

THREATENED SPECIES 'LIKELIHOOD OF OCCURRENCE' ASSESSMENT

This appendix outlines the procedure and results of the desktop threatened species 'likelihood of occurrence' assessment conducted for this report. The purpose of this assessment is to identify those species that require further assessment as they may be impacted by the project, and those that can be reasonably excluded from further consideration because they are unlikely to occur within the Project area.

The assessment was undertaken using available desktop information, and targeted field and/or assessment will occur for species considered to potentially occur within the Project area.

This assessment focuses on species that are listed as Vulnerable, Endangered or Critically Endangered under either the *Territory Parks and Wildlife Conservation Act (TPWC Act)* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

The following procedure was used to determine which threatened species have the potential to occur in the region of the study area:

- Species records from the latest version of the [NT Atlas](#) were clipped to the Tanami bioregion. Bioregions give a broad area with largely similar habitat characteristics and species assemblages. Clipping data to them ensures all potential species are captured in order to undertake a project-specific 'likelihood of occurrence' assessment.
- Species records from the latest version of the [NT Atlas](#) were also clipped to within 100 km of the project area and data used for discussion purposes.
- [EPBC Protected Matters Search Tool](#) (PMST) was used to generate a report using a 50 km buffer from the project area. This PMST is an online enquiry tool managed by the Commonwealth Department of the Environment and Energy which interrogates a range of existing flora and fauna data, as well as predictive modelling to speculate on the presence of species within a search area. The PMST uses a grid system to determine which protected matters it encapsulates for a particular search. The PMST report (Appendix A) was generated on 15 June 2022.
- For each threatened species, the likelihood of it occurring within the Project area was then assessed based on desktop information that relates to habitat requirements, distribution, number and dates of proximate records (obtained from NT Atlas and/or [Atlas of Living Australia](#)), and the ecological information described in the desktop review for the Project area.
- Likelihood ratings are defined in Table below.

Ratings for the desktop threatened species likelihood of occurrence assessment

Rating	Definition
HIGH	It is expected that this species occurs within the Project area because there is core habitat and recent (post-2000) proximate records or knowledge that the species occurs in the local area.
MEDIUM	Species may occur within the Project area because there is suitable habitat; however, there is evidence that lowers its likelihood of occurrence (known range contraction of the species in the region, no recent records within or close to the project area, substantial loss of habitat within the project area since previous records, species is naturally-rare or occurs at a low density etc.).
LOW	Species may occur, as a vagrant, within the Project area; only marginally-suitable habitat is expected.
NONE	There is strong evidence that this species will not occur within the Project area (i.e. there is no suitable habitat and/or the species is considered to be regionally-extinct).

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Likelihood	Common name	Scientific name	Status		Likelihood of occurrence summary
			Cth	NT	
HIGH	Greater Bilby	<i>Macrotis lagotis</i>	VU	VU	<ul style="list-style-type: none"> • 26 records (7 recent) within 100km of Project area. • No records within 60km of Project area. • Species known to occur in bioregion; with most records >100km to west. • Identified within 50km buffer of Project area EPBC PMST, as 'known' occurrence. • Project area occurs close to the eastern extent of current species distribution. • Suitable habitat present within Project area and surrounds. • Has large foraging area and will move home range in search for food (Johnson 2008).
LOW	Great Desert Skink	<i>Liopholis kintorei</i>	VU	VU	<ul style="list-style-type: none"> • 11 historic records within 100km of Project area. • Identified within 50km buffer of Project area EPBC PMST, as 'may' occur. • No known populations in the region surrounding the Project area. • Suitable habitat is present within Project area (generally occurs in tall open shrubland, hummock grasslands and on red sandplains and sand ridges, Cogger et al. 1993). • The relatively high fire impacts in the Project area likely reduces habitat quality/suitability. This species does not cope well with frequent fires.
LOW	Grey Falcon	<i>Falco hypoleucos</i>	VU	VU	<ul style="list-style-type: none"> • 4 Records within 100km of Project area (no date). • Many records within bioregion. • Identified within 50km buffer of Project area EPBC PMST, as 'likely' occurrence. • Occupy nests (often built by other bird species) in the tallest trees along watercourses (Garnett et al. 2011) – current studies and review of aerial imagery indicate this habitat is not present within or surrounding Project area. • Also known to nest on telecommunication towers (Ward 2012) – which are not present within the Project area. • Foraging habitat within Project area only (species occurs in areas of lightly-timbered lowland plains, typically on inland drainage systems, where the average annual rainfall is less than 500mm (Ward 2012). • Vagrant – occasional irruption from arid stronghold. • Naturally rare bird, occurring at low densities in arid and semi-arid areas.
LOW	Yellow-spotted Monitor	<i>Varanus panoptes</i>	-	VU	<ul style="list-style-type: none"> • No records within 100km of Project area. • 15 recent records in the bioregion. • Low suitability habitat within Project area: the sandplain habitat is not characteristic habitat for the species. • Species may be present in the wider region but would be more likely to occur in alluvial / floodplain based habitat / landforms. • Species inhabits a broad range of habitats – including coastal beaches, savanna woodlands and floodplains.

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LOW	Night Parrot	<i>Pezoporus occidentalis</i>	EN	EN	<ul style="list-style-type: none"> No records within 100km of Project area. 2 historic records in bioregion. Identified within 50km buffer of Project area EPBC PMST, as 'may' occur. Marginally suitable habitat within Project area: Flat spinifex (<i>Triodia spp.</i>) grasslands in stony or sandy environments and samphire and chenopod shrublands – including genera such as Atriplex, Bassia and Maireana – on floodplains and claypans, and on the margins of salt lakes, creeks or other sources of water (from a variety of sources cited in DoE 2017). The relatively high fire impacts in the Project area likely reduces habitat quality/suitability. This species does not cope well with frequent fires.
LOW	Painted Honeyeater	<i>Grantiella picta</i>	VU	VU	<ul style="list-style-type: none"> Recent records within 100km of Project area – Tennant Creek wastewater treatment plant. 2 recent records in the bioregion. Identified within 50km buffer of Project area EPBC PMST, as 'may' occur. Marginally suitable habitat: Acacia and Eucalyptus-dominated woodlands and open forest, preferring habitats with more mature trees that host more mistletoe. Breeding does not occur in the NT.
LOW	Princess Parrot	<i>Polytelis alexandrae</i>	VU	VU	<ul style="list-style-type: none"> No records within 100km of Project area. 3 records in bioregion. Identified within 50km buffer of Project area EPBC PMST, as 'may' occur. Suitable habitat is not present within Project area: Swales between desert sand dunes with a shrub layer and scattered trees (Pavey 2006). Desktop review indicates that the Project area does not support suitable nesting habitat (i.e. Marble Gum, River Red Gum, and occasionally Desert Oak). If present, would only be expected to be dispersal flocks transiting through Project area during boom periods.
LOW	Red Goshawk	<i>Erythrotriorchis radiatus</i>	VU	VU	<ul style="list-style-type: none"> 2 Recent records within 100km of Project area. 1 historic record in bioregion. Identified within 50km buffer of Project area EPBC PMST, as 'may' occur. Suitable habitat is not present within Project area (species prefers tall, open Eucalyptus forest and riparian areas. Nests in large trees within 1 km of permanent water.)
NONE	Greater Sand Plover	<i>Charadrius leschenaultii</i>	VU	VU	<ul style="list-style-type: none"> Recent records within 100km of Project area – Tennant Creek wastewater treatment plant. 5 records within bioregion. No suitable habitat within Project area: coasts and estuaries with intertidal sand and mudflats.
NONE	Malleefowl	<i>Leipoa ocellata</i>	VU	CR	<ul style="list-style-type: none"> No records within 100km of Project area. 2 historic records in the bioregion. Species is considered to be extinct in the bioregion.

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					<ul style="list-style-type: none"> Marginally suitable habitat: In arid Australia, occupies mulga scrub, either pure stands or mixed with mallee (Pavey 2006).
NONE	Crest-tailed Mulgara	<i>Dasyercus cristicauda</i>	-	VU	<ul style="list-style-type: none"> No records within 100km of project. 4 records in bioregion (recent and historic). No suitable habitat within Project area: Prefers sand dune habitats that are vegetated with cane grass and spinifex (Masters 1997).
NONE	Gouldian Finch	<i>Erythrura gouldiae</i>	EN	VU	<ul style="list-style-type: none"> No records within 100km of Project area. No suitable habitat within Project area: Prefers areas with certain grass species (especially Sorghum), a nearby source of surface water and – in the breeding season – hollow-bearing Snappy Gum trees on slopes.
NONE	Masked Owl (northern mainland)	<i>Tyto novaehollandiae kimberli</i>	VU	VU	<ul style="list-style-type: none"> No records within 100km of Project area. 1 historic record in bioregion. No suitable habitat within Project area; Eucalyptus tall open forests, but also roosts in monsoon rainforests and forages in more open vegetation types, including grasslands.
NONE	Red-tailed Phascogale	<i>Phascogale calura</i>	VU	VU (EX)	<ul style="list-style-type: none"> 7 historic records within 100km of Project area. 1 historic record in bioregion. Extinct in the NT, previously occurred widely in arid and semi-arid Australia. No suitable habitat within Project area: In central Australia, occupied sandhills and hilly country, sheltering in hollow limbs of Eucalypts (especially bloodwoods) (Pavey 2006).
NONE	Golden Bandicoot	<i>Isoodon auratus</i>	VU	EN	<ul style="list-style-type: none"> Many historic records within 100km of Project area and bioregion. Regionally extinct. Now extinct on the mainland except in a few locations in the north-west Kimberley (TSSC 2015).
NONE	Brush-tailed Bettong	<i>Bettongia penicillata</i>	EN (as <i>B. p. ogilbyi</i>)	EN (EX)	<ul style="list-style-type: none"> No records within 100km of Project area. 7 historic records within bioregion. Regionally extinct.
NONE	Common Brushtail Possum (central and south-eastern)	<i>Trichosurus vulpecula vulpecula</i>		EN	<ul style="list-style-type: none"> 5 historic records within 100km of Project area. Many historic records within bioregion. No suitable habitat within Project area: Riverine habitat that is close to rocky outcrops and moist gullies within the ranges or rocky slopes (Kerle et al. 1992). Occurs in isolated populations in southern NT; closely associated with significant rocky ranges
NONE	Central Australian Rock-wallaby	<i>Petrogale lateralis centralis</i>	VU	-	<ul style="list-style-type: none"> 9 historic records within 100km of Project area. Many historic records within bioregion. Identified within 50km buffer of Project area EPBC PMST, as 'May' occur. No suitable habitat within Project area: Upland rocky areas with associated steep slopes (Pavey 2006). Heavily weathered outcrops, caves, cliffs and rock piles provide suitable habitat as daytime shelter (Woinarski et.al. 2014).

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NONE	Central Rock-rat	<i>Zyzomys pedunculatus</i>	CR	CR	<ul style="list-style-type: none"> No records within 100km of Project area. 4 historic records within bioregion. Restricted range MacDonnell Ranges No suitable habitat within Project area: refuge habitat is quartzite mountains and ridge tops characterised by shallow gravelly soils and exposed rock outcrop with abundant rock-crevices (TSSC 2018).
NONE	Ghost Bat	<i>Macroderma gigas</i>	VU	NT	<ul style="list-style-type: none"> No records within 100km of Project area. 1 record in bioregion. Regionally extinct. No suitable roost sites. Permanent roost sites are generally deep natural caves or disused mines.
NONE	Western Quoll	<i>Dasyurus geoffroii</i>	VU	VU (EX)	<ul style="list-style-type: none"> 6 historic records within 100km of Project area. Historic records in bioregion. Considered extinct in the NT since the 1960's.
NONE	Mala	<i>Lagorchestes hirsutus</i>	EN	EN (EW)	<ul style="list-style-type: none"> 3 historic records within 100km of Project area. Numerous historic records in bioregion. Extinct in the wild on mainland Australia.
NONE	Mertens' Water Monitor	<i>Varanus mertensi</i>	-	VU	<ul style="list-style-type: none"> No records within 100km of Project area. 1 historic record in the bioregion. No suitable habitat within Project area: Locally common along the edges of freshwater watercourses and lagoons.
NONE	Land Snail	<i>Semotrachia euzyga</i>	EN	EN	<ul style="list-style-type: none"> No records within 100km of Project. 2 recent records within bioregion. Restricted range including about 1km² along the Todd River in Alice Springs, on nearby Choritza Hill, and Mt Gillen less than 8 km away (Ward et al. 2006). No suitable habitat within Project area: found in areas in and around fig trees.
NONE	Spencer's Land Snail	<i>Bothriembryon spenceri</i>	-	VU	<ul style="list-style-type: none"> 1 recent record within 100km of Project. No suitable habitat within Project area: Found in leaf litter, under fig trees and/or rocky areas.
NONE	Dwarf Desert Spike-rush	<i>Eleocharis papillosa</i>	VU	VU	<ul style="list-style-type: none"> No records within 100km of Project. 4 records within bioregion (one recent). No suitable habitat within Project area: Ephemeral wetlands in freshwater and semi-saline swamps. In the NT, recorded growing amongst Coolabah (<i>Eucalyptus coolabah</i>), Samphire (<i>Halosarcia spp.</i>), Northern Bluebush (<i>Chenopodium auricomum</i>) and <i>Eragrostis spp.</i> including Swamp Cane grass (<i>E. australasica</i>) (DoE 2017).
NONE	A herb	<i>Typhonium sp. Sandover</i>	-	VU	<ul style="list-style-type: none"> No records within 100km of Project. 2 records within bioregion (one recent). No suitable habitat within Project area: Among the species-rich understorey along Red Gum creek lines (Albrecht & Westaway 2012).

CR = Critically Endangered; EN = Endangered; VU = Vulnerable