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Department of Climate Change, Energy,
the Environment and Water

Likelihood of Occurrence Assessment

Koongarra Remediation Project

Department of Climate Change, Energy,
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Appendix A	Protected Matters Search Tool	
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ACRONYMS

DCCEEW	Department of Climate Change, Energy, the Environment and Water
EcOz	EcOz Environmental Consultants
EP Act	<i>Environment Protection Act 2019</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
KNP	Kakadu National Park
LOO	Likelihood of Occurrence
MNES	Matters of National Environmental Significance
NT	Northern Territory
OSS	Office of Supervising Scientist
PMST	Protected Matters Search Tool
TEC	Threatened Ecological Community

1 LIKELIHOOD OF OCCURRENCE ASSESSMENT

The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), Office of the Supervising Scientist (OSS), are proposing to remediate the Koongarra site, a legacy uranium exploration site located in the Kakadu National Park (KNP). The Proposal area was subject to historic uranium exploration; however, mining never proceeding due to opposition by the Traditional Owner of the site.

EcOz Environmental Consultants (EcOz) was engaged by the OSS to prepare referrals under both the Northern Territory (NT) *Environment Protection Act 2019* (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Proposal.

This report provides methods and results of the likelihood of occurrence assessment for threatened species¹, threatened ecological communities (TEC) and migratory species undertaken for the Proposal area.

The results of this assessment inform Section 7.3 of the EP Act referral, and Sections 3.3.2, 4.1.4 and 4.1.5 of the EPBC Act referral.

The Proposal area is a disturbed site populated mainly by grasses with sparse tree cover. Barnyard Grass (*Echinochloa colona*) and Mission Grass (*Cenchrus pedicellatus*) have been previously recorded in the area. The habitat surrounding the proposal area is intact, Eucalypt-dominated savanna woodland – the most widespread habitat in the Top End.

The access track passes over the Koongarra Saddle within the West Arnhem Land Plateau. This area is surrounded by intact Corymbia low woodland with a hummock grassland ground cover on a rugged sandstone plateau.

1.1 Methods

The following procedure was then used to determine which species have the potential to occur in the region of the Proposal:

- In June 2025, the EPBC Act Protected Matters Search Tool (PMST) was used to generate a report (Appendix A) using a 10 km buffer from the boundary of the Proposal area.
- Species records from the latest version of the NR Maps were also clipped to within 10 km of the Proposal area and data used for discussion purposes.
- A likelihood of occurrence assessment (LOO) was then undertaken to derive a list of species that require further discussion in the referrals.

For each species, the likelihood of it occurring within the Proposal area – specifically the disturbance footprint and the existing access track area – was assessed based on desktop information that relates to habitat requirements, distribution, number and dates of proximate records (obtained from NR Maps), and knowledge of the likely vegetation and habitats present within the Proposal area. The likelihood ratings are defined in Table 1-1.

Table 1-1. Ratings for the desktop threatened species likelihood of occurrence assessment

Likelihood rating	Definition
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¹ Flora and fauna listed under both the Commonwealth EPBC Act and/or the NT *Territory Parks and Wildlife Conservation Act 1976* (TPWC Act).

Likelihood rating	Definition
HIGH	It is expected that this species occurs within the project area because there is core habitat and recent (post-2015) 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).

1.2 General findings

While several Matters of National Environmental Significance (MNES) were identified in the PMST as being relevant to the Proposal as shown in Table 1-2, only those highlighted in green were considered in this report.

Only threatened species and migratory species are addressed within this report. While the PMST report notes that the Arnhem Plateau Sandstone Shrubland Complex – a TEC – is known to occur in the region, that TEC is found on sandstone plateaux. The proposal area is at the base of a massif and therefore, the Arnhem Plateau Sandstone Shrubland Complex is not relevant to this Proposal.

Table 1-2. Summary of PMST results

EPBC Act section	Controlling provision*	Quantity
S12	World Heritage	1
S15B	National Heritage	1
S16	Ramsar Wetland	1
S18	Threatened Species and Ecological Communities	33
S20	Migratory Species	19
S21	Nuclear	1
S23	Commonwealth Marine Area	None
S24B	Great Barrier Reef	None
S24D	Water resource in relation to large coal mining development or coal seam gas	None
S26	Commonwealth Land	1
S27B	Commonwealth heritage places overseas	None
S29	Commonwealth or Commonwealth Agency	1

* MNES highlighted red are discussed within the relevant sections of the EPBC Act referral

1.3 Likelihood of occurrence

The outcomes of the LOO are provided in the following Table 1-3, Table 1-4 and Table 1-5.

Table 1-3. Threatened species likelihood of occurrence desktop assessment

* CR = Critically Endangered; EN = Endangered; VU = Vulnerable, MI = Migratory

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
BIRDS						
<i>Amytornis woodwardi</i>	White-throated Grasswren	VU	VU	Confined to hummock grasslands, sometimes with open shrubland or woodland overstorey, mixed among dense boulder fields or sandstone pavements (Schodde 1982; Noske 1992) and escarpment drainage lines.	NT only – patchily distributed from Nitmiluk National Park to western Arnhem Land (Noske 1992).	<p>MEDIUM</p> <ul style="list-style-type: none"> Suitable habitat within the existing access track area. Limited proximate records, only 1 is recent.
				<p>Armstrong, M. (2004). The yellow chat <i>Epthianura crocea tunneyi</i> in Kakadu National Park. Report to Parks Australia (North), NT Department of Infrastructure Planning and Environment, Darwin.</p> <p>Woinarski, J. and Armstrong, M. (2006). Threatened Species of the Northern Territory - Yellow Chat (Alligator River subspecies) - <i>Epthianura crocea tunneyi</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0019/206344/yellow-chat.PDF [Accessed 1 May 2018].</p> <p>Schodde, R. and Mason, I.J. (1999). The Directory of Australian Birds: Passerines. CSIRO Publishing, Melbourne.</p>		
<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	VU	Prefers tall, open Eucalypt forest and riparian areas. Nests in large trees, frequently the tallest and most massive in a tall stand, nest trees are invariably within 1 km of permanent water (Debus & Czechura 1988; Aumann & Baker-Gabb 1991). Rarely breeds in areas with fragmented native vegetation (Aumann & Baker-Gabb 1991; Czechura 2001). Home range of up to 200 km ² (Czechura & Hobson 2000).	Solitary and secretive hawk that is sparsely distributed across much of northern Australia, from the Kimberley in WA to south-eastern Qld. Within this range, generally confined to taller forests characteristic of higher rainfall coastal and sub-coastal areas (Debus 1998), but there are some isolated records of wandering birds from central Australia (Woinarski 2006).	<p>LOW</p> <ul style="list-style-type: none"> Suitable foraging habitat within the works area/area of disturbance. Low likelihood of nesting habitat Only 2 proximate records, none are recent.
				<p>Aumann, T. and Baker-Gabb, D. (1991). A Management Plan for the Red Goshawk. RAOU Report 75, Royal Australasian Ornithologists Union, Melbourne.</p> <p>Czechura G.V. and Hobson R.G. (2000). The Red Goshawk <i>Erythrotriorchis radiatus</i> in northern Queensland: status and distribution. Report to Queensland Parks and Wildlife Service.</p> <p>Czechura G.V. (2001). The status and distribution of the Red Goshawk <i>Erythrotriorchis radiatus</i> on Cape York Peninsula, Queensland. Unpublished report to Birds Australia.</p> <p>Debus, S. and Czechura, G. (1988). Field identification of the Red Goshawk <i>Erythrotriorchis radiatus</i>. Australian Bird Watcher, Vol. 12, pp. 154-159.</p> <p>Debus, S. (1998). The Birds of Prey of Australia. Oxford University Press, Melbourne.</p> <p>Department of the Environment (2022). <i>Erythrotriorchis radiatus</i> in Species Profile and Threats Database, Department of the Environment, Canberra. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=942 [Accessed 27 Jan 2022]</p> <p>Woinarski, J. (2006). Threatened Species of the Northern Territory - Red Goshawk - <i>Erythrotriorchis radiatus</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0018/206352/red-goshawk.pdf [Accessed 1 May 2018].</p>		

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Erythrura gouldiae</i> (also <i>Chloebia gouldiae</i>)	Gouldian Finch	EN	VU	Prefers areas with an adequate supply of seed from annual and perennial grasses (especially Sorghum), a nearby source of surface water and – in the breeding season – unburnt, hollow-bearing Eucalyptus trees (especially <i>E. tintinnans</i> , <i>E. brevifolia</i> and <i>E. leucophloia</i>) (Tidemann 1996; O'Malley 2006).	Patchily distributed across northern Australia from the Kimberley to north-central Qld (Dostine 1998; Franklin et al. 1999; Barrett et al. 2003; Franklin et al. 2005). In the NT, most known breeding populations occur in the Top End. Non-breeding birds disperse widely (Garnett et al. 2011), greatly increasing the possible range of this species.	LOW <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Only 1 proximate record, it is not recent
<p>Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australian Ornithologists Union, Melbourne, Victoria.</p> <p>Dostine, P. (1998). Gouldian Finch Recovery Plan <i>Erythrura gouldiae</i>. Gouldian Finch Recovery Team and Parks & Wildlife Commission NT, Darwin.</p> <p>Franklin, D.C., Burbidge, A.H. and Dostine, P.L. (1999). The harvest of wild birds for aviculture: an historical perspective on finch trapping in the Kimberley with special emphasis on the Gouldian Finch. <i>Australian Zoologist</i>, Vol. 31, pp. 92-109.</p> <p>Franklin, D.C., Whitehead, P.J., Pardon, G., Matthews, J., McMahon, P. and McIntyre, D. (2005). Geographic patterns and correlates of the decline of granivorous birds in northern Australia. <i>Wildlife Research</i>, Vol. 32, pp. 399-408.</p> <p>Garnett, S.T., Szabo, J.K. and Dutton, G. (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing, Collingwood, Australia.</p> <p>O'Malley, C. (2006). National Recovery Plan for the Gouldian Finch (<i>Erythrura gouldiae</i>). WWF-Australia, Sydney and Parks and Wildlife NT, Department of Natural Resources, Environment and the Arts, NT Government, Palmerston.</p> <p>Tidemann, S.C. (1996). Causes of the decline of the Gouldian Finch <i>Erythrura gouldiae</i>. <i>Biological Conservation International</i>, Vol. 6, pp. 49-61.</p>						
<i>Falco hypoleucos</i>	Grey Falcon	VU	VU	A generally solitary desert falcon that occurs in areas of lightly-timbered lowland plains, typically on inland drainage systems, where the average annual rainfall is less than 500 mm (DEPWS 2021).	Sparsely distributed through much of the arid and semi-arid regions of Australia but has been recorded from all mainland states and territories. In the NT, the majority of records are from the southern half, but there are records all the way up to Darwin (DEPWS 2021). A study of breeding records from 2003 to 2011 documented 38 breeding events – all within the hottest climate classes of Australia – with the northern-most record occurring south of Daly Waters (Schoenjahr 2013).	LOW <ul style="list-style-type: none"> No preferred/suitable habitat within the project area. No proximate records. May occur as a vagrant during irruptions from central Australia following a good breeding season.
<p>Schoenjahr, J. (2013), A hot environment and one type of prey: investigating why the Grey Falcon (<i>Falco hypoleucos</i>) is Australia's rarest falcon, <i>Emu</i>, Vol. 113, pp. 19-25.</p> <p>Department of Environment, Parks and Water Security (2021). Threatened Species of the Northern Territory - Grey Falcon - <i>Falco hypoleucos</i>. Northern Territory Government. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0020/206354/grey-falcon.pdf [Accessed 20 Feb 2023].</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Falcunculus frontatus whitei</i>	Crested Shrike-tit (northern)	VU	NT	Recorded in eight different woodland types in northern Australia, mainly those dominated by <i>Eucalyptus miniata</i> , <i>E. tetradonta</i> or <i>C. bleeseri</i> (DSEWPaC 2013c; Robinson & Woinarski 1992). Nests have been found in the canopy of <i>E. tectifica</i> , <i>C. grandifolia</i> and <i>C. latifolia</i> at >12 m above the ground in open woodland habitat (Ward et al. 2009).	North-western Australia from the Kimberley in WA, across the Top End of the NT to Borroloola (TSSC 2016). In the NT, recorded in very low densities in many isolated sub-populations (Garnett & Crowley 2000) between north-east Arnhem Land and semi-arid Victoria River District. Scarcity of records suggests that populations are at very low density (Woinarski 2004). Not known to have disappeared from any area where recorded historically (TSSC 2016).	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. No proximate records. Very few records for Kakadu NP.
<p>Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2013). <i>Falcunculus frontatus whitei</i> in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. [online] Available from: http://www.environment.gov.au/sprat.</p> <p>Garnett, S.T. and Crowley, G.M. (2000). The Action Plan for Australian Birds 2000. Environment Australia and Birds Australia, Canberra, ACT.</p> <p>Robinson, D. and Woinarski, J.C.Z. (1992). 'A review of records of the Northern Shrike-tit <i>Falcunculus frontatus whitei</i> in north-western Australia'. South Australian Ornithologist, Vol. 31, pp. 111-117.</p> <p>Threatened Species Scientific Committee (2016). Approved Conservation Advice for <i>Falcunculus frontatus whitei</i> - crested shrike-tit (northern). Canberra: Department of the Environment. In effect under the EPBC Act from 02-May-2016. Available at: http://www.environment.gov.au/biodiversity/threatened/species/pubs/26013-conservation-advice-05052016.pdf [Accessed 1 May 2018].</p> <p>Ward, S.J., Berghout, M. & Baker, B. (2009). Notes on the form and habitat of nests of the Northern Shrike-tit. Northern Territory Naturalist, Vol. 21, pp. 54-60.</p> <p>Woinarski, J.C.Z. (2004). National multi-species Recovery Plan for the Partridge Pigeon [eastern subspecies] <i>Geophaps smithii smithii</i>; crested shrike-tit [northern (sub)-species] <i>Falcunculus (frontatus) whitei</i>; masked owl [north Australian mainland subspecies] <i>Tyto novaehollandiae kimberli</i>; and masked owl [Tiwi Islands subspecies] <i>Tyto novaehollandiae melvillensis</i>, 2004-2008. NT Department of Infrastructure Planning and Environment, Darwin.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Geophaps smithii smithii</i>	Partridge Pigeon (eastern)	VU	VU	Open forests and woodlands with an understorey of grasses (Woinarski 2006). Prefers woodland dominated by <i>Eucalyptus tetradonta</i> and <i>E. miniata</i> (Braithwaite 1985; Garnett et al. 2011; Higgins & Davies 1996). According to Fraser (2001), favour a structurally-patchy savanna understorey at a relatively intricate scale. In all seasons, prefer to feed in areas that have an open ground layer (e.g. following fire); however, more likely to nest where there is dense vegetation cover. Require the seeds of certain perennial grasses and sedges that are available early in the wet season when seed is otherwise scarce, particular the perennial grass species <i>Alloteropsis semialata</i> and <i>Chrysopogon</i> . The presence of these grasses may be crucial for survival at this time (Fraser 2001). Largely sedentary; however, can travel distances of 5 to 10 km in the wet season in search of food and water resources (Fraser 2001). Home ranges vary seasonally between 8 – 31 hectares Fraser (2001).	Historically, across the Top End (from Kununurra in WA to Borroloola in the NT). Since early 20th century a severe range contraction from the western, eastern and southern parts of the former distribution (Higgins & Davies 1996; Woinarski et al. 2007). Currently, distribution is limited to sub-coastal NT from Yinberrie Hill in the south, Litchfield NP in the west and (western) Arnhem Land in the east (Garnett et al. 2011).	HIGH <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Numerous recent proximate records. Numerous historic records within the works area.
<p>Braithwaite, R.W. (1985). The Kakadu fauna survey: an ecological survey of Kakadu National Park. Australian National Parks & Wildlife Service, Canberra.</p> <p>Fraser, F. (2000). Species profile: Partridge Pigeon <i>Geophaps smithii</i>. Northern Territory Naturalist 16, 38-39.</p> <p>Fraser, F., Lawson V., Morrison S., Christophersen P., McGregor S. and Rawlinson M. (2003). Fire management experiment for the declining partridge pigeon, Kakadu National Park. Ecological Management and Restoration 4, 94–102.</p> <p>Garnett, S.T., Szabo, J.K. and Dutton, G. (2011). The Action Plan for Australian Birds 2010. Birds Australia, CSIRO Publishing, Melbourne.</p> <p>Higgins, P.J. and Davies S.J.J.F. (eds) (1996). Handbook of Australian, New Zealand and Antarctic Birds. Volume Three: Snipe to Pigeons. Oxford University Press. Melbourne, Victoria.</p> <p>Department of Environment, Parks and Water Security (2021). Threatened Species of the Northern Territory - Partridge Pigeon (eastern subspecies) - <i>Geophaps smithii smithii</i> Northern Territory Government [online] Available at: https://nt.gov.au/__data/assets/pdf_file/0003/206355/partridge-pigeon.pdf [Accessed 1 May 2018].</p> <p>Woinarski, J., Pavey, C., Kerrigan, R., Cowie, I. and Ward, S. (Eds) (2007). Lost from Our Landscape: Threatened Species of the Northern Territory. Northern Territory Government, Darwin.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Rostratula australis</i>	Australian Painted-snipe	EN	EN	Fringes of permanent and temporary wetlands, swamps and inundated grasslands (Taylor et al. 2013).	Nomadic and scattered across Australia with no predictable occurrence (Rogers 2001), but could occur at any wetland or inundated grassland across its distribution, including nearly all of the NT and Qld (Garnett et al. 2011).	NONE <ul style="list-style-type: none"> No preferred/suitable habitat within the project area. No proximate records.
<p>Garnett, S.T., Szabo, J.K. and Dutson, G. (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing. Collingwood, Australia. Rogers, D. (2001). Painted Snipe. Wingspan, Vol. 11 (No. 4), pp. 6-7. Taylor, R., Chatto, R. and Woinarski, J.C.Z. (2013). Threatened Species of the Northern Territory - Australian painted snipe - <i>Rostratula australis</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0018/206361/australian-painted-snipe.pdf [Accessed 1 May 2018].</p>						
<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	VU	VU	Mainly in Eucalyptus tall open forests (especially those dominated by <i>Eucalyptus miniata</i> and <i>E. tetrodonta</i>), but also roosts in monsoon rainforests and forages in more open vegetation types, including grasslands (Woinarski & Ward 2012). Usually nests in tree hollows, within patches of closed forest (Garnett et al. 2011). Little else known about the subspecies, but the species in general is resident in pairs within a territory up to 3,000 hectares (Debus 2009). Nest in large hollows with an entrance more than 20 cm wide and that is greater than 10 m above the ground (Debus 2009). Breeding poorly known, but thought to occur between March and October (DEWHA 2010).	Poorly known, with few records from across a broad range in northern Australia. In the NT, records from the Top End, Kakadu, Coburg Peninsula (majority of records) and south-west Gulf country (Woinarski & Ward 2012). *Groote Eylandt	LOW <ul style="list-style-type: none"> Suitable foraging habitat within the works area/area of disturbance. Limited proximate records, none are recent. Very few records for Kakadu NP.
<p>Garnett, S.T., Szabo, J.K. and Dutson, G. (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing. Collingwood, Australia. Debus, S.J.S. (2009) The owls of australia: A field guide to australian night birds. Canterbury, N.S.W.: Envirobook. Woinarski, J.C.Z. and Ward, S. (2012). Threatened Species of the Northern Territory - Masked Owl (north Australian mainland subspecies) - <i>Tyto novaehollandiae kimberli</i>. Northern Territory Department of Environment, Parks and Water Security (DEPWS). [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0019/206362/masked-owl-northern-mainland.pdf [Accessed 24 March 2023]. Department of the Environment, Water, Heritage and the Arts (DEWHA) (2010). Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2. Canberra, ACT: DEWHA. Available from: http://www.environment.gov.au/epbc/publications/threatened-birds.html. [Accessed March 24 2023]</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
MAMMALS						
<i>Antechinus bellus</i>	Fawn Antechinus	VU	EN	<p>Mostly in open forests and woodlands dominated by <i>Eucalyptus miniata</i> and/or <i>E. tetradonta</i>, particularly where these forests have a relatively dense shrubby understorey (Friend 1985; Friend & Taylor 1985). Declines in areas with frequent intense fires (Corbett et al. 2003) but not necessarily common in areas where fire has been excluded for long periods (>20 years; Woinarski et al. 2004). Breeding occurs mid-June to late August, after which a synchronous male die-off occurs (TSSC 2015).</p> <p>Corbett L. K., Andersen, A.N. and Muller, W.J. (2003). Terrestrial vertebrates. In: Andersen, A.N., Cook, G.D. and Williams, R.J. (eds.). Fire in Tropical Savannas: The Kapalga Experiment. Springer-Verlag, New York: pp. 126–152.</p> <p>Friend, G.R. and Taylor, J.A. (1985). Habitat preferences of small mammals in tropical open-forest of the Northern Territory. Australian Journal of Ecology, Vol. 10, pp. 173-185.</p> <p>Friend, G.R. (1985). Ecological studies of a population of <i>Antechinus bellus</i> (Marsupalia: Dasyuridae) in tropical Australia. Australian Wildlife Research, Vol. 12 (No. 2), pp. 151-162.</p> <p>Threatened Species Scientific Committee (2015). Approved Conservation Advice for <i>Antechinus bellus</i> – Fawn Antechinus. Canberra: Department of the Environment. In effect under the EPBC Act from 03-Dec-2015. Available at: http://www.environment.gov.au/biodiversity/threatened/species/pubs/344-conservation-advice-2015123.pdf [Accessed 1 May 2018].</p> <p>Watson, M.L. and Calaby, J.H. (2008). Fawn Antechinus: <i>Antechinus bellus</i>. In: Van Dyck, S. and Strahan, R. (eds.). The Mammals of Australia: 3rd Edition. Reed New Holland, Sydney.</p> <p>Woinarski, J.C.Z., Risler, J. and Kean, L. (2004). The response of vegetation and vertebrate fauna to 23 years of fire exclusion in a tropical Eucalyptus open forest, Northern Territory, Australia. Austral Ecology, Vol. 29, pp. 156–176.</p>	<p>Restricted to the Top End of the NT (Watson & Calaby 2008), with one record from Melville Island. Surveys published in 2015 failed to record it across central and eastern Arnhem Land (TSSC 2015).</p>	<p>LOW</p> <ul style="list-style-type: none"> • Suitable habitat within the works area/area of disturbance. • Proximate historic records, none are recent.

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Conilurus penicillatus</i>	Brush-tailed Rabbit-Rat	VU	EN	Largely restricted to mixed Eucalypt open forest and woodland, or on dunes with Casuarina – seeming to prefer habitats that are not burnt annually, that have an understorey of predominantly perennial grasses and a sparse-to-moderate middle storey (Firth et al. 2006; Firth 2007; Kemper & Firth 2008).	Formerly widespread across northern Australia, but has declined extensively from Qld and lower rainfall areas of the Kimberley in WA and the Top End in the NT. No recent records from much of the historically-recorded NT range between near the mouth of Victoria River (in the west) and Sir Edward Pellew island group (in east). Most recently known from Cobourg Peninsula, Tiwi Islands, Groote Eylandt and a small area within Kakadu National Park (DEPWS 2021).	LOW <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Only 1 historic record proximate to the works area.
<p>Firth, R.S.C. (2007). Ecology and conservation status of the brush-tailed rabbit-rat <i>Conilurus penicillatus</i>. PhD thesis, Charles Darwin University, Darwin, Northern Territory.</p> <p>Firth, R.S.C., Woinarski, J.C.Z. and Noske, R.A. (2006). Home range and den characteristics of the brush-tailed rabbit-rat <i>Conilurus penicillatus</i> in the monsoonal tropics of the Northern Territory, Australia. <i>Wildlife Research</i>, Vol. 33, pp. 397-408.</p> <p>Kemper, C.M. and Firth, R.S.C. (2008). Brush-tailed Rabbit-rat. In: Van Dyck, S. and Strahan, R. (eds). <i>The Mammals of Australia</i>. Reed New Holland, Chatswood, NSW.</p> <p>Department of Environment, Parks and Water Security (2021). Threatened Species of the Northern Territory - Brush-tailed rabbit-rat. Northern Territory Government [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0016/205504/brush-tailed-rabbit-rat.pdf [Accessed 3 Feb 2022]</p>						
<i>Dasyurus hallucatus</i>	Northern Quoll	EN	CR	Wide range of habitats, but since the arrival of Cane Toads generally restricted to the most suitable habitats which are rocky upland areas with numerous crevices and rock piles (Van Dam et al. 2002). Prime habitat in the NT consists of rocky sandstone escarpments and outliers (Braithwaite & Griffiths 1994). Home range varies from 35 to 100 ha (Oakwood 2002). Breeding occurs in May and June, with male die-off occurring shortly afterwards (Oakwood 2000).	Historically occurred in the NT from Borroloola in the south-east as far west as the NT/WA border (Woinarski et al. 2007), extending into the Kimberley and Pilbara regions of WA. Dramatic range contraction and population crash associated with Cane Toad invasion. Now occurs across northern Australia in five regional populations – including the Top End in the NT.	MEDIUM <ul style="list-style-type: none"> Suitable habitat within the existing access track area. Limited recent records. Numerous historic records within the works area. Species impacted by the incursion of Cane Toads.
<p>Braithwaite, R.W. and Griffiths, A.D. (1994). Demographic variation and range contraction in the Northern Quoll, <i>Dasyurus hallucatus</i> (Marsupialia: Dasyuridae). <i>Wildlife Research</i>, Vol. 21, pp. 203-218.</p> <p>Oakwood, M. (2000). Reproduction and demography of the northern quoll, <i>Dasyurus hallucatus</i>, in the lowland savanna of northern Australia. <i>Australian Journal of Zoology</i>. 48:519-539.</p> <p>Oakwood, M. (2002). Spatial and social organization of a carnivorous marsupial, <i>Dasyurus hallucatus</i>. <i>Journal of Zoology</i>, London. 257:237-248.</p> <p>Van Dam, R.A., Walden, D.J. and Begg, G.W. (2002). A preliminary risk assessment of cane toads in Kakadu National Park. Supervising Scientist Report 164, Darwin, Northern Territory.</p> <p>Woinarski, J.C.Z., Rankmore, B.R., Fisher, A. and Milne, D. (2007). The natural occurrence of northern quolls <i>Dasyurus hallucatus</i> on islands of the Northern Territory: assessment of refuges from the threat posed by cane toads <i>Bufo marinus</i>. Report to Natural Heritage Trust.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Mesembriomys gouldii gouldii</i>	Black-footed Tree-rat (Kimberley and mainland NT)	EN	EN	Woodlands and open forests with large trees and a moderately diverse mid-storey in near-coastal areas. Generally, require fruit and seed resources including Pandanus fruits, and fruiting trees and shrubs (Rankmore 2006). Shelters in tree hollows and occasionally Pandanus (Hill 2012). Thought to be more prevalent in woodlands with infrequent and low intensity fires (Price et al. 2005).	Top End of NT, Kimberley region of WA and Cape York Peninsula south to Townsville in Qld. (Hill 2012). Has remained relatively abundant in the Darwin rural area and there are some recent records from Gunn Point (Price et al. 2005), the Lee Point Area and Middle Arm.	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Limited proximate records. Only 1 recent record.
<p>Department of Environment, Parks and Water Security (2021) Threatened Species of the Northern Territory – Black-footed Tree-rat (Kimberley and mainland Northern Territory). Northern Territory Government. https://nt.gov.au/__data/assets/pdf_file/0018/205515/black-footed-tree-rat-kimberley-mainland-nt.pdf [Accessed 31 Jan 2022]</p> <p>Price, O., Rankmore, B., Milne, D.J., Brock, C., Tynan, C., Kean, L. and Roger, L. (2005). Regional patterns of mammal abundance and their relationships to landscape variables in eucalypt woodlands near Darwin, northern Australia. <i>Wildlife Research</i>, Vol. 32, pp. 435-446.</p> <p>Rankmore, B.R. 2006. Impacts of Habitat Fragmentation on the Vertebrate Fauna of the Tropical Savannas of Northern Australia; with Special Reference to Medium-sized Mammals. PhD Thesis, Charles Darwin University, Darwin.</p>						
<i>Petrogale concinna canescens</i>	Nabarlek (Top End)	EN	EN	Isolated and rocky areas consisting of both sandstone and granite escarpments (Churchill 1997; Telfer et al. 2008). Shelters in caves and crevices during the day (Churchill 1997) and may move from these to forage in adjacent flat areas (Sansom et al. 1985).	Restricted to the monsoonal tropics in the Top End of the NT in scattered populations from sandstone cliffs bordering the Arafura Swamp (Arnhem Land) in the east, to the Daly River catchment in the west (TSSC 2015; Ward & Woinarski 2012).	<p>LOW</p> <ul style="list-style-type: none"> Suitable foraging habitat within the works area/area of disturbance. Suitable sheltering habitat within the existing access track area. Only 1 proximate record, it is not recent.
<p>Churchill, S. (1997). Habitat use, distribution and conservation status of the Nabarlek, <i>Petrogale concinna</i>, and sympatric rock-dwelling mammals, in the Northern Territory. <i>Australian Mammalogy</i>, Vol. 19, pp. 297-308.</p> <p>Sansom, G.D., Nelson, J. and Fell, P. (1985). Ecology of <i>Peradorcas concinna</i> in Arnhem Land in a wet and a dry season. <i>Proceedings of the Ecological Society of Australia</i>, Vol. 13, pp. 65-72.</p> <p>Telfer, W.R., Griffiths, A.D. and Bowman, D.M.J.S. (2008). The habitat requirements of four sympatric rock-dwelling macropods of the Australian monsoon tropics. <i>Austral Ecology</i>, Vol. 33, pp. 1033-1044.</p> <p>Threatened Species Scientific Committee (TSSC) (2015). Conservation Advice <i>Petrogale concinna canescens</i> nabarlek (Top End). Canberra: Department of the Environment and Energy. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/87606-conservation-advice-2015123.pdf In effect under the EPBC Act from 03-Dec-2015.</p> <p>Ward, S. and Woinarski, J. (2012). Threatened Species of the Northern Territory - Nabarlek - <i>Petrogale concinna</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/__data/assets/pdf_file/0017/205523/nabarlek.pdf [Accessed 1 May 2018].</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Phascogale pirata</i>	Northern Brush-tailed Phascogale	VU	EN	<p>No detailed studies, but ecology is probably similar to that reported for phascogales in southern Australia (Rhind 1998). Most records are from tall open forests dominated by <i>Eucalyptus miniata</i> and <i>E. tetradonta</i> (Rhind et al. 2008). Brush-tailed Phascogales are primarily arboreal and seldom feed on the ground. Geyle et al (2020) detected <i>P. pirata</i> using camera traps on Melville Island and found detection is most likely on large (DBH >41.5cm) <i>Eucalyptus tetradonta</i> trees during the wet season.</p> <p>Geyle, H.M., Woolley, L-A., Davies, H.F., Woinarski, J.C.Z. and Murphy, B.P. (2020). Targeted sampling successfully detects the cryptic and declining arboreal marsupial (<i>Phascogale pirata</i>) in northern Australia. <i>Pacific Conservation Biology</i>. DOI: 10.1071/PC20008. Rhind, S.G. (1998). Ecology of the brush-tailed phascogale in jarrah forest of south-western Australia. PhD thesis, Murdoch University, Perth, Western Australia. Rhind, S.G., Woinarski, J. and Aplin, K.P. (2008). Brush-tailed Phascogale. In: Van Dyck, S. and Strahan, R. (eds). <i>The Mammals of Australia</i>. Reed New Holland, Chatswood, NSW. Woinarski, J., Burbidge, A. and Harrison, P. (2014). <i>The Action Plan for Australian Mammals 2012</i>. CSIRO Publishing: pp. 125-127.</p>	Probably occurs naturally in low densities (Woinarski et al. 2014). Very few records exist; reported from West Island, east Arnhem Land, Coburg Peninsula, Kakadu, Litchfield and the Tiwi Islands. In the last 10 years only recorded from Kakadu, Coburg Peninsula and the Tiwi Islands, despite many extensive wildlife surveys across regions of the Top End during that time (Woinarski et al. 2014).	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Limited proximate records, none are recent.
<i>Rattus tunneyi</i>	Pale Field-rat	-	VU	<p>Historically occurred in a wide range of habitats, but now primarily in dense vegetation along creeks (Aplin et al. 2008). Fire regime seems to have little effect on population numbers; instead, the level of groundwater irrigating the riparian system and, to a lesser extent, current rainfall have a much stronger influence (Braithwaite & Griffiths 1996).</p> <p>Aplin, K., Braithwaite, R. and Baverstock, P. (2008). Pale Field-rat: <i>Rattus tunneyi</i>. In: Van Dyck, S. and Strahan, R. (eds.). <i>The Mammals of Australia</i> (3rd Edition). Reed New Holland, Sydney, NSW. Braithwaite, R. and Griffiths, A. (1996). The paradox of <i>Rattus tunneyi</i>: endangerment of a native pest. <i>Wildlife Research</i>, Vol. 23, pp. 1-21. Cole, J. and Woinarski, J. (2002). <i>Field Guide to the Rodents and Dasyurids of the Northern Territory</i>. Surrey Beatty & Sons, Chipping Norton, NSW. Woinarski, J.C.Z. (2000). The conservation status of rodents in the monsoonal tropics of the Northern Territory. <i>Wildlife Research</i>, Vol. 27, pp. 421-435.</p>	Higher rainfall areas of northern Australia, extending from Kimberley in WA to south-eastern Qld, including the Top End of the NT (Cole & Woinarski 2002, Braithwaite & Griffiths 1996). Previously widespread and patchily abundant, particularly in the north-west of the Top End, the Pale Field-rat appears to have declined in lower rainfall areas (Woinarski 2000).	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Historic records within the works area, none are recent.

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Trichosurus vulpecula arnhemensis</i>	Northern Brushtail Possum	VU	-	In Northern Australia, mainly tall eucalypt open forests with large, hollow-bearing trees, some mangrove communities, rainforests and semi-urban areas (TSSC 2001). Found in higher abundance when shrub density is high, particularly shrubs that bear large, fleshy fruits (Stobo-Wilson 2019. Kerle 1985, Friend et al 1985).	Occurs from the Gulf of Carpentaria, NT to the Kimberley, WA. Also occurs on many NT islands, but not on any WA islands. Within its range, distribution is patchy (TSSC 2021). Recently, there have been broad-scale losses and reduction in extensive areas of the NT range (Woinarski 2004; Woinarski et al. 2011; Gibson & McKenzie 2012; Ziembicki et al. 2013; Stobo-Wilson et al. 2019).	MEDIUM <ul style="list-style-type: none"> • Suitable habitat within the works area/area of disturbance. • Limited proximate historic records, none are recent. • Is perhaps the most resilient of the critical weight-range (CWR) mammals, with recent records in areas devoid of other CWR mammals.
				<p>Friend G & Taylor J (1985) Habitat preferences of small mammals in tropical open-forest of the Northern Territory. Australian Journal of Ecology 10, 173-185.</p> <p>Gibson L & McKenzie N (2012) Occurrence of non-volant mammals on islands along the Kimberley coast of Western Australia. Records of the Western Australian Museum supplement 81, 15-39</p> <p>Kerle J (1985) Habitat preference and diet of the northern brushtail possum <i>Trichosurus arnhemensis</i> in the Alligator Rivers Region, N.T. Proceedings of the Ecological Society of Australia 13, 161-176.</p> <p>Kerle, J., Foulkes, J., Kimber, R. and Papenfus, D. (1992). The decline of the brushtail possum, <i>Trichosurus vulpecula</i> (Kerr 1798), in arid Australia. Rangelands Journal, Vol. 14, pp. 107-127.</p> <p>Stobo-Wilson A, Murphy B, & Cremona T (2019) Contrasting patterns of decline in two arboreal marsupials from Northern Australia. Biodiversity Conservation 28, 2951</p> <p>Threatened Species Scientific Committee (2021). Conservation Advice <i>Trichosurus vulpecula arnhemensis</i> Northern Brushtail Possum. Canberra: Department of Agriculture, Water and the Environment. Available from http://www.environment.gov.au/biodiversity/threatened/species/pubs/83091-conservation-advice-11052021.pdf</p> <p>Woinarski, J.C.Z. (2004). In a land with few possums, even the common are rare: ecology, conservation and management of possums in the Northern Territory. In: Goldingay, R. and Jackson, S. (eds.). The biology of Australian possums and gliding possums. Surrey Beatty & Sons, Sydney: pp.51- 62.</p> <p>Woinarski J, Ward S, Mahney T, Bradley J, Brennan K, Ziembicki M & Fisher A (2011) The mammal fauna of the Sir Edward Pellew Islands, Northern Territory: refuge and death-trap. Wildlife Research 38, 307-322.</p> <p>Ziembicki M, Woinarski J & Mackey B (2013) Evaluating the status of species using Indigenous knowledge: novel evidence for major native mammal declines in northern Australia. Biological Conservation 157, 78-92.</p>		

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Xeromys myoides</i>	False Water Rat	VU	DD	Utilises both intertidal and freshwater habitats, with most records from mangrove forests, saltmarsh, sedgeland, clay pans and freshwater Melaleuca wetlands (DoE 2017).	Three regions of coastal Australia: the NT, central south Qld and south-east Qld (DoE 2017). In the NT, known only from coastal Top End with ten records at six sites – South Alligator River in 1903, Daly River floodplain in 1972, two sites on the Tomkinson River in 1975, Melville Island in 1975 and Glyde River floodplain in 1998 and 1999 (Cole & Woinarski 2002, Woinarski 2006).	NONE <ul style="list-style-type: none"> No preferred/suitable habitat within the project area No proximate records.
<p>Cole, J. and Woinarski, J. (2002). Field Guide to the Rodents and Dasyurids of the Northern Territory. Surrey Beatty & Sons, Chipping Norton, NSW. Department of the Environment (2017). Xeromys myoides - Water Mouse, False Water Rat, Yirrkoo. Species Profile and Threats Database, Department of the Environment, Canberra. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66 [Accessed 1 May 2018]. Woinarski, J.C.Z. (2006). Threatened Species of the Northern Territory - False water-rat, Water mouse - Xeromys myoides. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0008/376136/false-water-rat.pdf [Accessed 1 May 2018].</p>						
<i>Zyomys maini</i>	Arnhem Rock-rat	VU	VU	Rugged sandstone environments, typically where there are many caves, crevices or boulders. Occupies environments in association with monsoonal rainforest, typically those areas which are floristically-rich and provide the fleshy fruits and seeds that form its principal food item (Begg et al. 1980).	Endemic to the sandstone massif of western Arnhem Land in the NT (Woinarski 2004). Commonly found throughout parts of Kakadu National Park and Warddeken Indigenous protected area (Woinarski et al. 2014).	MEDIUM <ul style="list-style-type: none"> Suitable habitat within the existing access track area. Limited, recent records in proximity to the project area. Historic records within the works area/area of disturbance.
<p>Begg, R.J. and Dunlop, C.R. (1980). Security eating, and diet in the large rock-rat, Zyomys woodwardi (Rodentia: Muridae). Australian Wildlife Research, Vol. 7, pp. 63-70. Woinarski, J., Burbidge, A. and Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing: pp. 652-654. Woinarski, J.C.Z. (2004). Threatened plants and animals in Kakadu National Park: a review and recommendations for management. Darwin, Northern Territory DIPE.</p>						
<i>Hipposideros inornatus</i>	Arnhem Leaf-nosed Bat	EN	VU	Caves or abandoned mine sites in cool draughty areas, close to water (Churchill 1998; Corbett & Richards 2002). Reported as foraging in riparian areas and in Eucalypt tall open forests (DEPWS 2021).	Restricted to the NT and only known to occur on the western Arnhem Land sandstone massif (Deaf Adder Gorge and upper South Alligator River area). Recorded at one site – Tolmer Falls – in Litchfield National Park (McKean & Hertog 1979), however it has not been recorded there since 1984 (DEPWS 2021).	LOW <ul style="list-style-type: none"> No preferred/known roosting sites within the project area. Suitable foraging habitat within the works area/area of disturbance. Only 1 proximate record, it is not recent.
<p>Churchill, S. (1998). Australian Bats. Reed New Holland, Sydney. Corbett, L. and Richards, G. (2002). Bat survey: Gunlom land trust area. Report to Parks Australia North, EWL Sciences, Darwin. McKean, J.L. and Hertog, A.L. (1979). Extension of range in the horseshoe bat. Northern Territory Naturalist, Vol. 1, p. 5. Department of Environment, Parks and Water Security (Woinarski, D. and Milne, D.DEPWS) (202115). Threatened Species of the Northern Territory – Arnhem Leaf-nosed Bat – Hipposideros inornata. Northern Territory Department of Environment, Parks and Water Security. Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0018/205524/arnhem-leaf-nosed-bat.pdf [Accessed 1 May 2018].</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Macroderma gigas</i>	Ghost Bat	VU	NT	Ranging from the arid Pilbara of WA to tropical savanna woodlands and north Qld. rainforests (TSSC 2016). Permanent roost sites are generally deep natural caves or disused mines (TSSC 2016). Move between a number of caves seasonally or as dictated by weather conditions, and utilise a range of cave sites for short-term night roosts and feeding locations (Hutson et al. 2001, Keely et al. 2023). Most breeding sites are caves with multiple entrances (TSSC 2016).	Geographically-disjunct colonies occur in the Pilbara and Kimberley in WA, NT north of approximately 17° latitude (including Elcho Island and Groote Eylandt), the Gulf of Carpentaria, eastern Qld from Cape York to near Rockhampton, and western Qld (including Riversleigh and Camooweal districts) (TSSC 2016). Distribution likely influenced by the availability of suitable caves and mines for roost sites (DEPWS 2021). 25 roosting sites currently known within the NT (DEPWS 2021). Disperse widely when not breeding (TSSC 2016). In arid Australia, including southern NT until the early 1960's (DEPWS 2021).	<p>MEDIUM</p> <ul style="list-style-type: none"> • Suitable foraging habitat within the works area/area of disturbance. • No preferred/known roosting sites within the project area. • Potential roosting site near Anbangbang Billabong. • Limited proximate records, 3 are recent.
<p>Department of Environment, Parks and Water Security (DEPWS) (2021). Threatened Species of the Northern Territory – Ghost Bat - <i>Macroderma gigas</i>. Northern Territory Department of Environment, Parks and Water Security. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0010/376138/ghost-bat.pdf</p> <p>Hutson, A. M., Mickleburgh, S. P. & Racey, P. A. (2001) Microchiropteran Bats - Global Status Survey and Conservation Action Plan. IUCN/SSC Chiroptera Specialist Group, Gland, Switzerland and Cambridge, U.K.</p> <p>Keely, T., O'Connell, M., Kelman, L., Laming, B. & Knuckey, C. (2023) Validation of non-invasive hormone analysis techniques to assist in the future identification of maternal roosts of ghost bats (<i>Macroderma gigas</i>). <i>Theriogenology Wild</i> Vol. 3</p> <p>Milne, D. and Ward, S. (2016). Threatened Species of the Northern Territory – Ghost Bat - <i>Macroderma gigas</i>. Northern Territory Department of Environment and Natural Resource. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0010/376138/ghost-bat.pdf [Accessed 1 May 2018].</p> <p>Threatened Species Scientific Committee (2016). Approved Conservation Advice for <i>Macroderma gigas</i> (ghost bat). Canberra: Department of the Environment. Available at: http://www.environment.gov.au/biodiversity/threatened/species/pubs/174-conservation-advice-05052016.pdf [Accessed 1 May 2018].</p> <p>Worthington Wilmer, J. (2012). Ghost Bat <i>Macroderma gigas</i>. In: Curtis et al. (eds.). Queensland's Threatened Animals. CSIRO, Canberra: pp. 382-383.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheath-tailed Bat	VU	NT	In the NT, specimens have been collected from Pandanus woodland fringing the sedgeland of the South Alligator River, and Eucalypt tall open forests (Friend & Braithwaite 1986; Churchill 1998). Most records occur within near-coastal habitats with one recent exception (Jasper Gorge) 150 km inland (Woinarski et al. 2014). Rests colonially in tree hollows (DEPWS 2021). In QLD known from coastal lowlands, including eucalypt woodlands and rainforests (DEPWS 2021).	Widely distributed from India through south-east Asia to the Solomon Islands, with few records across north-eastern QLD and the NT, suggesting a fragmented distribution. In the NT, infrequently recorded and sparsely scattered across the Top End (DEPWS 2021). The Australian population is described as the subspecies <i>S. s. nudicluniatus</i> (DENR 2020), however the taxonomy of the species remains unresolved (DEPWS 2021).	NONE <ul style="list-style-type: none"> No preferred/suitable habitat within the project area. No proximate records.
<p>Churchill, S. (1998). Australian Bats. Reed New Holland, Sydney.</p> <p>Northern Territory Department of Environment and Natural Resources (DENR) (2020) Classification of Wildlife. Northern Territory Department of Environment and Natural Resources. [Available online] at: https://depws.nt.gov.au/__data/assets/pdf_file/0006/874302/proposed-new-classifications-schedule1-animals-schedule2-plants.pdf</p> <p>Department of Environment, Parks and Water Security (DEPWS) (2021). Threatened Species of the Northern Territory - Bare-rumped Sheath-tail Bat - <i>Saccolaimus saccolaimus</i>. Northern Territory Department of Environment, Parks and Water Security. [Available online] at: https://nt.gov.au/__data/assets/pdf_file/0007/376117/bare-rumped-sheath-tail-bat.pdf</p> <p>Friend, G.R. and Braithwaite, R.W. (1986). Bat fauna of Kakadu National Park, Northern Territory. Australian Mammalogy, Vol. 9, pp. 43-52.</p> <p>Milne, D.J., Jackling, F.C., Sidhu, M., and Appleton, B.R. (2009). Shedding new light on old species identifications: morphological and genetic evidence suggest a need for conservation status review of the critically endangered bat, <i>Saccolaimus saccolaimus</i>. Wildlife Research 36: 496–508.</p> <p>Milne, D. and Woinarski, J. (2006). Threatened Species of the Northern Territory - Bare-rumped Sheath-tail Bat - <i>Saccolaimus saccolaimus</i>. Northern Territory Department of Environment and Natural Resources. https://nt.gov.au/__data/assets/pdf_file/0007/376117/bare-rumped-sheath-tail-bat.pdf [Accessed 1 May 2018].</p> <p>Woinarski, J., Burbidge, A. and Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing: pp. 511-514.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
REPTILES						
<i>Acanthophis hawkei</i>	Plains Death Adder	VU	VU	Cracking soil floodplains in the Top End and cracking black soil plains inland (DEPWS 2021, Webb et al. 2002).	Habitat mapping suggests the potential geographic range extends from western Qld, across the sub-coastal north of the NT to the north-eastern Kimberley of WA. Fragmented populations occur in the Mitchell Grass Downs of western Qld, the Barkly Tablelands on the NT/Qld border and east of Darwin (Fogg Dam) in the NT (TSSC 2012; Wuster et al. 2005). Susceptible to ingesting toxic Cane Toads (Phillips et al. 2009).	NONE <ul style="list-style-type: none"> No preferred/suitable habitat within the project area. Only 1 proximate historic record. Individual present is likely to have been a vagrant passing through to preferred habitats. Species impacted by the incursion of Cane Toads.
<p>Department of Environment, Parks and Water Security (DEPWS) (2021). Threatened species of the Northern Territory – Plains death adder <i>Acanthophis hawkei</i>. Northern Territory Department of Environment, Parks and Water Security. https://nt.gov.au/_data/assets/pdf_file/0014/206402/plains-death-adder.pdf</p> <p>Phillips, B.L., Greenlees, M.J., Brown, G.P. and Shine R (2010). Predator behaviour and morphology mediates the impact of an invasive species: cane toads and death adders in Australia. <i>Animal Conservation</i>, Vol. 13, pp. 53-59.</p> <p>Webb, J.K., Christian, K.A. and Fisher, P. (2002). Fast growth and early maturation in a viviparous sit-and-wait predator, the northern death adder (<i>Acanthophis praelongus</i>) from tropical Australia. <i>Journal of Herpetology</i>, Vol. 36, no. 3, pp. 505-509.</p> <p>Wuster, W., Dumbrell, A.J., Hay, C., Pook, C.E., Williams, D.J. and Fry, B.G. (2005). Snakes across the Strait: trans-Torresian phylogeographic relationships in three genera of Australasian snakes (Serpentes: Elapidae: <i>Acanthophis</i>, <i>Oxyuranus</i>, and <i>Pseudechis</i>). <i>Molecular Phylogenetics and Evolution</i>, Vol. 34. pp. 1-14.</p> <p>Threatened Species Scientific Committee (2015). Approved Conservation Advice – <i>Acanthophis hawkei</i> – Plains Death Adder. Canberra: Department of the Environment. [online] Available at: http://www.environment.gov.au/biodiversity/threatened/species/pubs/83821-conservation-advice.pdf [Accessed 1 May 2018].</p>						
<i>Bellatorias obiri</i>	Arnhem Land Skink (prev. <i>Egernia obiri</i>)	EN	EN	Prefers sandstone outcrops, typically with extensive fissures and cave systems (Sadlier 1990). Species ecology poorly known.	Restricted to the Western Arnhem Land plateau and outliers (e.g. Jabiluka), where patchily distributed (Armstrong & Dudley 2004). Known from relatively few localities within Kakadu and Nitmiluk National Parks (DEPWS 2021).	LOW <ul style="list-style-type: none"> Suitable habitat within the existing access track area. Limited proximate records, none are recent.
<p>Armstrong, M. and Dudley, A. (2004). The Arnhem Land <i>Egernia</i> <i>Egernia obiri</i> in Kakadu National Park. Report to Parks Australia North, NT Department of Infrastructure Planning and Environment, Darwin.</p> <p>Department of Environment, Parks and Water Security (DEPWS) (2021). Threatened species of the Northern Territory – Arnhem Land gorges skink <i>Bellatorias obiri</i>. Northern Territory Department of Environment, Parks and Water Security. https://nt.gov.au/_data/assets/pdf_file/0011/206399/arnhem-land-gorges-skink.pdf</p> <p>Sadlier, R.A. (1990). A new species of scincid lizard from western Arnhem Land, Northern Territory. <i>The Beagle</i>, Vol. 7, pp. 29-33.</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Carettochelys insculpta</i>	Pig-nosed Turtle	VU	-	Occupies both still and moving freshwater environments (Doody et al. 2000), billabongs and plunge pools. The species prefers sand and gravel substratum with a layer of leaf litter and silt (Georges & Wombey 1993). Males and females occupy different microhabitats, with males typically utilising isolated logs at shallower depths and females occupying deeper, open sand flats (Doody et al. 2000). Not known to occur in estuarine areas (Georges & Kennett 1989).	Occurs in the large rivers of the NT, with most records occurring north of Katherine. Known to occur in the Daly River and its tributaries, the East Alligator and South Alligator Rivers, and the Roper River. There are unsubstantiated reports from the Victoria River catchment, Adelaide, Darwin and McKinlay Rivers (DCCEEW 2024), and traditional owners have reported presence in the Fitzmaurice River (Georges et al. 2008).	NONE <ul style="list-style-type: none"> No suitable habitat within the project area. All proximate records are associated with Nourlangie Creek to the south-west
<p>DCCEEW (2024) Conservation Advice for <i>Carettochelys insculpta</i> (pig-nosed turtle). Australian Government Department of Climate Change, Energy, the Environment and Water</p> <p>Doody JS, George A & Young J (2000) Monitoring plan for the Pig-nosed Turtle in the Daly River, Northern Territory. Unpublished report prepared by the Applied Ecology Research Group, University of Canberra, for the Parks and Wildlife Commission of the Northern Territory.</p> <p>Georges A & Wombey JC (1993) Family Carettochelyidae in Fauna of Australia. Vol2A. Amphibia & Reptilia. Australian Government Publishing Service, Canberra.</p> <p>Georges A & Kennett R (1989) Dry-season distribution and ecology of <i>Carettochelys insculpta</i> (Chelonia: Carettochelyidae) in Kakadu National Park, Northern Australia. Australian Wildlife Research 16, 323-335.</p>						
<i>Simalia oenpelliensis</i> (prev. <i>Nyctophilopython oenpelliensis</i>)	Oenpelli Python	-	VU	Shelters in cracks, caves and crevices of rugged sandstone escarpments and gorges; or in large shady trees. Within this environment, reported from monsoon rainforest patches, riparian areas, woodlands, open heathlands and bare rock pavements (DEPWS 2021 Woinarski & Ward 2012).	Restricted to the sandstone massif of Western Arnhem Land in the NT. Reported in the upper catchments of the Cadell, also in the South and East Alligator River systems (Woinarski & Ward 2012 DEPWS 2021).	MEDIUM <ul style="list-style-type: none"> Suitable habitat within the existing access track area. Proximate records associated with the Mt Brockman massif. One historic record within the project area, within the Koongarra Saddle. This is in immediate proximity to the existing access track.
<p>Woinarski, J. and Ward, S. Department of Environment, Parks and Water Security (DEPWS) (2012/2021). Threatened Species of the Northern Territory - Oenpelli Python - <i>Morelia oenpelliensis</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/__data/assets/pdf_file/0008/206459/oenpelli-python.pdf [Accessed 1 May 2018].</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Tiliqua scincoides intermedia</i>	Northern Blue-tongued Skink	CR	-	Occurs in many varied ecosystems and vegetation types, though tends to avoid closed-canopy forest (Jolly et al. 2023). Most – but not all – detections have occurred near seasonal or permanent water (DCCEEW 2023). Although wide ranging, individuals typically spend 95% of their time in small patches of dense vegetation that provide cool, shaded and damp conditions within an otherwise inhospitable landscape (DCCEEW 2023).	Throughout the Top End, south to about Elliott, including islands off the Top End coast (DCCEEW). Once common in suburban Darwin. Very few records of <i>T.s. intermedia</i> exist in the NT and it appears to be quite uncommon. Cane toads have caused significant declines in <i>T.s. intermedia</i> across northern Australia. <i>T.s. intermedia</i> is now rarely encountered due to cane toad impacts (Jolly et al. 2023).	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within the works area/area of disturbance. Limited proximate records, none are recent. Species impacted by the incursion of Cane Toads.
<p>Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023). Conservation Advice for <i>Tiliqua scincoides intermedia</i> (northern blue-tongue skink). Australian Government Department of Climate Change, Energy, the Environment and Water. Available online: https://www.environment.gov.au/biodiversity/threatened/species/pubs/89838-conservation-advice-21122023.pdf</p> <p>Jolly, C., Schembri, B., Macdonald, S. (2023). Field Guide to the Reptiles of the Northern Territory. CSIRO Publishing, Collingwood, Victoria.</p>						
<i>Varanus mertensi</i>	Mertens' Water Monitor	EN	VU	Semi-aquatic, occupying edges of freshwater watercourses and lagoons, but seldom seen far from water (Christian 2004).	Across far northern Australia from the western Cape York Peninsula in Qld to the Kimberley in WA (Christian 2004). Widespread in the NT, occupying all of the Top End river systems recorded across most of the Top End and Gulf region (Ward et al. 2006DEPWS 2024). The more common water monitor in greater Darwin (outside of Darwin suburbs and coastal area). Susceptible to ingesting toxic Cane Toads resulting in reduced abundance (Griffiths & McKay 2007).	<p>LOW</p> <ul style="list-style-type: none"> Suitable habitat within riparian portions of the works area/area of disturbance. Limited proximate records, none are recent. Species impacted by the incursion or Cane Toads.
<p>Christian, K. (2004). <i>Varanus mertensi</i>. In: Pianka et al. (eds.). <i>Varanoid lizards of the world</i>. Indiana University Press, Bloomington, Indianapolis.</p> <p>Department of Environment, Parks and Water Security (2024). <i>Threatened Species of the Northern Territory - Mertens Water Monitor - Varanus mertensi</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0018/206460/mertens-water-monitor.pdf</p> <p>Griffiths, A.D. and McKay (2007). Cane toads reduce the abundance and site occupancy of Merten's water monitor (<i>Varanus mertensi</i>). <i>Wildlife Research</i>, Vol. 34, pp. 609-615.</p> <p>Ward, S., Woinarski, J., Griffiths, T. and McKay, L. (2006). <i>Threatened Species of the Northern Territory - Mertens Water Monitor - Varanus mertensi</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0018/206460/mertens-water-monitor.pdf [Accessed 1 May 2018].</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Varanus mitchelli</i>	Mitchell's Water Monitor	CR	VU	Semi-aquatic and often arboreal, inhabiting margins of freshwater watercourses, swamps and lagoons (Shine 1986). Saline and brackish habitats (i.e. mangrove), (Laive, A. da et al, 2021).	Top End of the NT and Kimberley in WA (Schultz & Doody 2004). In the NT, recorded in most catchments flowing into the Timor Sea, Arafura Sea and the Gulf of Carpentaria (DEPWS 2024). The more common water monitor in Darwin suburbs and coastal area. Susceptible to ingesting toxic Cane Toads resulting in reduced abundance (Doody et al. 2009).	LOW <ul style="list-style-type: none"> Suitable habitat within riparian portions of the works area/area of disturbance. Limited proximate records, none are recent. Species impacted by the incursion or Cane Toads.
<p>Department of Environment, Parks and Water Security (DEPWS) (2024). Threatened Species of the Northern Territory - Mitchell's Water Monitor - <i>Varanus mitchelli</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0019/206461/mitchells-water-monitor.pdf Doody, J.S., Green, B., Rhind, D., Castellano, C., Sims, R. and Robinson, T. (2009). Population-level declines in Australian predators caused by an invasive species. <i>Animal Conservation</i>, Vol. 12, pp. 46-53.</p> <p>Laive, de A., Schembri, B., & Jolly, C. J. (2021). Novel habitat associations and seasonality in threatened Mitchell's water monitors (<i>Varanus mitchelli</i>): Implications for conservation. <i>Austral Ecology</i>, 46, 871–875.</p> <p>Schultz, T. and Doody, S. (2004). <i>Varanus mitchelli</i>. In: Pianka et al. (eds.). <i>Varanoid lizards of the world</i>. Indiana University Press, Bloomington, Indianapolis.</p> <p>Shine, R. 1986. Food habits, habitats and reproductive biology of four sympatric species of varanid lizards in tropical Australia. <i>Herpetologica</i>, Vol. 42, pp. 346-360.</p> <p>Ward, S. (2012). Threatened Species of the Northern Territory - Mitchell's Water Monitor - <i>Varanus mitchelli</i>. Northern Territory Department of Environment and Natural Resources. [online] Available at: https://nt.gov.au/_data/assets/pdf_file/0019/206461/mitchells-water-monitor.pdf [Accessed 1 May 2018].</p>						
FLORA						
<i>Hibbertia pancerea</i>	a shrub	-	VU, RR	Sandstone boulder slopes around cliff lines among low shrub-lands and open forest on top of the Arnhem Land escarpment (DEPWS 2021).	Endemic to the NT, found on the western escarpment of the Arnhem Land Plateau on the eastern edge of Kakadu National Park (DPEWS 2021). While it is possible that the extent of occurrence and area of occupancy may be larger than is currently known, the high level of general survey in the area indicates that substantial increases are unlikely. In addition, there is a pattern of short-range endemism in the genus and in the sandstone flora of Western Arnhem Land in general (Woinarski et al 2006)	LOW <ul style="list-style-type: none"> Suitable habitat within the existing access track on the Arnhem Land Plateau. Restricted range species, unlikely to occur outside of its known range, ~10 km to the east of the project area.
<p>Department of Environment, Parks and Water Security (DEPWS) (2021) Threatened Species of the Northern Territory – <i>Hibbertia pancerea</i>. Northern Territory Department of Environment, Parks and Water Security. Threatened species of the Northern Territory - <i>Hibbertia pancerea</i> Woinarski, J.C.Z., Hempel, C., Cowie, I., Brennan, K., Kerrigan, R., Leach, G. and Russell-Smith, J. (2006). Distributional patterns of plant species endemic to the Northern Territory, Australia. <i>Australian Journal of Botany</i> 54: 627-640</p>						

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Habitat	Distribution	Likelihood of occurrence
<i>Hibbertia sp.</i> <i>South Magela</i>	a sub-shrub (NT listed as <i>H. pendula</i>)	-	VU, RR	Sandstone cliff faces in semi-shaded areas among rock fissures of sandstone escarpments (Westaway & Cowie 2012).	Endemic to the NT, known only from a single population in the upper Magela Creek Gorge along approximately 3 km of cliff face (NTH 2024). Limited species-specific targeted survey has been undertaken for this taxon in the gorge where it is known to occur. Several days of additional targeted survey of other cliff-dwelling species in nearby gorges failed to locate more subpopulations (Westaway & Cowie 2012).	LOW <ul style="list-style-type: none"> Suitable habitat within the existing access track on the Arnhem Land Plateau. Restricted range species, unlikely to occur outside of its known range, ~13 km to the north-east-east of the project area.
Westaway, J. and Cowie, I. (2012). Threatened Species of the Northern Territory - <i>Hibbertia sp.</i> South Magela. Northern Territory Department of Environment and Natural Resources.						
Northern Territory Herbarium (NTH) (2024). <i>Habenaria pendula</i> T.Hammer factsheet. FloraNT – Northern Territory flora online. Department of Environment, Parks and Water Security. https://eflora.nt.gov.au/factsheet?id=24635						
<i>Hibbertia tricornis</i>	a sub-shrub	-	VU	Sandy scree among sandstone escarpments (Westaway & Cowie 2012).	Known only from one location at Mount Brockman on the central western escarpment on the Arnhem land plateau. This population is located within the Kakadu National Park south of Jabiru (NTH 2024, Westaway & Cowie 2012). High level of general survey in the area suggests that substantial increases in range are unlikely (Westaway & Cowie 2012).	LOW <ul style="list-style-type: none"> Suitable habitat within the existing access track on the Arnhem Land Plateau. Known occurrences of the species located ~7 km to the north-east of the project area.
Northern Territory Herbarium (NTH) (2024). <i>Habenaria tricornis</i> factsheet. FloraNT – Northern Territory flora online. Department of Environment, Parks and Water Security. https://eflora.nt.gov.au/factsheet?id=1049794						
Westaway, J. and Cowie, I. (2012). Threatened Species of the Northern Territory - <i>Hibbertia tricornis</i> . Northern Territory Department of Environment and Natural Resources.						
<i>Hibiscus brennanii</i>	a shrub	VU	VU, RR	In shrubland with Acacia and Grevillea, on sandy soil associated with sandstone slopes and amongst outcrops (NTH 2024). On sandstone cliffs, in gullies and on broken sandstone (Kerrigan & Cowie 2006).	Endemic to the NT, with restricted population at Baroalba Creek on Mt Brockman to the west of Arnhem Land (Kerrigan & Cowie 2006, TSSC 2006). Considered adequately surveyed (Kerrigan & Cowie 2006).	LOW <ul style="list-style-type: none"> Suitable habitat within access track on the Arnhem Plateau Sandstone Shrubland Complex. Known occurrence ~4 km to the north-east of the project area.
Kerrigan, R. and Cowie, I. (2006). Threatened Species of the Northern Territory - <i>Hibiscus brennanii</i> . Northern Territory Department of Environment and Natural Resources.						
Northern Territory Herbarium (NTH) (2024). <i>Hibiscus brennanii</i> factsheet. FloraNT – Northern Territory flora online. Department of Environment, Parks and Water Security. https://eflora.nt.gov.au/factsheet?id=3197						
Threatened Species Scientific Committee (TSSC) (2006) Commonwealth Listing Advice on <i>Hibiscus brennanii</i> . Australian Department of the Environment, Water, Heritage and the Arts. https://www.environment.gov.au/biodiversity/threatened/species/pubs/65592-conservation-advice.pdf						

Table 1-4. Threatened migratory species likelihood of occurrence desktop assessment

* CR=Critically Endangered; EN=Endangered; VU=Vulnerable, NT=Near Threatened, DD=Data Deficient, MI=Migratory, - =Not Listed
species recorded within 10 km of the project area

Scientific Name	Common Name	EPBC Status*	TPWC Status*	Likelihood of Occurrence Assessment
BIRDS				
<i>Actitis hypoleucos</i>	Common Sandpiper#	-, MI	-	<p>LOW</p> <ul style="list-style-type: none"> No preferred/suitable nesting habitat within the works area/area of disturbance and the existing access track area for species recorded within 10 km of the project area. Individuals present are likely to be vagrants passing through to preferred habitats or opportunistically foraging.
<i>Apus pacificus</i>	Fork-tailed Swift#	-, MI	-	
<i>Arenaria interpres</i>	Ruddy Turnstone #	VU, MI	NT	
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	VU, MI	-	
<i>Calidris ferruginea</i>	Curllew Sandpiper#	CR, MI	CR	
<i>Calidris melanotos</i>	Pectoral Sandpiper#	-, MI	-	
<i>Charadrius dubius</i>	Little Ringed Plover#	-, MI	DD	
<i>Cuculus optatus</i>	Oriental Cuckoo#	-, MI	-	
<i>Gallinago megala</i>	Swinhoe's Snipe#	-, MI	DD	
<i>Glareola maldivarum</i>	Oriental Pratincole	-, MI	-	
<i>Hirundo rustica</i>	Barn Swallow	-, MI	-	
<i>Hydroprogne caspia</i>	Caspian Tern#	-, MI	-	
<i>Motacilla cinerea</i>	Grey Wagtail	-, MI	-	
<i>Motacilla flava</i>	Yellow Wagtail	-, MI	-	
<i>Numenius minutus</i>	Little Curlew#	-, MI	-	
<i>Numenius phaeopus</i>	Whimbrel	-, MI	-	
<i>Pandion cristatus</i>	Eastern Osprey#	-, MI	-	
<i>Pandion haliaetus</i>	Osprey	-, MI	-	
<i>Plegadis falcinellus</i>	Glossy Ibis#	-, MI	-	
<i>Pluvialis squatarola</i>	Grey Plover	VU, MI	-	
<i>Tringa glareola</i>	Wood Sandpiper#	-, MI	-	
<i>Tringa nebularia</i>	Common Greenshank#	EN, MI	-	
<i>Tringa stagnatilis</i>	Marsh Sandpiper#	-, MI	-	
<i>Xenus cinereus</i>	Terek Sandpiper	VU, MI	-	
REPTILES				
<i>Crocodylus porosus</i>	Salt-water Crocodile#	-, MI	-	<p>NONE</p> <ul style="list-style-type: none"> No suitable habitat within the works area/area of disturbance and the existing access track area
FISH				
<i>Pristis pristis</i>	Freshwater Sawfish	VU, MI	VU	<p>NONE</p> <ul style="list-style-type: none"> No suitable habitat within the works area/area of disturbance and the existing access track area

Table 1-5. Near Threatened and Data Deficient species recorded within 10 km of the project area

*NT=Near Threatened, DD=Data Deficient, RR=Restricted Range, - =Not Listed

Scientific Name	Common Name	EPBC Status*	TPWC Status*
BIRDS			
<i>Acrocephalus australis</i>	Australian Reed-Warbler	-	NT
<i>Ardeotis australis</i>	Australian Bustard	-	NT
<i>Burhinus grallarius</i>	Bush Stone-curlew	-	NT
<i>Craterocephalus stercusmuscarum</i>	Flyspecked Hardyhead	-	DD
<i>Dromaius novaehollandiae</i>	Emu	-	NT
<i>Lophoictinia isura</i>	Square-tailed Kite	-	NT
<i>Microptilotis albilineata</i>	White-lined Honeyeater	-	NT
<i>Petrophassa rufipennis</i>	Chestnut-quilled Rock-Pigeon	-	NT
<i>Poecilodryas cerviniventris</i>	Buff-sided Robin	-	NT
<i>Psephotellus dissimilis</i>	Hooded Parrot	-	NT
<i>Ptilinopus alligator</i>	Black-banded Fruit-Dove	-	NT
MAMMALS			
<i>Isoodon macrourus</i>	Northern Brown Bandicoot	-	NT
<i>Pseudomys calabyi</i>	Kakadu Pebble-mouse	-	NT
<i>Pseudomys nanus</i>	Western Chestnut Mouse	-	NT
<i>Sminthopsis bindi</i>	Kakadu Dunnart	-	DD
<i>Doryrhina stenotis</i>	Northern Leaf-nosed Bat	-	NT
REPTILES			
<i>Anilius kimberleyensis</i>	Kimberley Shallow-soil Blind Snake	-	DD
<i>Chelosania brunnea</i>	Chameleon Dragon	-	NT
<i>Ctenotus arnhemensis</i>	Jabiluka Ctenotus	-	DD
<i>Ctenotus gagudju</i>	Magela Ctenotus	-	DD
<i>Oxyuranus scutellatus</i>	Coastal Taipan	-	DD
<i>Pseudechis australis</i>	Mulga Snake	-	NT
<i>Varanus insulanicus</i>	Black-spotted Spiny-tailed Monitor	-	DD
FISH			
<i>Amniataba percooides</i>	Barred Grunter	-	DD
<i>Glossogobius munroi</i>	Munro's Goby	-	DD
<i>Mogurnda mogurnda</i>	Northern Purplespotted Gudgeon	-	DD
<i>Pingalla midgleyi</i>	Midgley's Grunter	-	DD
<i>Porochilus obbesi</i>	Obbes' Catfish	-	NT
FLORA			
<i>Acacia proiantha</i>	Acacia, Wattle	-	NT
<i>Acacia rigescens</i>	Acacia, Wattle		NT, RR
<i>Acacia sp. Jim Jim Falls</i>	Acacia, Wattle	-	DD
<i>Actinoschoenus arthrotyloides</i>		-	NT
<i>Adenosma sp. Kakadu</i>		-	DD
<i>Amyema conspicua subsp. obscurinervis</i>	Mistletoe	-	DD
<i>Aphyllodium stylosanthoides</i>	Aphyllodium	-	DD
<i>Arthrochilus byrnesii</i>	Phoringopsis	-	DD

Scientific Name	Common Name	EPBC Status*	TPWC Status*
<i>Arytera bifoliolata</i>	Arytera	-	NT
<i>Atalaya salicifolia</i>	Atalaya	-	NT
<i>Boronia grandisepala subsp. acanthophida</i>	Boronia		NT, RR
<i>Boronia laxa</i>	Boronia		NT, RR
<i>Boronia rupicola</i>	Boronia		NT, RR
<i>Boronia suberosa</i>	Boronia		NT, RR
<i>Boronia xanthastrum</i>	Boronia		NT, RR
<i>Borya jabirabela</i>	Borya	-	NT
<i>Bulbostylis densa</i>	Bulbostylis	-	DD
<i>Bulbostylis sp. Koongarra</i>	Bulbostylis		DD, RR
<i>Caesia setifera</i>	Caesia	-	DD
<i>Calytrix rupestris</i>	Calytrix	-	NT
<i>Cartonema sp. bulbous</i>		-	DD
<i>Centrolepis sp. carinate</i>		-	DD
<i>Cyperus tenuiculmis</i>	Cyperus, Nutgrass	-	DD
<i>Dichapetalum timoriense</i>	Dichapetalum		NT, RR
<i>Dopatrium junceum</i>	Dopatrium	-	DD
<i>Drosera lunata</i>		-	DD
<i>Ectrosia lasioclada</i>	Ectrosia	-	DD
<i>Eragrostis concinna</i>	Lovegrass	-	DD
<i>Eriachne axillaris</i>	Eriachne, Wanderrie Grass	-	DD
<i>Eriachne pauciflora</i>	Eriachne, Wanderrie Grass	-	DD
<i>Fimbristylis fimbristylodes</i>	Fringe-rush		DD, RR
<i>Glinus sessiliflorus</i>	Glinus	-	DD
<i>Gonocarpus implexus</i>	Gonocarpus	-	DD
<i>Grevillea dunlopii</i>	Grevillea	-	DD
<i>Heterostemma magnificum</i>	Heterostemma	-	NT
<i>Hibbertia fractiflexa subsp. filicaulis</i>			DD, RR
<i>Hibbertia guttata</i>	Hibbertia		NT, RR
<i>Hibbertia orbicularis</i>	Hibbertia	-	DD
<i>Hibbertia solanifolia</i>	Hibbertia		NT, RR
<i>Hibbertia tridentata</i>	Hibbertia	-	DD
<i>Hibiscus inimicus</i>	Hibiscus	-	NT
<i>Hibiscus riceae</i>	Hibiscus	-	DD
<i>Isolepis sp. Nourlangie</i>	Isolepis	-	DD
<i>Micraira compacta</i>	Micraira		NT, RR
<i>Micraira inserta</i>	Micraira		DD, RR
<i>Mitrasacme geniculosa</i>	Mitrasacme	-	DD
<i>Mitrasacme troglodytica</i>	Mitrasacme		DD, RR
<i>Murdannia cryptantha</i>	Murdannia	-	DD
<i>Nephrolepis acutifolia</i>	Nephrolepis	-	NT
<i>Nymphoides planosperma</i>	Nymphoides	-	NT
<i>Nymphoides subacuta</i>	Nymphoides	-	NT

Scientific Name	Common Name	EPBC Status*	TPWC Status*
<i>Ophioglossum lusitanicum</i>	Austral Adders Tongue	-	NT
<i>Remusatia vivipara</i>	Remusatia		DD, RR
<i>Schizachyrium perplexum</i>	Schizachyrium	-	DD
<i>Shonia territorialis</i>	Shonia		DD, RR
<i>Solanum sejunctum</i>	Solanum		DD, RR
<i>Stylidium accedens</i>	Stylidium	-	DD
<i>Stylidium divergens</i>	Stylidium	-	DD
<i>Syzygium arenitense</i>	Syzygium	-	DD
<i>Taenitis pinnata</i>	Taenitis	-	NT
<i>Tiliacora australiana</i>	Tiliacora	-	NT
<i>Trachymene umbratica</i>	Trachymene	-	DD
<i>Tragia arnhemica</i>	Tragia	-	DD
<i>Trichosanthes morrisii</i>		-	DD
<i>Triodia aristiglumis</i>	Triodia, Spinifex		DD, RR
<i>Triodia contorta</i>	Triodia, Spinifex	-	NT
<i>Triodia radonensis</i>	Triodia, Spinifex		DD, RR
<i>Utricularia tubulata</i>	Bladderwort	-	DD

2 CONCLUSION

Due to the small size and highly restricted area of disturbance, the Proposal area is not considered to contain critical habitat that supports any threatened flora or fauna species. There are no savanna woodland threatened species with restricted ranges that have a high vulnerability to disturbance that are relevant to this region.

Table 2-1 provides a summary of threatened species assessed as having a medium or high likelihood of occurrence within the Proposal area.

One species was assessed in the LOO to have a high likelihood of occurrence within the Proposal area – the Partridge Pigeon (*Geophaps smithii smithii*). However, this species is a habitat-generalist and is expected to use the extensive savannah woodland habitat in the surrounding area as it would use the Proposal area. This species also has a relatively large home range and would likely use the surrounding habitat frequently.

The following species were assessed to have a medium likelihood of occurrence within the Proposal area:

- Northern Brushtail Possum (*Trichosurus vulpecula arnhemensis*)
- Arnhem Rock-rat (*Zyomys maini*)
- Northern Quoll (*Dasyurus hallucatus*)
- White-throated Grasswren (*Amytornis woodwardi*)
- Ghost Bat (*Macroderma gigas*).

The Northern Brushtail Possum, Northern Quoll and White-throated Grasswren, like the Partridge Pigeon, would not rely on any critical habitat within the Proposal area and are expected to use the extensive savannah woodland habitat in the surrounding area.

Unlike the Partridge Pigeon, the Arnhem Rock-rat and Ghost Bat require specific habitats, the West Arnhem Plateau – specifically the Mt Brockman massif within the Proposal area. The access track traverses the Koongarra Saddle and does present a potential impact for escarpment species.

No migratory species were assessed as having a medium or high likelihood of occurrence within the Proposal area.

Table 2-1. Threatened species with a medium or high likelihood of occurrence

Likelihood	Scientific Name	Common Name	EPBC Status	TPWC Status
HIGH	<i>Geophaps smithii smithii</i>	Partridge Pigeon (eastern)	VU	VU
MEDIUM	<i>Amytornis woodwardi</i>	White-throated Grasswren	VU	VU
	<i>Dasyurus hallucatus</i>	Northern Quoll	EN	CR
	<i>Zyomys maini</i>	Arnhem Rock-rat	VU	VU
	<i>Trichosurus vulpecula arnhemensis</i>	Northern Brushtail Possum	VU	-
	<i>Macroderma gigas</i>	Ghost Bat	VU	NT
	<i>Simalia oenpelliensis</i>	Oenpelli Python	-	VU

APPENDIX A PROTECTED MATTERS SEARCH TOOL



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 03-Jun-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

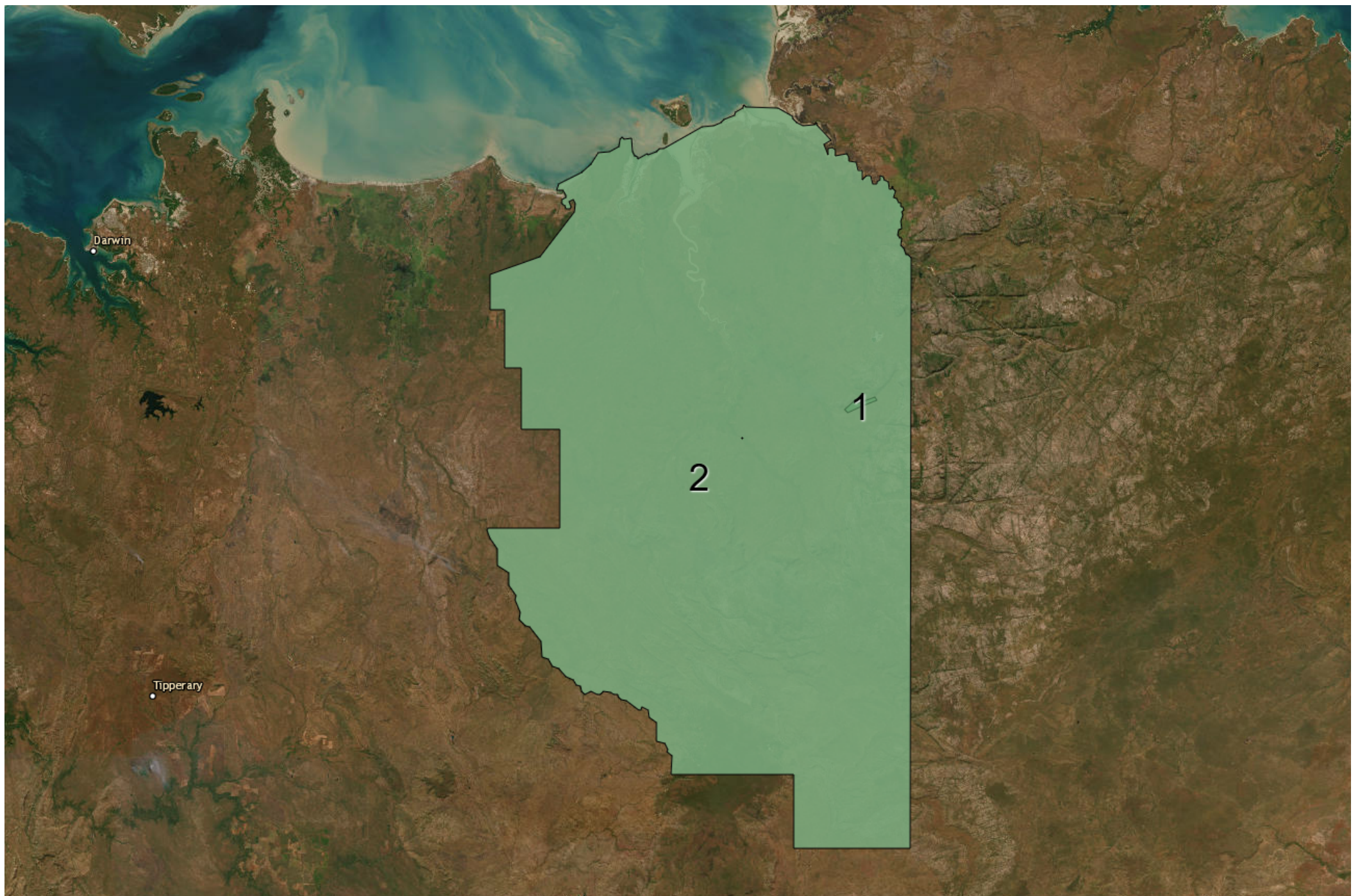
[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Results for area 1: Koongarra



Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	32
Listed Migratory Species:	19

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	25
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	1
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	None
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
Kakadu National Park	NT	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Natural		
Kakadu National Park	NT	Listed place

Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity
Kakadu national park	Within Ramsar site

Listed Threatened Ecological Communities [\[Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Arnhem Plateau Sandstone Shrubland Complex	Endangered	Community likely to occur within area

Listed Threatened Species [\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Amytornis woodwardi White-throated Grasswren, Yirlinkirrkirr [564]	Vulnerable	Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Chloebia gouldiae listed as Erythrura gouldiae Gouldian Finch [90091]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
Geophaps smithii smithii Partridge Pigeon (eastern) [64441]	Vulnerable	Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat likely to occur within area
MAMMAL		
Antechinus bellus Fawn Antechinus [344]	Vulnerable	Species or species habitat likely to occur within area
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Hipposideros inornatus Arnhem Leaf-nosed Bat [86675]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Breeding known to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat likely to occur within area
Petrogale concinna canescens Nabarlek (Top End) [87606]	Endangered	Species or species habitat likely to occur within area
Phascogale pirata Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat known to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare- rumped Sheath-tail Bat [66889]	Vulnerable	Species or species habitat may occur within area
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Zyzomys maini Arnhem Rock-rat, Arnhem Land Rock- rat, Kodjper [25906]	Vulnerable	Species or species habitat likely to occur within area
PLANT		
Hibiscus brennanii a shrub [65592]	Vulnerable	Species or species habitat known to occur within area

REPTILE

Scientific Name	Threatened Category	Presence Text
Acanthophis hawkei Plains Death Adder [83821]	Vulnerable	Species or species habitat known to occur within area
Bellatorias obiri Arnhem Land Egernia [83161]	Endangered	Species or species habitat known to occur within area
Carettochelys insculpta Pig-nosed Turtle, Pitted Shell Turtle [1762]	Vulnerable	Species or species habitat may occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat likely to occur within area
Varanus mertensi Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat known to occur within area
Varanus mitchelli Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat likely to occur within area

SHARK

Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
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Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Marine Species

Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area

Migratory Terrestrial Species

Scientific Name	Threatened Category	Presence Text
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat likely to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat likely to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Environment and Heritage	
Commonwealth Land - Kakadu National Park [70707]	NT

Listed Marine Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat likely to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat likely to occur within area overfly marine area

Reptile

Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Commonwealth Reserves Terrestrial			[Resource Information]
Name	State	Type	
Kakadu	NT	National Park (Commonwealth)	

Extra Information

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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