Indo-Pacific, occurring offshore except for when at colonies on oceanic islands.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

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Whimbrel (<i>Numenius phaeopus</i>)	Mi	Mi	5.02	18.38	0.33	Common across northern Australia occupying coastal habitats. Typically found on tidal and estuarine mudflats, especially near mangroves. Occasionally found on beaches and rocky shores.	Possible to occur. Within the species potential range. Suitable foraging and roosting habitat nearby; however, majority of the nursery site does not appear suitable.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
White-throated Needletail (<i>Hirundapus caudacutus</i>)	Mi	Mi	>40	>40	>40	Migratory and usually found in eastern Australia from October to April. Most common in coastal areas.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
White-winged Black Tern, White-winged Tern (<i>Chlidonias leucopterus</i>)	Mi	Mi	>100	>100	0.45	Typically occur as small to large flocks on coastal or sub-coastal wetlands, including tidal estuaries, lagoons, grassy swamps and sewage ponds.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Wilson's Storm-petrel (<i>Oceanites oceanicus</i>)	Mi	Mi	>40	25.76	0.86	Extremely large global range, breeding on rocky islets and cliffs of subantarctic islands.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Wood Sandpiper (<i>Tringa glareola</i>)	Mi	Mi	3.86	>40	3.39	Inhabits muddy wetland margins, tidal mangroves, tidal mudflat margins, saltmarshes and sewage ponds (Pizzey and Knight 2007).	Possible to occur. Within the species potential range and suitable habitat is possible to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Yellow Wagtail (<i>Motacilla flava</i>)	Mi	Mi	>100	>100	4.92	The Yellow Wagtail occurs in swamp edges, short grass, bare ground and saltmarshes (Pizzey and Knight 2007).	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 100 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Reptile									
Airlie Island Ctenotus, Northwestern Coastal Ctenotus (<i>Ctenotus angusticeps</i>)	P3	VU	>100	>100	8.05	Generally inhabits the landward fringe of salt marsh communities in samphire shrubland or marine couch grasslands or in the intertidal zone along mangroves.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Dampierland Burrowing Snake (<i>Simoselaps minimus</i>)	P2		15.68	>100	2.24	The species occurs in the Dampierland bioregion of the western Kimberley region of Western Australia, where the characteristic habitat is pindan woodland.	Likely to occur Suitable habitat may occur, and the species has been recorded in close proximity to the Study Area.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Dampierland Plain Slider (<i>Lerista separanda</i>)	P2		>100	>100	2.24	This species is found in consolidated coastal dunes. Members of this genus are typically burrowing species which are usually found in loose soil or sand beneath stones, logs, termite mounds etc.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Flatback Turtle (<i>Natator depressus</i>)	VU	VU	>100	>100	5.58	Flatback turtles nest on tropical beaches and offshore islands in Western Australia, the Northern Territory, the Gulf of Carpentaria and all the way round to Mon Repos in Queensland. They have the smallest migratory range of any turtle.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Green Turtle (<i>Chelonia mydas</i>)	VU	VU	3.04	>100	4.92	Mainly stay near the coastline and around islands and live in bays and protected shores, especially in areas with seagrass beds. Rarely are they observed in the open ocean	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.

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Common Name (Scientific Name)	Conservation Code (Acts)		Nearest Known Location (km)			Description and Habitat	Likelihood Assessment		
	BC	EPBC	Arydaloon	ArrowHead Pearling	Broome Site		Arydaloon	Arrow Head	Broome Site
Hawksbill Turtle (<i>Eretmochelys imbricata</i>)	VU	VU	1.32	>100	4.92	The species nest on insular and mainland sandy beaches throughout the tropics. They are highly migratory and use a wide range of broadly separated localities and marine habitats at different stages in their life.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.
Leaf-scaled Seasnake (<i>Aipysurus foliosquama</i>)	Cr	Cr	>40	>40	>40	Small, slender snake found on the reefs of the Sahul Shelf in Western Australia, particularly on Ashmore and Hibernia Reefs.	Unlikely to occur. Although suitable habitat for this species may occur at the nursery site and the species has not been recorded recently within 40 km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Leatherback Turtle (<i>Dermodochelys coriacea</i>)	VU	EN, MI	>40	>40	>40	The largest sea turtle, averaging 1.6m in length. Found in tropical, subtropical, and temperate waters throughout the world. Regularly found in waters offshore from NSW, Victoria, Tasmania, and Western Australia (Benson et al. 2011; Limpus & MacLachlan 1979, 1994).	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Loggerhead Turtle (<i>Caretta caretta</i>)	EN	EN, MI	>40	>40	>40	Occurs in the waters of coral and rocky reefs, seagrass beds, and muddy bays throughout eastern, northern, and western Australia (Limpus 1995; Limpus et al. 1992; Prince 1994).	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Olive Ridley Turtle (<i>Lepidochelys olivacea</i>)	EN	EN	10.53	>100	5.54	Highly migratory and occupy a range of marine intertidal, neritic and pelagic habitats at different life stages.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 40km.
Estuarine Crocodile (<i>Crocodylus porosus</i>)	OS	MI	35	25.76	>100	Coastal rivers and swamps and further inland along major drainages, occasionally in open sea (Wilson and Swan 2013).	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Although within the species potential range, suitable habitat is unlikely to occur at the nursery site.	Unlikely to occur. Suitable habitat for this species is unlikely to occur at the nursery site and the species has not been recorded recently within 100km.

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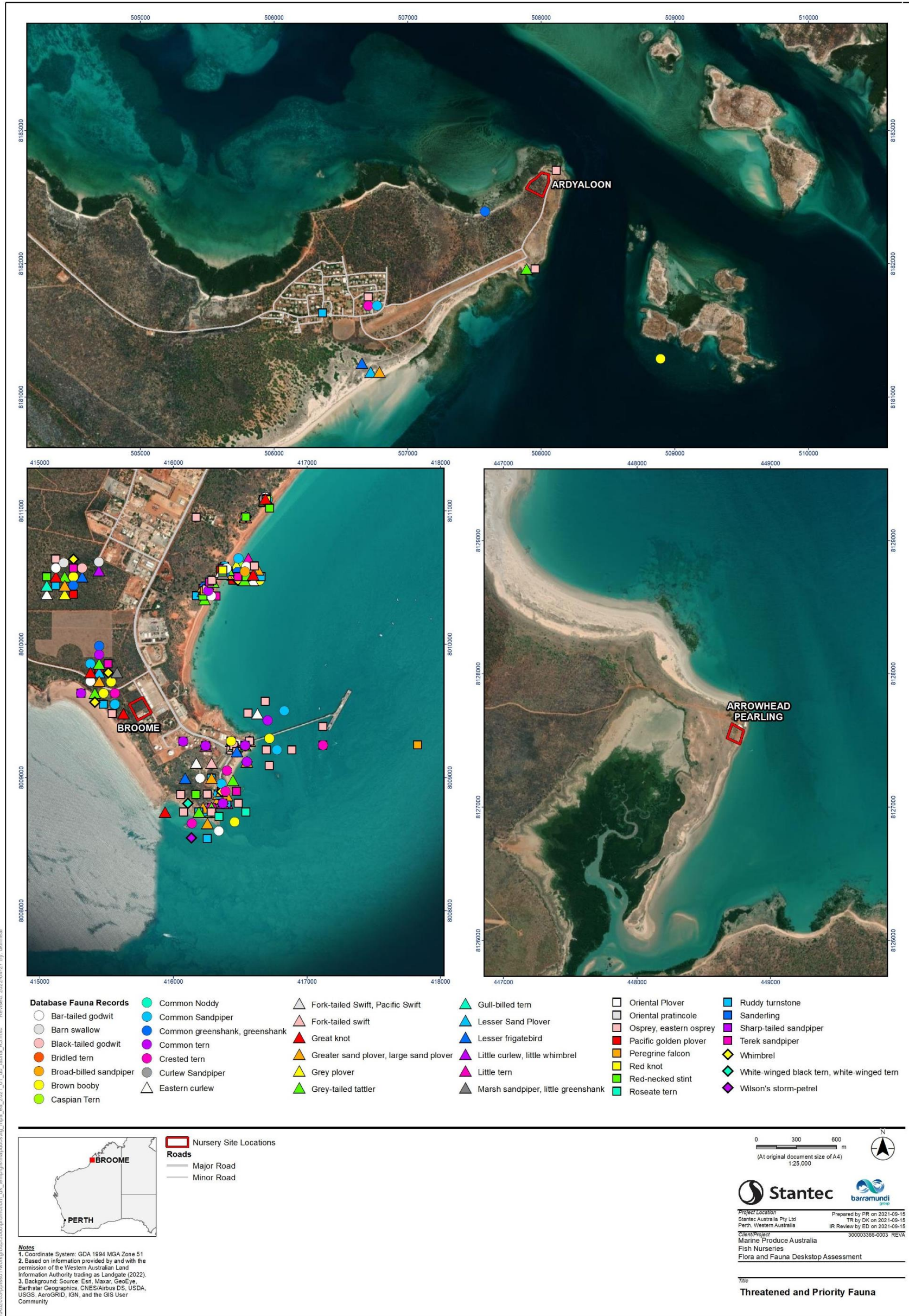


Figure 2-2: Terrestrial vertebrate fauna of significance identified from the desktop assessment in relation to each proposed site.

3.0 SUMMARY

The purpose of the desktop assessment was to determine the likelihood of threatened flora and vegetation, fauna and communities occurring in and around the proposed nursery sites. A review of publicly available data and database searches found that five flora species and two fauna species listed under the BC Act are likely to occur within the proposed areas, with an additional nine and 34 species, respectively, considered possible to occur.

There are five likely and four possible priority flora species within the proposed nursery sites at Ardyaloon. Given the extensive clearing only one priority flora species is considered possible in Arrowhead and four within the Broome proposed nursery sites. No fauna is considered likely or possible within Arrowhead and Broome proposed nursery sites.

One TEC, Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula (Vu, BC Act; En, EPBC Act) was mapped to occur within both Broome and Ardyaloon proposed nursery sites. Aerial imagery and photography provided suggests the Ardyaloon proposed nursery site may support the mapped TEC. The Broome proposed nursery site was also reported to have one state listed TEC and two state listed PECs. Due to lack of optimal habitat and extensive clearing it is considered unlikely that any PEC or TEC is present within the Broome proposed nursery sites. There were no TEC's or PECs mapped within or considered likely to occur within Arrowhead Pearling proposed nursery site.

While the Ardyaloon site is most likely to support significant flora species, ground truthing of the other two sites should be undertaken to confirm the presences/absence of listed species as suggested by the likelihood assessment. The flowering seasons of flora species assessed as possible to likely to occur at the sites may differ slightly however the general ideal time for surveys in this region is between January and March. While a few species will fall outside this window they should be able to be identified vegetatively or at least determine if the genus is present. The presence of the TEC Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula can also be undertaken at Ardyaloon at the same time.

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Appendices

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Appendix A CODES AND TERMS USED TO DESCRIBE SPECIES OF SIGNIFICANCE

Flora and Vegetation: The Environmental Factor Guideline for Flora and Vegetation (EPA 2016c) states that flora and vegetation may be considered significant for a range of reasons, including, but not limited to the following:

- **Flora:** being identified as threatened or priority species, locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems), new species or anomalous features that indicate a potential new species, representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range), unusual species, including restricted subspecies, varieties or naturally occurring hybrids, relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.
- **Vegetation:** being identified as threatened or priority ecological communities, restricted distribution, degree of historical impact from threatening processes, a role as a refuge, providing an important function required to maintain ecological integrity of a significant ecosystem.

Fauna: The Environmental Factor Guidelines for Terrestrial Fauna (EPA 2016b) states that terrestrial fauna may be significant for a range of reasons, including: being identified as a threatened or priority species; species with restricted distribution; degree of historical impact from threatening processes and providing an important function required to maintain the ecological integrity of a significant ecosystem.(EPA 2016c, d)(EPA 2016b, c)

Those flora, vegetation and fauna defined as Threatened and Priority are legislated protection under the EPBC Act and/or the BC Act, or by being listed on the DBCA Priority Species List. This Appendix presents a summary of the different rankings and listings used to describe conservation status. Some categories, such as 'extinct', 'extinct in the wild' and 'conservation dependent' (EPBC Act) are not presented here, as the table includes only the information needed to fully understand the codes presented in the preceding report. Refer to the relevant legislation for a full description of all codes in use, as well as their associated criteria.

Categories used under the EPBC Act		
Status	Code	Description
Critically Endangered	Cr	Taxa considered to be facing an extremely high risk of extinction in the wild in the immediate future
Endangered	En	Taxa considered to be facing a very high risk of extinction in the wild in the near future
Vulnerable	Vu	Taxa considered to be facing a high risk of extinction in the wild in the medium-term future
Migratory	Mi	Species that migrate to, over and within Australia and its external territories



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Appendix A Codes and Terms Used to Describe Species of Significance

Conservation Codes used under the BC Act		
Status	Code	Description
Critically Endangered	CR	Taxa rare or likely to become extinct, as critically endangered taxa
Endangered	EN	Taxa rare or likely to become extinct, as endangered taxa
Vulnerable	VU	Taxa rare or likely to become extinct, as vulnerable taxa
Presumed Extinct	EX	Taxa presumed to be extinct
Migratory	IA	Birds subject to international agreements relating to the protection of migratory birds
Conservation Dependent	CD	Taxa of special conservation need, being species dependent on ongoing conservation intervention
Special Protection	S	Taxa in need of special protection
Priority Flora and Fauna Under the BC Act		
Status	Code	Description
Priority 1: Poorly-known Species	P1	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of Study requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further Study.
Priority 2: Poorly-known Species	P2	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of Study requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further Study.
Priority 3: Poorly-known Species	P3	Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of Study requirements and known threatening processes exist that could affect them. Such species are in need of further Study.
Priority 4: Rare, Near Threatened and other species in need of monitoring	P4	(a) Rare. Species that are considered to have been adequately Studied, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately Studied and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.



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Appendix A Codes and Terms Used to Describe Species of Significance

Definitions, Categories and Criteria for Threatened and Priority Ecological Communities	
General Definitions 1.	
Ecological Community	A naturally occurring biological assemblage that occurs in a particular type of habitat. Note: The scale at which ecological communities are defined will often depend on the level of detail in the information source, therefore no particular scale is specified.
Threatened Ecological Community (TEC)	A threatened ecological community (TEC) is one which is found to fit into one of the following categories; "presumed totally destroyed", "critically endangered", "endangered" or "vulnerable". Possible threatened ecological communities that do not meet Study criteria are added to DEC's Priority Ecological Community (PEC) Lists under Priorities 1, 2 and 3. Ecological Communities that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.
Assemblage	An assemblage is a defined group of biological entities.
Habitat	Habitat is defined as the areas in which an organism and/or assemblage of organisms lives. It includes the abiotic factors (eg. substrate and topography), and the biotic factors.
Occurrence	A discrete example of an ecological community, separated from other examples of the same community by more than 20 m of a different ecological community, an artificial surface or a totally destroyed community. By ensuring that every discrete occurrence is recognised and recorded future changes in status can be readily monitored.
Adequately Studied	An ecological community that has been searched for thoroughly in most likely habitats, by relevant experts.
Community structure	The spatial organisation, construction and arrangement of the biological elements comprising a biological assemblage (eg. <i>Eucalyptus salmonophloia</i> woodland over scattered small shrubs over dense herbs; structure in a faunal assemblage could refer to trophic structure, eg. dominance by feeders on detritus as distinct from feeders on live plants).



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Appendix A Codes and Terms Used to Describe Species of Significance

Definitions and Criteria for Priority Ecological Communities	
Possible Threatened Ecological Communities that do not meet Study criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for Study and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.	
Priority 1 Poorly-known ecological communities	Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of Study requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority 2 Poorly-known ecological communities	Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of Study requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
Priority 3 Poorly-known ecological communities	<p>i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat or habitat destruction or degradation</p> <p>ii) communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>iii) communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes</p> <p>Communities may be included if they are comparatively well known from several localities but do not meet adequacy of Study requirements and/or are not well defined, and known threatening processes exist that could affect them</p>
Priority 4 Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring	<p>a) Rare. Ecological communities known from few occurrences that are considered to have been adequately Studied, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.</p> <p>b) Near Threatened. Ecological communities that are considered to have been adequately Studied and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>c) Ecological communities that have been removed from the list of threatened communities during the past five years</p>
Priority 5 Conservation Dependent ecological communities	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years



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