Appendix K

NRA – EPBC Self assessment

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Technical Note

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Date	27 August 2018

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Haughton Pipeline Duplication Project – EPBC Self-assessment

Introduction

Townsville City Council (TCC) is undertaking the Haughton Pipeline Duplication Project (the Project) to accommodate regional growth and improve security for the municipal water supply.

In late 2015, NRA Environmental Consultants (NRA), on behalf of TCC, submitted a Referral pursuant with Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) in relation to the Project (EPBC Ref: 2015/7606). On 5 January 2016, the Project was deemed to be 'Not a Controlled Action' by the Commonwealth Department of the Environment (now the Department of the Environment and Energy (DoEE)).

Construction for the Project is planned to start in 2018. Minor changes and refinements to the proposed design have occurred since the EPBC Act Referral (hereafter, the Referral) was submitted and assessed by DoEE. The extent of these changes is shown on **Figure 1**, and this final alignment is hereafter referred to as the 'revised alignment'.

NRA (2018a) undertook a gap analysis to assist in finalising Project environmental approvals. This identified the need to undertake further assessments accounting for the alignment changes and the possibility of changes to the receiving environment values that have occurred since the initial assessments, including the Referral, were prepared. In response to this advice, NRA was engaged by GHD, on behalf of TCC, to prepare the EPBC Act self-assessment report. The purpose of the self-assessment report is to re-evaluate the potential for significant impacts to Matters of National Environmental Significance (MNES) under the EPBC Act given the changes to the Project design and environmental context.

Legislative context

The EPBC Act identifies nine MNES:

- world heritage properties

- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- migratory species (protected under international agreements)
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)
- a water resource, in relation to coal seam gas development and large coal mining development.

The EPBC Act requires that actions that have, will have, or are likely to have a significant impact on values of MNES be referred to DoEE for assessment.

Approach

The EPBC Act self-assessment is based on a review of existing information. The primary information sources that were consulted are as follows.

- The Referral, which was based on the original alignment (**Figure 1**) and the MNES values as documented at the time of the assessment.
- An EPBC Act Protected Matters Report (PMR) (DoEE 2018; **Appendix A**) was generated for the area within a 2 km buffer surrounding the revised alignment. The PMR (DoEE 2018) was compared with the Referral to identify potential changes to the documented MNES values in the receiving environment. This work was an extension to that previously provided in NRA (2018a).
- The Environmental Analysis Report (EAR) NRA (2018b) was reviewed to ascertain information on:
  - the latest Project design,
  - MNES relevant to the Project
  - impacts on environmental values (including MNES) and recommended measures to avoid or reduce impacts.

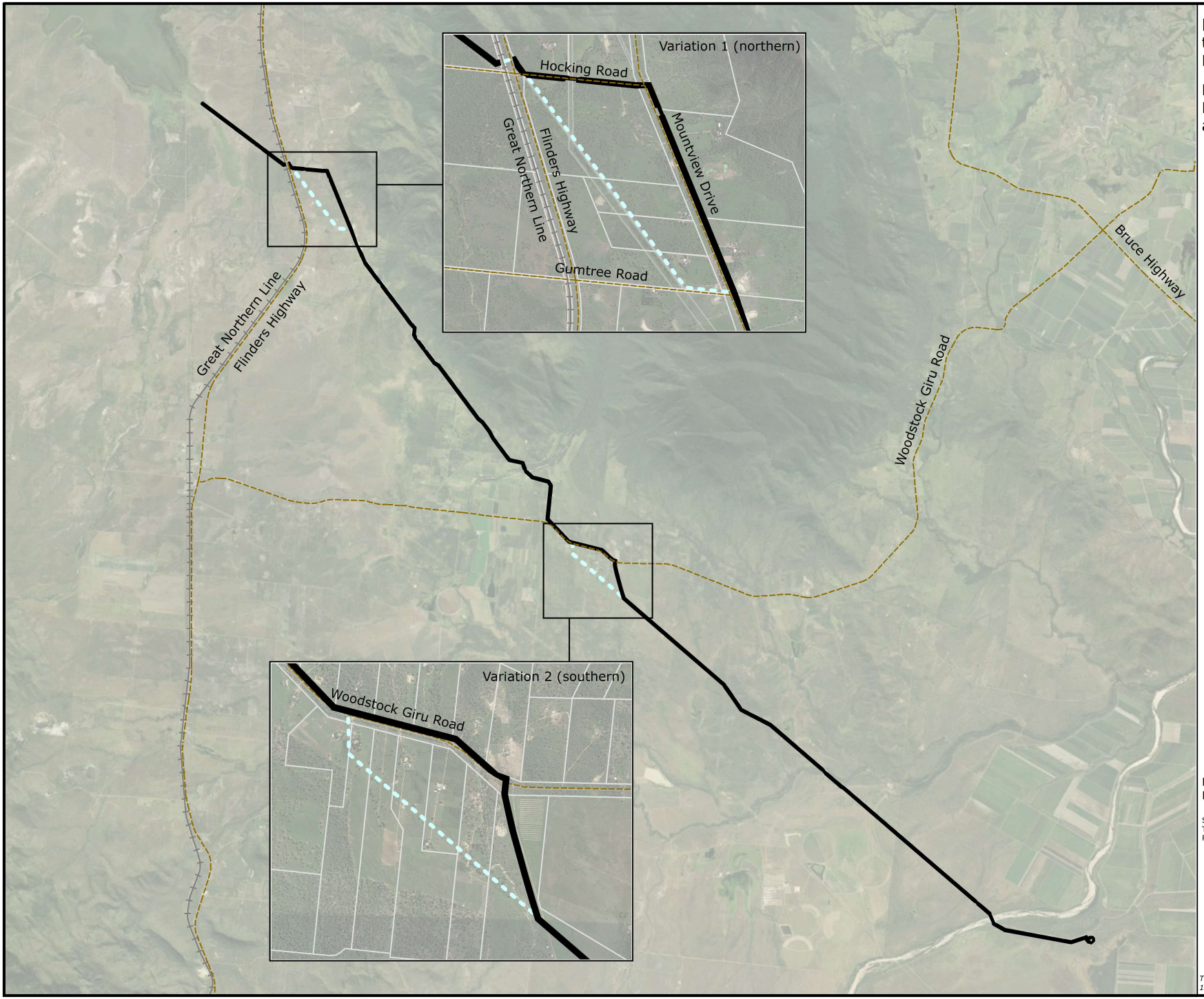

Figure 1: Alignment variations of the Haughton Pipeline Duplication Project

Project: Haughton Pipeline Duplication Project – EPBC Self-assessment

Revised alignment (July 2018)

Original alignment as assessed in EPBC Act Referral (Ref: 2015/7606)

Lot and plan boundaries

Railway lines

Roads

N

0 6

Kilometres

NRA Ref: 135035
Date: August 2018

Source:
Townsville City Council, © State of Queensland (Department of Natural Resources, Mines and Energy) 2018, Google Earth

NRA

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MNES within the Project receiving environment

The PMR (DoEE 2018) is provided in **Appendix A**. The likely presence/absence of MNES in the Project area is assessed in **Table 1**. Based on this assessment, the MNES that are potentially relevant to the Project are:

- wetlands of international importance
- listed threatened species[1]
- migratory-listed species.

Table 1: Presence/absence of MNES values in the Project area

MNES Category	Number of values[1]	Presence/absence
World heritage properties	None	**Absent**. No world heritage properties occur within the Project area or in the immediate receiving environment. The closest world heritage property, the Great Barrier Reef World Heritage Area is approximately 30 km north of the Project area.
National heritage places	None	**Absent**. No national heritage places occur in the Project area or in the immediate receiving environment.
Wetlands of international importance	1	**Present** (receiving environment). No Ramsar listed wetlands occur within the Project area; however, a Ramsar wetland occurs within the broader receiving environment. The closest Ramsar site is Bowling Green Bay Wetland, approximately 20 km north of the Project area (at its closest point).
Great Barrier Reef Marine Park	None	**Absent**. The Great Barrier Reef Marine Park is approximately 30 km north of the Project area. This is outside of the immediate receiving environment.
Commonwealth marine areas	None	**Absent**. No Commonwealth marine areas occur in the Project area or in the immediate receiving environment.
Listed threatened ecological communities	None	**Absent**. No listed threatened ecological communities occur in the Project area or in the immediate receiving environment.
Listed threatened species	20	**Present**. Listed threatened species are likely to occur or may occur in the Project area.
Migratory species	18	**Present**. Listed migratory species are likely to occur or may occur in the Project area.
Nuclear actions	Not applicable	**Absent**. The proposed action is not a nuclear action.
A water resource, in relation to coal seam gas development and large coal mining development	Not applicable	**Absent**. The proposed action is not related to coal seam gas or coal mining.

[1] Identified in the PMR (**Appendix A**).

Wetlands of international importance

The Bowling Green Bay Wetland (a Ramsar wetland) is within the receiving environment, approximately 20 km north of the Project area. The position of this wetland relative to the Project area remains unchanged irrespective of the revised alignment (**Figure 1**).

Threatened species

The PMR (DoEE 2018; **Appendix A**) and NRA (2018b) identified EPBC Act threatened species that may occur in the Project area, or for which suitable habitat exists. Information

[1] Listed threatened species are flora and fauna species that are listed in the EPBC Act as Critically Endangered (CE), Endangered (E), Vulnerable (V) and Migratory (M).

on these species and their likelihood of occurrence is provided in **Table 2**. The results of this assessment are summarised as follows.

- *Present*: Nil threatened species.
- *Probable*: Black-throated Finch, Greater Large-eared Horseshoe Bat, Bare-rumped Sheathtail Bat, Squatter Pigeon and Black Ironbox.
- *Possible*: Spectacled Flying-fox.

The following species identified in the PMR (DoEE 2018) were not addressed in the Referral. They are unlikely to occur in the Project area.

- Ghost Bat.
- Greater Glider.

Table 2: Threatened flora and fauna species and their likelihood of occurrence in the Project area

Common name	Species name	Legislative status EPBC Act[1]	Likelihood of occurrence[2]
Reptiles			
Ornamental Snake	*Denisonia maculata*	V	Unlikely
Yakka Skink	*Egernia rugosa*	V	Unlikely
Birds			
Curlew Sandpiper	*Calidris ferruginea*	CE	Unlikely
Red Goshawk	*Erythrotriorchis radiatus*	V	Unlikely
Squatter Pigeon (southern)	*Geophaps scripta scripta*	V	Probable
Star Finch (eastern/southern)	*Neochmia ruficauda ruficauda*	E	Unlikely
Eastern Curlew	*Numenius madagascariensis*	CE	Unlikely
Southern Black-throated Finch	*Poephila cincta cincta*	E	Probable
Australian Painted Snipe	*Rostratula australis*	E	Unlikely
Masked Owl (northern)	*Tyto novaehollandiae kimberli*	V	Unlikely
Mammals			
Northern Quoll	*Dasyurus hallucatus*	E	Unlikely
Ghost Bat	*Macroderma gigas*	V	Unlikely
Greater Glider	*Petauroides volans*	V	Unlikely
Koala	*Phascolarctos cinereus*	V	Unlikely
Spectacled Flying-fox	*Pteropus conspicillatus*	V	Possible
Greater Large-eared Horseshoe Bat	*Rhinolophus robertsi*	V	Probable
Bare-rumped Sheathtail Bat	*Saccolaimus saccolaimus nudicluniatus*	V	Probable
Fish			
Freshwater Sawfish	*Pristis pristis*	V	Unlikely
Plants			
Bluegrass	*Dichanthium setosum*	V	Unlikely
Black Ironbox	*Eucalyptus raveretiana*	V	Probable
-	*Marsdenia brevifolia*	V	Unlikely
-	*Omphalea celata*	V	Unlikely

[1] EPBC Act threatened species status categories: Critically Endangered (CE), Endangered (E), Vulnerable (V).

[2] Likelihood of occurrence is based on NRA (2018a) and NRA (2018b), which considered published records (Wildlife Online, Atlas of Living Australia), habitat requirements, presence and quality of habitat, known and potential distribution, and search effort for the current study. The list of species presented here is restricted to those identified in the PMR (DoEE 2018; **Appendix A**) or those identified as *present*, *probable* or *possible* in NRA (2018b).

Migratory-listed species

The PMR (DoEE 2018; **Appendix A**) and NRA (2018b) identified EPBC Act migratory-listed species that may occur in the Project area, or for which suitable habitat exists.

Information on these species and their likelihood of occurrence is provided in **Table 3**. The results of this assessment are summarised as follows.

- *Present*: Black-faced Monarch and Rufous Fantail.
- *Probable*: Fork-tailed Swift and White-throated Needletail.
- *Possible*: Estuarine Crocodile, Spectacled Monarch and Eastern Osprey.

The following species identified in the PMR (DoEE 2018) were not addressed in the Referral.

- Estuarine Crocodile.
- Yellow Wagtail.

Yellow Wagtail is unlikely to occur in the Project area. The Estuarine Crocodile is a *possible* occurrence (**Table 3**).

Table 3: Migratory-listed species and their likelihood of occurrence in the Project area

Common name	Species name	Likelihood of occurrence[1]
Reptiles		
Estuarine Crocodile	*Crocodylus porosus*	Possible
Birds		
Common Sandpiper	*Actitis hypoleucos*	Unlikely
Fork-tailed Swift	*Apus pacificus*	Probable
Sharp-tailed Sandpiper	*Calidris acuminata*	Unlikely
Curlew Sandpiper	*Calidris ferruginea*	Unlikely
Pectoral Sandpiper	*Calidris melanotos*	Unlikely
Oriental Cuckoo	*Cuculus optatus*	Unlikely
Latham's Snipe	*Gallinago hardwickii*	Unlikely
White-throated Needletail	*Hirundapus caudatus*	Probable
Black-faced Monarch	*Monarcha melanopsis*	Present
Spectacled Monarch	*Monarcha trivirgatus*	Possible
Yellow Wagtail	*Motacilla flava*	Unlikely
Satin Flycatcher	*Myiagra cyanoleuca*	Unlikely
Eastern Curlew	*Numenius madagascariensis*	Unlikely
Eastern Osprey	*Pandion haliaetus*	Possible
Rufous Fantail	*Rhipidura rufifrons*	Present
Common Greenshank	*Tringa nebularia*	Unlikely
Fish		
Freshwater Sawfish	*Pristis pristis*	Unlikely

[1] Likelihood of occurrence is based on NRA (2018a) and NRA (2018b), which considered published records (Wildlife Online, Atlas of Living Australia), habitat requirements, presence and quality of habitat, known and potential distribution, and search effort for the current study. The list of species presented here is restricted to those identified in the PMR (DoEE 2018; **Appendix A**) or those identified as *present*, *probable* or *possible* in NRA (2018b).

Significant impacts to Matters of National Environmental Significance

The following sections consider the potential for significant impacts[2] to MNES in the Project area. Potential impacts were assessed against 'significant impact criteria' (DoE 2013), as

[2] The opinions expressed in this technical note are based on the technical and practical experience of expert environmental practitioners. They are not presented as legal advice, nor do they represent decisions from the regulatory agency charged with the administration of the Act.

well as species-specific criteria for Black-throated Finch (BTF) (DEWHA 2009) and migratory-listed birds (DoE 2015).

Wetlands of international importance (Ramsar wetlands)

DoE (2013) advises that an action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in:

a) areas of the wetland being destroyed or substantially modified; or

b) a substantial and measureable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland; or

c) the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected; or

d) a substantial and measureable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health; or

e) an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.

The following are relevant when assessing Project-related impacts on the Bowling Green Bay Wetland.

- The general Project description including design, construction method and end use remains as stated in the Referral.
- The only material changes to the Project design relate to the alignment (**Figure 1**) and clearing footprint (clearing for the revised alignment is reduced near waterways).
- The immediate receiving environment has changed little in the time since the Referral was prepared.

The Project-related impacts, and likelihood for significant impact, are unlikely to have changed from that described in the Referral. Based on consideration of the above, including Significant Impact Criteria (a) to (e), a significant impact on the Bowling Green Bay Wetland is not anticipated. Consistent with statements made in the Referral, the following are relevant to this assessment.

- The distance between the Project area and the wetland (approximately 20 km) is a mitigating factor.
- The proposed pipeline will be buried infrastructure. At the completion of construction, the land surface will be levelled and stabilised, and drainage reinstated. Disturbed areas will be rehabilitated with appropriate species.
- Controls to manage the threats associated with sedimentation, contamination of the receiving environment, and pest species will be implemented during construction. These controls shall be documented in Project-specific management plans.

The management recommendations stated in the Referral to reduce Project-related impacts remain valid.

Threatened species

DoE (2013) advises that an action is likely to have a significant impact on Endangered species if the impact on the habitat is likely to:

a) lead to a long-term decrease in the size of a population, or

b) reduce the area of occupancy of the species, or

c) fragment an existing population into two or more populations, or

d) adversely affect habitat critical to the survival of a species, or

e) disrupt the breeding cycle of a population, or

f) modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or

g) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat, or

h) introduce disease that may cause the species to decline, or

i) interfere with the recovery of the species.

These criteria apply to Vulnerable species, except that criteria (a), (b), (c) and (e) specifically refer to 'important populations' rather than any population. Important populations are defined by DoE (2013) as: *necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:*

- *key source populations either for breeding or dispersal*
- *populations that are necessary for maintaining genetic diversity, and/or*
- *populations that are near the limit of the species range.*

The five threatened species listed in **Table 2** as having a *probable* likelihood of occurrence in the Project area are the most likely to be negatively impacted by the proposed works. The Project is not likely to result in material impacts on species that are *possible* or *unlikely* to occur.

The following are relevant when assessing Project-related impacts on the five threatened species of interest.

- The general Project description including design, construction method and end use remains as stated in the Referral.
- The only material changes to the Project design relate to the alignment (**Figure 1**) and clearing footprint (clearing for the revised alignment is reduced near waterways).
- The threatened species most likely to be impacted remain as stated in the Referral. The local populations of these species and the locations of their core habitat are unlikely to have changed since the Referral was prepared. The Black Ironbox is the only exception to this assessment.
  - An individual Black Ironbox was potentially identified in the Project area in 2018 (NRA 2018c). Fruit is needed for definitive identification, and at the time of the survey access to the land upon which the tree occurs was prohibited.
  - The tree is mature and appeared to be unhealthy (crown was defoliating).
- Species sensitivity to Project-related impacts, as indicated by species status, is relevant to the significant impact determination. The following changes in species status have occurred since the Referral application.
  - Greater Large-eared Horseshoe Bat has changed from Endangered to Vulnerable.
  - Bare-rumped Sheathtail Bat has changed from Critically Endangered to Vulnerable.

The EAR (NRA 2018b) describes the location and extent of core habitat for the five threatened species of interest. The estimated area of impact on the core habitat for each of these species is provided in **Table 4** and is based on two scenarios:

- the alignment assessed in the Referral
- the revised alignment (**Figure 1**).

The estimated area of impact on core habitat for each species is similar for each alignment scenario.

Considering the above information, including the Significant Impact Criteria (DoE 2013), the significant impact determination in the Referral remains relevant for the revised alignment, *ie* significant impacts on threatened species are not anticipated. Further, the management recommendations stated in the Referral to reduce Project-related impacts remain valid. The following recommendations are designed to reduce impacts on Black Ironbox and are additional to those made in the Referral.

- Confirm identification of the tree species or adopt a precautionary approach and manage as if the tree is Black Ironbox. Management should either:
  - avoid direct impacts to the tree. This would involve protecting the Tree Protection Zone (as defined in AS4970-2009) from direct disturbance during construction
  - remove the tree and undertake compensatory plantings of this species to offset the loss. Establishing at least three mature plants is the recommended offset. Ideally the planting should occur in the immediate vicinity in suitable riverine habitat and use local seeds and/or cuttings. The planting should be maintained to protect the plants from the impacts of weeds and fire. If this approach is taken, advice should firstly be sought from DoEE to confirm whether there are any permitting requirements associated with the removal of a Vulnerable tree.

A specific significant impact guideline exists for the BTF (DEWHA 2009) (hereafter 'BTF Guidelines'). The BTF Guidelines state that an action may have a significant impact if it '*markedly degrades the landscape value. Alternatively, activities that are designed to preserve the character and quality of the area may not have a significant impact*'.

The BTF Guidelines suggest that the character and quality of the habitat may be significantly diminished if an action results in the following (the assessment assumes BTFs occur nearby).

- Net loss or degradation of water sources (either permanent or seasonal) in the locality.
- Widespread or indiscriminate loss of trees, including known nesting trees within 1 km of a water source.
- A decrease in tree recruitment capacity which limits the area's ability to be self-sustaining.
- The degradation of foraging habitat (grassland) where known BTF records exist, including increased biomass reduction or stocking rates.

Examples of actions that may lead to the loss, degradation and/or fragmentation of BTF habitat and may have a significant impact on the BTF, as stated in the BTF Guidelines, include the following.

- Clearing of grassland and/or grassy woodland.
- Damming or disrupting the natural flows of creeks and rivers.
- Earthworks or excavation.
- Pasture improvement.

- Changes in biomass management regimes, *eg* burning, slashing or changes in intensity of grazing regimes, especially from November to December.
- Construction of roads, structures and/or hard surfaces.
- Construction of temporary or permanent structures for storage and accommodation.
- The introduction of domestic and agricultural animals.
- The introduction of exotic plants, particularly exotic grasses.
- Substantial increases in human traffic and/or recreational activities (*eg* trail bike riding, dog walking).

The Project involves many of the above actions. The greatest potential Project-related threat to BTFs is tree clearing in areas of potential nesting habitat; however, clearing in core nesting habitat is limited to approximately 2.8 ha (**Table 4**). This magnitude of impact is minor because habitats of similar type and quality are abundant in the local landscape. The recommendations provided in the Referral and EAR (NRA 2018b) to mitigate the identified Project-related threats remain valid. If these are implemented, significant impacts on BTF are not anticipated.

Table 4: Impact quantifications for threatened species based on the alignment assessed in the Referral and the revised alignment[A]

Species	Habitat Impact area (ha)		
	Alignment as per Referral	Revised alignment	Net change in estimated area of impact
Black-throated Finch	5.2	2.8	-2.4
Squatter Pigeon[B]	158	141	-17
Large-eared Horseshoe Bat	3.6	5.3	+1.7
Bare-rumped Sheathtail Bat	37.5	42.9	+5.4
Black Ironbox	0.2	0.1	-0.1

[A]: Calculations of habitat loss were calculated using mapping of core habitat provided in NRA (2018b).

[B]: Areas of core habitat were not identifiable. Calculations presented for this species are based on the entire project-related disturbance to remnant vegetation.

Migratory species

DoE (2013) advises that an action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

a) substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species

b) result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or

c) seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

An area of important habitat for a migratory species is:

- habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- habitat that is of critical importance to the species at particular life-cycle stages
- habitat used by a migratory species which is at the limit of the species range
- habitat within an area where the species is declining.

In addition, DoE (2015) provides species-specific guidelines on important habitat for relevant migratory-listed birds and impact thresholds for some of these species. A

description of important habitat and significant impact thresholds for species listed as *present* or having a *probable* likelihood occurrence is provided in **Table 5**. The four migratory species listed in **Table 3** as *present* or having a *probable* likelihood of occurrence in the Project area are the most likely to be negatively impacted by the proposed works. No migratory species are expected to occur in the Project area on a regular or predictable basis.

Table 5: Assessment of impacts to migratory species

Species	Important habitat[1]	Ecologically significant proportion of population (individuals)[1]	Impact area threshold (ha)[1]
White-throated Needletail	Non-breeding habitat only: Found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites.	10	No area provided
Fork-tailed Swift	Non-breeding habitat only: Found across a range of habitats, from inland open plains to wooded areas, where it is exclusively aerial.	100	No area provided
Black-faced Monarch	Wet forest specialist, found mainly in rainforest and wet sclerophyll forest, especially in sheltered gullies and slopes with a dense understorey of ferns and/or shrubs.	47	260
Rufous Fantail	Moist, dense habitats, including mangroves, rainforest, riparian forests and thickets, and wet eucalypt forests with a dense understorey. When on passage a wider range of habitats are used including dry eucalypt forests and woodlands and Brigalow shrublands.	344	750

[1] Sourced from DoE (2015). Thresholds numbers of individuals and areas are quoted at 'national significance' level.

The following are relevant when assessing Project-related impacts on the four migratory species of interest.

- The general Project description, including design, construction method and end use, remains as stated in the Referral.
- The only material changes to the Project design relate to the alignment (**Figure 1**) and clearing footprint (clearing for the revised alignment is reduced near waterways).
- The migratory species most likely to be impacted remains as stated in the Referral. The local populations of these species and the locations of their core habitat are unlikely to have changed since the Referral was prepared.
- Species sensitivity to Project-related impacts is relevant to the significant impact determination. The Project is considered unlikely to impact an ecologically significant proportion of the population of any of the four migratory species that are relevant to this assessment (**Table 5**).
- The extent of remnant vegetation, a component of habitat for the four migratory species, that will be disturbed as a consequence of the revised alignment is less (approximately 17 ha less) than what would have been disturbed based on the alignment assessed in the Referral.

Considering the above information, including the Significant Impact Criteria (DoE 2013) and the thresholds in **Table 5**, the significant impact determination as stated in the Referral remains relevant for the revised alignment, *ie* significant impacts on migratory-listed species are not anticipated. Further, the management recommendations stated in the Referral to reduce Project-related impacts remain valid.

Summary and Recommendations

The impacts associated with the revised alignment are similar to that assessed in the Referral. Further, the MNES values in the receiving environment remain largely unchanged. A significant impact as a consequence of the revised Project design is not anticipated. The decision on whether to prepare a new EPBC Act Referral based on the revised alignment lies with the proponent.

Recommendations to avoid and reduce impacts as stated in the Referral and EAR (NRA 2018b) remain valid. The following additional recommendations are provided.

- Confirm identification of the tree species or adopt a precautionary approach and manage as if the tree is Black Ironbox. Management should either:
  - avoid direct impacts to the tree. This would involve protecting the Tree Protection Zone (as defined in AS4970-2009) from direct disturbance during construction
  - remove the tree and undertake compensatory plantings of this species to offset the loss. Establishing at least three mature plants is the recommended offset. Ideally the planting should occur in the immediate vicinity in suitable riverine habitat and use local seeds and/or cuttings. The planting should be maintained to protect the plants from the impacts of weeds and fire. If this approach is taken, advice should firstly be sought from DoEE to confirm whether there are any permitting requirements associated with the removal of a Vulnerable tree.

References

DEWHA 2009, *Nationally threatened species and ecological communities EPBC Act policy statement 3.13 – Significant impact guidelines for the endangered black-throated finch (southern) (Poephila cincta cincta)*, Commonwealth Department of the Environment, Water, Heritage and the Arts.

DoE 2013, *Matters of National Environmental Significance – Significant impact guidelines 1.1*, Australian Government, Canberra.

DoE 2015, *Referral guideline for 14 birds listed as migratory species under the EPBC Act*, Commonwealth Department of the Environment.

DoEE 2018, *EPBC Act Protected Matters Report*, Commonwealth Department of the Environment and Energy, Canberra, generated 14 August 2018.

NRA 2018a, *Haughton Pipeline Duplication Project – Gap Analysis and Planning Assessment*, R01 (Working copy), prepared by NRA Environmental Consultants for GHD, 11 May 2018.

NRA 2018b, *Townsville City Council Haughton Pipeline Duplication Project – Environmental Analysis Report*, R05, prepared by NRA Environmental Consultants for GHD, 31 May 2018.

NRA 2018c, *Haughton Pipeline Duplication Project – Targeted Surveys*, R01 (Working copy), in preparation by NRA Environmental Consultants for GHD.

Appendix A:
EPBC Act Protected Matters Report

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

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

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

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

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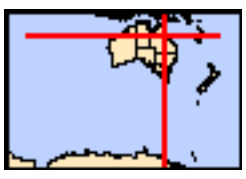
Coordinates
Buffer: 2.0Km



Summary

Matters of National Environmental 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:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	20
Listed Migratory Species:	18

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 http://www.environment.gov.au/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 Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	24
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	35
Nationally Important Wetlands:	2
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Bowling green bay	10 - 20km upstream

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat known to occur within area
Rostratula australis Australian Painted-snipe, 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
Mammals		
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Breeding likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus conspicillatus Spectacled Flying-fox [185]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Saccolaimus saccolaimus nudicluniatus		
Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus raveretiana		
Black Ironbox [16344]	Vulnerable	Species or species habitat may occur within area
Marsdenia brevifolia		
[64585]	Vulnerable	Species or species habitat may occur within area
Omphalea celata		
[64586]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Denisonia maculata		
Ornamental Snake [1193]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Sharks		
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
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 likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area
[Chrysococcyx osculans](#) Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
[Cuculus saturatus](#) Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat known to occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Breeding known to occur within area
[Hirundapus caudacutus](#) White-throated Needletail [682]		Species or species habitat may occur within area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat likely to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat likely to occur within area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area
[Rostratula benghalensis (sensu lato)](#) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Reptiles		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Bowling Green Bay	QLD
Serpentine	QLD

Invasive Species	[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Acacia nilotica subsp. indica Prickly Acacia [6196]		Species or species habitat may occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sage, Wild Sage [10892]		
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp.		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Vachellia nilotica		
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Lepidodactylus lugubris		
Mourning Gecko [1712]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

Nationally Important Wetlands [Resource Information]

Name	State
Haughton Balancing Storage Aggregation	QLD
The Serpentine Aggregation	QLD

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-19.714936 147.08047,-19.713644 147.07635,-19.714936 147.07429,-19.707826 147.050944,-19.703301 147.050258,-19.667742 147.013179,-19.65481 146.995326,-19.651577 146.993266,-19.628296 146.952067,-19.61342 146.952754,-19.61342 146.951381,-19.612126 146.947948,-19.61148 146.945201,-19.610186 146.938335,-19.603071 146.930095,-19.593368 146.932155,-19.590133 146.930095,-19.586252 146.917049,-19.581076 146.917049,-19.580429 146.912242,-19.550668 146.890956,-19.548079 146.892329,-19.517017 146.873103,-19.517017 146.862804,-19.496306 146.834651

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-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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