

Likelihood Assessment of EPBC Act Threatened Species

■ Introduction

The proposed action has the potential to have a significant impact on species listed as Threatened or Migratory under the EPBC Act.

An EPBC Act Protected Matters Search for the site using a 5 kilometre buffer zone identified the following as having potential to occur on, or in vicinity to, the site:

- 3 Listed Threatened Ecological Communities:
 - *Littoral Rainforest and Coastal Vine Thickets of Eastern Australia* (critically endangered) - community likely to occur within the area
 - *Lowland Rainforest of Subtropical Australia* (critically endangered)- community likely to occur within the area
 - *Subtropical and Temperate Coastal Saltmarsh* (vulnerable) - community likely to occur within the area.
- 13 listed threatened flora species
- 20 listed threatened fauna species

Various levels of analysis have been undertaken to determine the likelihood that EPBC Act Threatened Species would be impacted by the proposed action including desktop (government databases, regional level studies, etc.) and site specific ecological surveys. Specific investigations include:

- General searches and species identification of the referral area;
- Koala scat meander-Spot Assessment Technique (SAT) surveys;
- Bird surveys across the site;
- On ground confirmation of remnant vegetation communities; and
- Field assessment of the likelihood of protected flora and fauna utilising the site.

Outcomes of the likelihood assessment are provided in response to sections 2.4 and 2.5 of the referral (see also **Attachment 1**).

HABITAT ASSESSMENT FOR LISTED EPBC SPECIES				
Wetlands of International Importance				
Wetlands of International Importance (RAMSAR)	Moreton Bay	Upstream from RAMSAR. Site is located approximately 10 – 20 km west of Moreton Bay.		No impact on Moreton Bay likely.
Listed Threatened Ecological Communities				
Description	Status	Habitat niche		Occurrence
Lowland Rainforest of Subtropical Australia	Critically Endangered	This TEC occurs mainly on basalt and alluvial soils and is characteristic of a low abundance of Eucalyptus, Melaleuca and Casuarina species. Specimens with buttress roots are most common throughout this TEC.		No characteristics or species representing this community were observed on or within the immediate vicinity of this site.
Swamp Tea-tree (<i>Melaleuca irbyana</i>) Forest of South-east Queensland	Critically Endangered	This TEC is usually represented within the Endangered RE12.3.3 and RE12.9-10.11. The regional ecosystems are not present on site.		No characteristics of this TEC were observed on site.
White Box-Yellow Box-Blakely's red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Grasses representative of the native grassland include <i>Themeda triandra</i> (Kangaroo Grass) and <i>Poa sieberiana</i> (Snow Grass). Tree species that may occur in association with the ecological community include, <i>Eucalyptus microcarpa</i> (Western Grey Box), <i>E. moluccanna</i> (Coastal Grey Box) and <i>E. conica</i> (Fuzzy Box).		No characteristics or species representing this community were observed on or within the immediate vicinity of this site.
Listed Threatened Species				
Scientific Name	Common Name	Status	Habitat niche and likelihood assessment	Occurrence
Birds				
<i>Anthochaera phrygia</i>	Regent Honeyeater	Endangered	Widespread but sparsely scattered over south east Australia occasionally visits south east Queensland. Range and numbers have contracted significantly since 1940s. Habitat preference for eucalypt woodlands particularly with box and ironbark species, especially in moister, more fertile sites along creeks, valleys and lower foothills. Sometimes found in river she oaks <i>Casuarina cunninghamiana</i> , particularly where mistletoe is present. Although the site contains areas of suitable habitat there are no recent reliable records from the vicinity. Its occurrence, therefore, is unlikely and the higher value habitats are being retained. No significant impact. Species in unlikely to occur on site.	Species was not observed on site.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate southeast and southwest. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over muddy or peaty substrate. The Australasian Bittern occurs in the far South-East of Queensland; it has been reported North to Baralaba and West to Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions. Unlikely to occur as this species is restricted to protected un-degraded wetlands.	Species was not observed on site.
<i>Claidris ferruginea</i>	Curlew Sandpiper	Critically Endangered	Curlew Sandpipers 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. Occasionally they are recorded around floodwaters The site contains very few permanent dams and those that are on site do not have bare edges. Species in unlikely to occur on site.	Species was not observed on site.
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	Endangered	The Eastern Bristlebird inhabits low dense vegetation in a broad range of habitat types including sedge land, heathland, swampland, shrubland, sclerophyll forest and woodland, and rainforest. It occurs near the coast, on tablelands and in ranges. The Eastern Bristlebird is found in habitats with a variety of species compositions, but is defined by a similar structure of low, dense, ground or understory vegetation. The site is not part of a tableland or range near the coast and it harbours relatively sparse understory vegetation so this species is not expected to occur.	Species was not observed on site.

<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable	No confirmed local records of this uncommon species. A wide ranging and highly mobile species generally observed over eucalypt habitats. Due to the scarcity of this species and lack of local records its occurrence is highly unlikely. The proposed actions will result in a minor loss of habitat for the species and its prey. No notable impact will result. Species is unlikely to occur on site.	Species was not observed on site.
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable	This species inhabits open grasslands and woodlands typically with a native understory although may occur in artificial pasture. There are no confirmed local records and the species is now very rarely observed in southern Queensland. The species is not expected onsite and no direct impact from proposed actions. Species is unlikely to occur on site.	Species was not observed on site.
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered	Swift Parrots breed in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. There are suitable winter flowing species present on the site which may attract birds during flowing (e.g. <i>E. tereticornis</i>). The Atlas of Living Australia lists a single record of the species within 5 km of the site to the south east in 1988. The basis of this record is was not supplied with the record. While the species very uncommon in south-east Queensland, its occurrence cannot be completely discounted. Species is a potential rare visitor to flowering eucalypts but is not expected to occur.	Species was not observed on site.
<i>Numenius madascariensis</i>	Eastern Curlew	Critically Endangered	Within Australia, the eastern curlew has a primarily coastal distribution. During the non-breeding season in Australia, the eastern curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass (Zosteraceae). Species is unlikely to occur on site.	Species was not observed on site.
<i>Poephila cincta cincta</i>	Southern Black-throated Finch	Endangered	The Black-throated Finch (southern) occurs mainly in grassy, open woodlands and forests, typically dominated by <i>Eucalyptus</i> , <i>Corymbia</i> and <i>Melaleuca</i> , and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water. It occurs at two general locations: in the Townsville region, where it is considered to be locally common at a few sites around Townsville and Charters Towers; and at scattered sites in central-eastern Queensland (between Aramac and Great Basalt Wall National Park). It has been absent from Brisbane and its surrounds since the 1930s. Not expected to occur on-site.	Species was not observed on site.
<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania. No suitable riparian habitat or wetlands occur on-site.	Species was not observed on site.
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However the species has also been recorded in a variety of low coastal heathlands around Frazer Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured. Habitats on the site are disturbed due to prior disturbances, weed invasion. Species is unlikely to occur on site.	Species was not observed on site.
Mammals				
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	Vulnerable	No confirmed local records of this uncommon species. Inhabits mesic vegetation. Not expected to occur and no impact expected. Species is unlikely to occur.	Species was not observed on site.
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Suitable habitat includes prominent rock outcrops, creek beds and escarpment lines. This species prefers wet forests such as rainforests and closed eucalypt forest. Species is unlikely to occur.	Species was not observed on site.
<i>Petauroides volans</i>	Greater Glider	Vulnerable	The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. Modelling suggests that the species require native forest patches of at least 160 km² to maintain viable populations. Suitable habitat unlikely to occur on site. Species is unlikely to occur	Species was not observed on site.
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of QLD, NSW and the ACT)	Vulnerable	They are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland. The species is known from the surrounding area and has been recorded on-site. Likely to occur on site. Habitat available.	Evidence of use recorded on site. No Koalas were observed during surveys.

<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo (SE mainland)	Vulnerable	Species generally prefers rainforest and adjacent to wet sclerophyll forest, coastal heathlands and similar habitats with a dense understorey. The species is unlikely to occur as there is no suitable habitat on site. No local records and no direct relevance to the proposed actions. Species is unlikely to occur.	Species was not observed on site.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Species generally roosts in camps in trees adjacent to larger permanent watercourses than those which occur onsite. There is no suitable roosting habitat on site and no camps are currently active in the vicinity. However this species is likely to forage on site when eucalyptus species are flowering and particularly during winter when these provide important resources for this species. It is a common species in SEQ and there is unlikely to be any notable loss of resources or significant impact on the species long term viability with the retention of all mature remnant communities. Likely to occur on site. (Temporary feeding habitat available)	Species was observed flying over the site.
Plants				
<i>Cycas ophiolitica</i>	A Cycad	Endangered	<i>Cycas ophiolitica</i> grows on hills and slopes in sparse, grassy open forest at altitude ranges from 80–400 m above sea level. Although this species reaches its best development on red clay soils near Marlborough, it is more frequently found on shallow, stony, infertile soils, which are developed on sandstone and serpentinite, and is associated with species such as <i>Corymbia dallachiana</i> , <i>C. erythrophloia</i> , <i>C. xanthope</i> and <i>Eucalyptus fibrosa</i> . <i>Cycas ophiolitica</i> has also been found on mudstone in association with <i>Corymbia dallachiana</i> , <i>C. erythrophloia</i> and <i>Eucalyptus crebra</i> , and on alluvial loams with <i>Corymbia intermedia</i> , <i>Eucalyptus drepanophylla</i> and <i>E. tereticornis</i> . Climate in the habitat of the species is tropical with hot, humid summers and mild, dry winters. Rainfall is about 1500 mm per annum falling mainly in summer and autumn. Unlikely to occur due to lack of suitable habitat and prevailing climatic conditions on-site.	Species was not observed on site.
<i>Arthraxon hispidus</i>	Hairy-joint Grass	Vulnerable	The Hairy-joint grass is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland. It has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullys, on creek banks and on sand alluvium in creek beds in open forests and also on bog mosses. Unlikely to occur on-site due to lack of suitable habitat.	Species was not observed on site.
<i>Bosistoa transversa</i>	Three-leaved Bosistoa	Vulnerable	The Three-leaved <i>Bosistoa</i> is conserved within Mt Warning National Park, Numbinbah Nature Reserve, Limpinwood Nature Reserve and Whian Whian State Forest. While population information is unavailable, it is thought to be common in its range. It generally grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300 meters in altitude. It is commonly associated with <i>Argyrodendron trifoliolatum</i> , <i>Syzygium hodgkinsoniae</i> , <i>Endiandra pubens</i> , <i>Dendrocide photinophylla</i> , <i>Acmena ingens</i> , <i>Diploglottis australis</i> and <i>Diospyros mabacea</i> . Unlikely to occur on-site due to lack of suitable habitat.	Species was not observed on site.
<i>Cryptocarya foetida</i>	Stinking Cryptocarya	Vulnerable	Stinking Cryptocarya or Stinking Laurel is a medium sized tree growing to 25 m tall. The species is restricted to coastal sands occurring in littoral rainforest on old sand dunes and subtropical rainforests over slate and occasionally on basalt to an altitude of 150 m. Young plants are relatively common in littoral rainforest & sub-littoral open forest North from Richmond River, but mature specimens are fairly rare, mostly occurring at Brunswick Heads, Fingal and North of Terranora Broadwater. Unlikely to occur due to lack of suitable habitat.	Species was not observed on site.
<i>Dichanthium setosum</i>	Bluegrass	Vulnerable	Dichanthium setosum is associated with heavy basaltic black soils and red-brown loams with clay subsoil. The species is often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. In Queensland, the species occurs in the Mistake Range, in Main Range National Park, and possibly on Glen Rock Regional Park, adjacent to the national park. Unlikely to occur due to lack of associated species.	Species was not observed on site.
<i>Fontainea venosa</i>	A shrub	Vulnerable	This species occurs in Araucarian microphyll vine forests with a mean annual rainfall of 1,000 mm on alluvial soil along creeks. <i>Fontainea venosa</i> occurs south west of Beenleigh near Brisbane, along the Koolkooroon Creek in the Boyne Valley, and near Littlemore, in Queensland. Associated species include <i>Backhousia citriodora</i> , <i>Actephila lindleyi</i> and <i>Bosistoa medicinalis</i> . Unlikely to occur due to lack of suitable habitat	Species was not observed on site.
<i>Gossia gonoclada</i>	Angle-stemmed Myrtle	Endangered	The angle-stemmed myrtle is a tree growing to 18 m in height, with a smooth to flaky, pale brown, reddish or grey trunk. The angle-stemmed myrtle is found on sloping metamorphic or flat alluvial terraces of (largely) permanent waterways, which experience some degree of tidal influence. Unlikely to occur due to lack of suitable habitat	Species was not observed on site.

<i>Macadamia intergrifolia</i>	Macadamia Nut	Vulnerable	<p>The Macadamia Nut is found in remnant rainforest in northern NSW and south-east Queensland. This species is known from Mt Bauple, north of Gympie (Stanley & Ross 1986), to Currumbin Valley in the Gold Coast hinterland. The Macadamia Nut prefers to grow in mild frost-free areas with a reasonably high rainfall. Vegetation communities in which the Macadamia Nut is found range from complex notophyll mixed forest, extremely tall closed forest, simple notophyll mixed very tall closed forest to simple microphyll-notophyll mixed mid-high closed forest with <i>Araucaria</i> and <i>Argyrodendron</i> emergents.</p> <p>Unlikely to occur due to lack of suitable habitat</p>	Species was not observed on site.
<i>Macadamia tetraphylla</i>	Rough-shelled bush nut	Vulnerable	<p>Rough-shelled Bush Nut is a rare species that generally occurs in subtropical rainforest and complex notophyll vineforest, at the margins of these forests and in mixed sclerophyll forest. It occurs in restricted habitat, growing on moderate to steep hillslopes on alluvial soils at well-drained sites</p> <p>Unlikely to occur due to lack of suitable habitat</p>	Species was not observed on site.
<i>Notelaea ipsviciensis</i>	Cooneana Olive	Critically endangered	<p>This species is known to occur in three areas around Ipswich and has a total extent of occurrence of less than two square kilometres. The Cooneana Olive is an understory plant and occurs in open woodlands such as eucalypt-dominant sclerophyll communities situated on sandstone based soils.</p> <p>The species has potential to occur. Highly unlikely due to disturbances.</p>	Species was not observed on site.
<i>Phaius australis</i>	Lesser Swamp-orchid	Endangered	<p>The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found. Typically, the Lesser Swamp- orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (<i>Lophostemon suaveolens</i>)), swampy rainforest (often with sclerophyll emergents), or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (<i>Archontophoenix cunninghamiana</i>) or Cabbage Tree Palm (<i>Livistona australis</i>).</p> <p>Unlikely to occur on-site due to lack of suitable habitat.</p>	Species was not observed on site.
<i>Samadera bidwillii</i>	Quassia	Vulnerable	<p>Quassia commonly occurs in lowland rainforest or on rainforest margins (Hewson 1985), but it can also be found in other forest types, such as open forest and woodland. The species is commonly found in areas adjacent to both temporary and permanent watercourses. It occurs on lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils. Currently, the species is known to occur in several localities between Scawfell Island, near Mackay, and Goomboorian, north of Gympie.</p> <p>The species is unlikely to occur on site.</p>	Species was not observed on site.
<i>Thesium australe</i>	Toadflax	Vulnerable	<p>Grows in grassland or woodland, often in damp sites. Examples of associated vegetation includes, open woodland with <i>Eucalyptus tereticornis</i> and <i>Eucalyptus tindaliae</i> on skeletal soils and grassland dominated by <i>Themeda triandra</i> and <i>Heteropogon contortus</i> on basaltic, rocky soils.</p> <p>The species is unlikely to occur on site.</p>	Species was not observed on site.
Reptiles				
<i>Delma torquata</i>	Collared Delma	Vulnerable	<p>In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open Eucalypt and <i>Acacia</i> woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.</p> <p>The species has potential to occur. Highly unlikely due to disturbances.</p>	Species was not observed on site.
<i>Furina dumalli</i>	Dunmall’s Snake	Vulnerable	<p>Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level. Habit for this species includes forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow (<i>Acacia harpophylla</i>), other Wattles (<i>A. burowii</i>, <i>A. deanii</i>, <i>A. leioclyx</i>), native Cypress (<i>Callitris spp.</i>) or Bull-oak (<i>Allocasuarina luehmannii</i>).</p> <p>The species is unlikely to occur on site.</p>	Species was not observed on site.
<i>Saiphos reticulatus</i>	Three-toed Snake-tooth Skink	Vulnerable	<p>The Three-toed Snake-tooth Skink has been found in loose, well mulched friable soil, in and under rotting logs, in forest litter, under fallen hoop pine bark and under decomposing cane mulch. In Queensland, the Three-toed Snake-tooth Skink has been recorded in rainforest, closed forest, wet sclerophyll forest, tall open Blackbutt (<i>Eucalyptus pilularis</i>) forest, tall layered open eucalypt forest and closed Brush Box (<i>Lophostemon confertus</i>) forest. The site does not contain closed forest.</p> <p>The species is unlikely to occur on site.</p>	Species was not observed on site.