Executive summary

Background
The Department of Defence are planning training exercises, including Talisman Sabre, which are to take place in mid-2019. As part of these exercises participants may undertake training on some areas that are not Defence land, known as non-Defence training areas (NDTA). As Defence is a Commonwealth Agency, it must evaluate the potential environmental impacts of a Defence action on the environment in relation to both the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) significant impact guidelines 1.1 Matters of National Environmental Significance as well as the EPBC Act significant impact guidelines 1.2, Actions on, or impacting upon, Commonwealth Land, and Actions by Commonwealth Agencies.

This report provides baseline environmental information regarding the Proserpine Airport and Surrounds NDTA. The NDTA covers an area of approximately 197 square kilometres (km) and encompasses a number of lots, comprising a mixture of freehold, lease, reserve, state forest and conservation park land. A detailed desktop assessment was undertaken followed by a rapid field assessment within accessible areas of the study area to identify and/or verify key ecological values, and other evident environment and heritage attributes. This report is subject to, and must be read in conjunction with, the limitations and the assumptions and qualifications contained throughout the report.

Vegetation and flora

Vegetation communities
Two EPBC Act listed threatened ecological communities (TEC) were reported to occur in the search area from the EPBC Act Protected Matters database search. The TEC ‘Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland’ was confirmed present in the study area during the field survey. This community corresponds with Regional Ecosystem (RE) 8.3.2, which is mapped in the northern portions of the NDTA. Several REs with a status of endangered or of concern under the Queensland Vegetation Management Act 1999 (VMA) are also mapped within the NDTA.

Conservation significant flora species
Eucalyptus raveretiana (black ironbox), which is listed as vulnerable under the EPBC Act, was recorded from two locations within the study area. Suitable habitat for Eulophia bicallosa, which is listed as near threatened under the Queensland Nature Conservation Act 1992, was also identified in creek systems with vine thicket elements present. Although this species was not detected within the study area during the field survey, it is considered likely to occur.

Introduced flora species
Introduced flora species were observed within more heavily utilised areas of the study area, particularly within the vicinity of tracks, stockyards, water points and cattle licks. Watercourses supported higher levels of weed abundance than drier environments. The following restricted invasive Category 3 weeds under the Queensland Biosecurity Act 2014 were observed in the study area:

- Cryptostegia grandiflora*(rubber vine) – observed along watercourses
- Lantana camara* (lantana) - observed throughout study area but most abundant on upper banks of watercourses and alluvial flats, particularly those subject to disturbance
Sporobolus spp.* (American rat's tail grass and giant rats tail grass) – observed within pasture and other modified areas

Senna obtusifolia* (sicklepod) – observed on alluvial flats and watercourses, often in association with vine thicket vegetation on more fertile soils

**Fauna**

**Habitat types**

Seven broad habitat types were identified in the region of Proserpine airport and surrounds NDTA.

- Eucalypt woodland over grasses on undulating plains
- Eucalypt woodland on low hills
- Eucalypt woodland on upper slopes of hills
- *Melaleuca viridiflora* woodlands on seasonally inundated plains
- Riparian vegetation on drainage lines with pockets of vine thickets
- Dams
- Pasture and highly modified areas including tracks and infrastructure

These habitats provide a mosaic of ecological values over the study area and are contiguous with those in the surrounding region.

**Fauna species**

Based upon the rapid assessments, a total of 71 fauna species were recorded in the study area. This comprised three species of amphibians, four species of reptiles, ten species of mammals and 54 species of birds.

One conservation significant species, the squatter pigeon (*Geophaps scripta scripta*), listed as vulnerable under the EPBC Act and *Queensland Nature Conservation Act 1992* (NC Act) was confirmed present from two locations within the study area and one immediately adjacent to it. Nine individuals were observed adjacent to open woodland within close proximity to permanent waterbodies, including dams and drainage links.

**Introduced species**

Three pest fauna species were confirmed present from secondary traces (i.e. scats, tracks, bones or diggings) within the study area during the field survey. Habitat degradation from feral pigs (*Sus scrofa*) was observed along the edge of dams, scats from domestic dogs (*Canis lupus familiaris*) were recorded from several grazier properties, and cane toad (*Rhinella marina*) carcasses were identified within drainage lines.

**Likelihood of occurrence**

An assessment of the likelihood of occurrence was undertaken based upon database searches, habitats present and species known distribution. This is relevant for species for which a full survey was not able to be conducted. Conservation significant species confirmed present, likely to occur or may occur in the study area are included in the following table.
Likelihood of occurrence of conservation significant species

<table>
<thead>
<tr>
<th>Common name</th>
<th>Species name</th>
<th>NC Act</th>
<th>EPBC Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation significant species <strong>confirmed present</strong> in the study area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black ironbox</td>
<td><em>Eucalyptus raveretiana</em></td>
<td>Least Concern</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Squatter pigeon (southern)</td>
<td><em>Geophaps scripta scripta</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Conservation significant species <strong>likely to occur</strong> in the study area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern quoll</td>
<td><em>Dasyurus hallucatus</em></td>
<td>Least Concern</td>
<td>Endangered</td>
</tr>
<tr>
<td>Northern greater glider</td>
<td><em>Petauroides volans minor</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Proserpine rock wallaby</td>
<td><em>Petrogale persephone</em></td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td>Koala</td>
<td><em>Phascolarctos cinereus</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Estuarine crocodile</td>
<td><em>Crocodylus porosus</em></td>
<td>Vulnerable</td>
<td>Migratory</td>
</tr>
<tr>
<td>Conservation significant species that <strong>may occur</strong> in the study area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eungella honeyeater</td>
<td><em>Bolemoreus hindwoodi</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Glossy black cockatoo</td>
<td><em>Calyptorhynchus lathami</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Powerful owl</td>
<td><em>Ninox strenua</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Australian painted snipe</td>
<td><em>Rostratula australis</em></td>
<td>Vulnerable</td>
<td>Endangered</td>
</tr>
<tr>
<td>Masked owl</td>
<td><em>Tyto novaehollandiae</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Ghost bat</td>
<td><em>Macroderma gigas</em></td>
<td>Endangered</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Grey-headed flying-fox</td>
<td><em>Pteropus poliocephalus</em></td>
<td>Least Concern</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Eungella day frog</td>
<td><em>Taudactylus eungellensis</em></td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

Other natural and physical resources

Waterways and wetlands

The waterways within the study area convey flows from the adjacent Clarke Connors Range and coastal hills to the plains. All waterways are ephemeral and only likely to carry flows for short periods following rainfall events. The most substantial drainage feature present is the Andromache River, which ranges in width from 40 m to 120 m and traverses the southern portion of the study area. Other creeks within the study area included Slater Creek, Goorganga Creek, Albert Creek, Deadman Creek and Thompson Creek. These were largely dry at the time of the survey, with only intermittent pools present.

A natural permanent freshwater wetland was observed in the northern portion of the study area adjacent to Slater Creek.
Contaminated land

Searches of the Queensland Department of Environment and Science contaminated land register revealed that only one of the selected properties for which a search was conducted within the study area has been listed on the Queensland environmental management register, this being the Proserpine Whitsunday Airport, for the notifiable activity storage of petroleum products.

Heritage

World heritage property

The study area is located approximately 9 km upstream of the Great Barrier Reef, which is listed as a World Heritage property under the EPBC Act. Watercourses within the NDTA eventually discharge to the Great Barrier Reef via the O'Connell or Proserpine Rivers.

National Heritage Places

In addition to its listing on the World Heritage List, the Great Barrier Reef is also a National Heritage Place listed on the National Heritage List under the EPBC Act.

Cultural heritage

The Gia Peoples’ country includes the mainland adjacent to the Whitsunday Islands, north to Bowen, south to O’Connell River and east to the Clarke Connors Ranges, in the north of the NDTA, whilst the Yuwibara Peoples’ boundary is north to Midge Point, south to Cape Palmerston and west to the Clarke Connors Range, and 10 nautical miles east of the coastline, including the southern portion of the NDTA.

A search of the Department of Aboriginal and Torres Strait Islander Partnership (DATSIP) database revealed that there were no Aboriginal or Torres Strait Islander cultural heritage site points or polygons within the Proserpine Airport and Surrounds NDTA. Notwithstanding this, the area may possess cultural heritage sites and intangible values which have not been the subject of this assessment.

Native Title Claim (QA2013/007) by the Yuwibara People extends over the very southern portion of the study area. This has been registered however has not yet been determined in the Federal Court.

An indigenous land use agreement (ILUA) between the land owner, the Gia People and the State of Queensland is registered over Lot 22, 23 and 24 on SP230504. The parties to the agreement have consented to the surrender of Native Title in the agreement area.

Historic heritage

There are no Queensland Heritage Act 1992 registered historic heritage places within the study area. Two places on the Whitsunday Regional Council Local Heritage Register are proximal to the study area, these being the Australian Field Experimental Station on Gunyarra Road, and Kelsey Creek Hall.

A plane crash site was located on Lot 48 on HR1255 in the north-eastern portion of the study area. Although this is not a historic heritage site, the wreckage may hold some commemorative values.
Discussion

The Proserpine Airport and surrounds NDTA is generally comprised of large rural allotments that have partially been cleared in the lower lying areas and utilised for the purposes of grazing, sugar cane production and other agricultural and industrial pursuits, including the development of a regional airport. The areas that were less modified generally support remnant or regrowth vegetation. These were typically located on mid to upper slopes within and adjacent to the study area. To the west, these vegetated areas adjoin the Andromache Conservation Park and Proserpine State Forest along the Clarke Connors Range. This range extends north towards Proserpine Dam and maintaining a landscape level of connectivity via a corridor along the range to vegetated areas over 100 km to the south.

The NDTA provided a range of habitats for flora and fauna species and ecological communities. The TEC, ‘Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland’ was confirmed present in the northern portion of the study area.

A conservation significant eucalypt Eucalyptus ravertiana was recorded from several locations along the Andromache River. This is also known from other creeks and rivers in the region. In addition, whilst the species Eulophia bicallosa was not recorded, suitable habitat was recorded, and it is considered to be likely to occur.

Only one conservation significant fauna species was recorded, this being the squatter pigeon (Geophaps scripta scripta). A reasonably diverse range of fauna species were recorded, with the most diverse group being bird species. This reflected the varied habitats occurring in the study area and extensive areas of available habitats in the region.

Based upon consideration of a range of factors assessed in the field survey, areas of relatively higher, moderate or lower environmental values were mapped to produce a simple communication tool for Defence planning purposes. It is important to note that these mapped areas display relative values and do not delineate specific constraints to exercises that can be conducted at the NDTA.
# Table of contents

## Volume 1

1. **Introduction** ................................................................................................................................. 1  
   1.1 Background ................................................................................................................................. 1  
   1.2 Purpose of this report .................................................................................................................... 1  
   1.3 Proserpine Airport and Surrounds NDTA Study Area overview ................................................. 1  
   1.4 Project team ................................................................................................................................ 3  
   1.5 Scope and limitations ...................................................................................................................... 3  
   1.6 Qualifications ............................................................................................................................... 4  
   1.7 Terminology ................................................................................................................................... 5  

2. **Methods** ......................................................................................................................................... 7  
   2.1 Approach ......................................................................................................................................... 7  
   2.2 Desktop assessment ......................................................................................................................... 7  
   2.3 Field assessment ............................................................................................................................. 8  
   2.4 Likelihood of occurrence assessment ............................................................................................ 13  

3. **Desktop assessment results** ........................................................................................................ 14  
   3.1 Ecological communities ................................................................................................................ 14  
   3.2 Conservation significant flora species ............................................................................................ 15  
   3.3 Introduced flora species .................................................................................................................. 16  
   3.4 Conservation significant fauna species .......................................................................................... 16  
   3.5 Land use planning and management registers .............................................................................. 17  
   3.6 Other natural and physical resources ............................................................................................. 18  
   3.7 Heritage ......................................................................................................................................... 21  

4. **Field survey results** ....................................................................................................................... 25  
   4.1 Vegetation and flora ......................................................................................................................... 25  
   4.2 Fauna ............................................................................................................................................... 34  
   4.3 Likelihood of occurrence of conservation significant species ...................................................... 47  
   4.4 Other natural and physical resources ............................................................................................ 47  
   4.5 Qualities and characteristics .......................................................................................................... 48  

5. **Discussion** ....................................................................................................................................... 51  
   5.1 Relative environmental values ....................................................................................................... 51  
   5.2 Mapping categories ....................................................................................................................... 51  

6. **References** ....................................................................................................................................... 54
Table index

Table 1-1 Proserpine Airport and Surrounds NDTA properties .........................................................1
Table 1-2 Project team .........................................................................................................................3
Table 3-1 RE descriptions .....................................................................................................................14
Table 3-2 Conservation status and closest records ..............................................................................15
Table 3-3 Conservation significant species historically recorded within 10 km radius of the study area ..................................................................................................................17
Table 3-4 EMR and CLR Search Results ............................................................................................17
Table 3-5 Geological units ..................................................................................................................20
Table 3-6 Soil units prone to erosion in study area .............................................................................21
Table 4-1 Potential broad leaf tea-tree TEC in study area .................................................................25
Table 4-2 Regional ecosystems assessed during the field survey .......................................................28
Table 4-3 Terrestrial habitat types observed in the study area .............................................................35
Table 4-4 Bird species recorded in the study area ..............................................................................43
Table 4-5 Likelihood of occurrence assessment ..................................................................................47
Table 5-1 Relative environmental value categories .............................................................................51

Figure index

Figure 1-1 Proserpine Airport and Surrounds NDTA .........................................................................6
Figure 2-1 Distribution of Survey Effort within the Northern Region ..................................................11
Figure 2-2 Distribution of Survey Effort within the Southern Region .................................................12
Figure 3-1 Natural features ..................................................................................................................19
Figure 3-2 Indigenous Heritage .........................................................................................................24
Figure 4-1 Regional Ecosystem and Threatened Ecological Community mapping ............................26
Figure 4-2 Fauna Habitat Types within the Northern Region ..............................................................39
Figure 4-3 Fauna Habitat Types within the Southern Region ..............................................................40
Figure 4-4 Conservation Significant Species within and adjacent to Study Area ..............................46
Figure 4-5 Heritage Features .............................................................................................................50
Figure 5-1 Relative Environmental Values .........................................................................................53
Appendices

Appendix A – PMST Report
Appendix B – Wildlife Online searches
Appendix C – Likelihood of occurrence assessment
Appendix D – EMR and CLR Search Results
Appendix E – Cultural Heritage Search Results
### Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARPMS</td>
<td>Andromache Regional Park Management Statement</td>
</tr>
<tr>
<td>CLR</td>
<td>Contaminated Land Register</td>
</tr>
<tr>
<td>DATSIP</td>
<td>Department of Aboriginal and Torres Strait Islander Partnership</td>
</tr>
<tr>
<td>Defence</td>
<td>Department of Defence</td>
</tr>
<tr>
<td>DES</td>
<td>Queensland Department of Environment and Science</td>
</tr>
<tr>
<td>DNRME</td>
<td>Queensland Department of Natural Resources Mines and Energy</td>
</tr>
<tr>
<td>DoEE</td>
<td>Department of Environment and Energy</td>
</tr>
<tr>
<td>E</td>
<td>endangered</td>
</tr>
<tr>
<td>EMR</td>
<td>Environmental Management Register</td>
</tr>
<tr>
<td>EPBC Act</td>
<td>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</td>
</tr>
<tr>
<td>ILUA</td>
<td>Indigenous Land Use Agreement</td>
</tr>
<tr>
<td>LC</td>
<td>least concern</td>
</tr>
<tr>
<td>NC Act</td>
<td>Nature Conservation Act 1992 (Queensland)</td>
</tr>
<tr>
<td>NDTA</td>
<td>non-Defence training area</td>
</tr>
<tr>
<td>NL</td>
<td>Not listed</td>
</tr>
<tr>
<td>NNTT</td>
<td>National Native Title Tribunal</td>
</tr>
<tr>
<td>OC</td>
<td>of concern</td>
</tr>
<tr>
<td>PMST</td>
<td>Protected Matters Search Tool</td>
</tr>
<tr>
<td>RE</td>
<td>regional ecosystem</td>
</tr>
<tr>
<td>SAT</td>
<td>Spot assessment technique</td>
</tr>
<tr>
<td>SPS</td>
<td>Species profile search</td>
</tr>
<tr>
<td>TEC</td>
<td>threatened ecological community</td>
</tr>
<tr>
<td>TSSC</td>
<td>Commonwealth Threatened Species Scientific Committee</td>
</tr>
<tr>
<td>V</td>
<td>vulnerable</td>
</tr>
<tr>
<td>VMA</td>
<td>Vegetation Management Act 1999 (Queensland)</td>
</tr>
<tr>
<td>WO</td>
<td>Wildlife online</td>
</tr>
<tr>
<td>WONS</td>
<td>Weed of national significance</td>
</tr>
</tbody>
</table>
1. Introduction

1.1 Background

The Department of Defence (Defence) commissioned GHD Pty Ltd (GHD) to conduct baseline environmental assessments at a number of non-Defence training areas (NDTA). The purpose of the assessment is to provide Defence with site specific information to form the basis of an internal Defence assessment for activities to be conducted as part of Defence training exercises, including Talisman Sabre 2019. This report pertains to the Proserpine Airport and surrounds NDTA (‘the NDTA’), which comprises the airport and surrounding properties and extends over an area of approximately 32,683 ha.

As the NDTA are not Commonwealth land, Defence must consider matters of national environmental significance against the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) significant impact guidelines 1.1 Matters of National Environmental Significance as well as the EPBC Act significant impact guidelines 1.2, Actions on, or impacting upon, Commonwealth Land, and Actions by Commonwealth Agencies.

1.2 Purpose of this report

This report has been prepared to characterise the current environmental conditions at the Proserpine Airport and Surrounds NDTA.

1.3 Proserpine Airport and Surrounds NDTA Study Area overview

1.3.1 Location and description

The NDTA is situated around Proserpine Airport, and comprises all or part of the properties in Table 1-1. A map showing the location and identifier of all properties within the NDTA is provided in Figure 1-1.

Table 1-1 Proserpine Airport and Surrounds NDTA properties

<table>
<thead>
<tr>
<th>Property name / owner</th>
<th>Lot on Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proserpine Airport – Whitsunday Regional Council</td>
<td>50HR808298</td>
</tr>
<tr>
<td>East of Proserpine Airport – Whitsunday Regional Council</td>
<td>54HR1010,</td>
</tr>
<tr>
<td>East of Proserpine Airport – private land owner</td>
<td>69SP204624, 71SP204624, 52AP15916, 74RP910213, 72RP808571, 56HR1663, 70SP149521, 68SP167784</td>
</tr>
<tr>
<td>Private land owner</td>
<td>218SP274028, 219SP274028, 220SP274028</td>
</tr>
<tr>
<td>Private land owner</td>
<td>3RP893172, 48HR1255, 77SP206007</td>
</tr>
<tr>
<td>Private land owner</td>
<td>76SP206007</td>
</tr>
<tr>
<td>Private land owner</td>
<td>23SP230504, 65HR393, 66HR393, 24SP230504, 565H12454, 1480SP225063, 104SP234986</td>
</tr>
<tr>
<td>Private land owner</td>
<td>15HR215, 12HR215, 5340SP223987, 80SP146700</td>
</tr>
</tbody>
</table>
Property name / owner | Lot on Plan
---|---
Queensland Department of Natural Resources Mines and Energy (DNRME) | 62HR393
Andromache Conservation Park – Queensland Department of Environment and Science (DES) | 1SP112425
Proserpine State Forest - DES | 387FTY1326

1.3.2 Regional context and characteristics

The study area is located within the Proserpine and Bloomsbury area of the Mackay, Whitsunday and Isaac region, which lies in the transitional zone between the wet and dry tropics. The region has an annual rainfall between around 1600 mm per annum in the east, 1200 mm in the south and 1000 mm in the west. The area is characterised by agricultural production with grazing land and sugar cane on the alluvial flats, extending into the low coastal hills to the Clarke Connors Range in the west. This range comprises the Clarke Connors Range subregion of the Central Queensland Coast Bioregion. The Brigalow Belt Bioregion is situated to the west north and south, whilst the Sarina to Proserpine Lowlands subregion is located to the east (Reef Catchments 2014).

Proserpine, located approximately 3 km to the north of the study area, is the key commercial and administration centre for the Whitsunday region (Reef Catchments 2014).

The Goorganga Plain wetlands complex, a Directory of Important Wetlands in Australia wetland extends over much of the coastal plain to the east of the study area. The wetland complex comprises approximately 16,850 ha of seasonal wetlands that graduate from marine to freshwater environments (Reef Catchments 2014). The wetland complex is down gradient of the study area and at its closest point (east of Proserpine airport), occurs within 140 m of the NDTA.

Peter Faust Dam (also known as Lake Proserpine), developed in the 1990’s (DES 2018a) is situated approximately 17 km to the north west of the study area. This is reported to support extensive birdlife, and is utilised by locals and tourists for watersports and freshwater fishing (Reef Catchments 2014).

The Gregory, Proserpine, Andromache and O’Connell Rivers are the larger rivers in the north of the region in proximity to the study area, with the Andromache River extending through the central southern region of the study area adjoining the O’Connell River in the east. The major regional catchments are the Don, Proserpine, O’Connell, Pioneer and Plane Creek. The catchments are characterised by having their watershed in the higher altitude areas of the Clarke Connors Range. The eastern watershed of the range drains across the relatively narrow coastal area to the coastal wetlands, estuaries and ultimately the Coral Sea, whilst the western watershed of the Clarke Connors Range flows into both the Burdekin River to the north-west and the Fitzroy River to the south-west (Reef Catchments 2013).

The Clarke Connors Range comprises a wildlife corridor of state significance and extends approximately 300 km along the western boundary of the Mackay Whitsunday Region (Reef Catchments, 2014). It is reported to have outstanding biodiversity values, and contain a range of endemic species as well as habitat for the northern quoll (*Dasyurus hallucatus*) along with large areas of structurally intact regional ecosystems and a range of conservation significant plant species. Other conservation significant species reported to be present in these areas include the Proserpine rock wallaby (*Petrogale persephone*), rufous owl (*Ninox rufa*), and coastal sheath-tail bat (*Taphozous australis*) (Reef Catchments 2013).
1.3.3 Land use

Dominant land uses in the region are beef cattle grazing, irrigated agriculture and nature conservation.

Queensland Government land use mapping indicates that a large proportion of the study area is mapped as ‘grazing native vegetation’ with small areas of ‘irrigated cropping’, comprising sugar cane present. More expansive areas of irrigated cropping are present within the region, surrounding and to the north of the township of Proserpine. Smaller tracts of sugar cane are present adjacent to the eastern boundary of the study area, and on the coastal plain to the east, a small area on Lot 5340 on SP223987 in the south west are mapped as ‘irrigated modified pastures’. The airport land and a small area to the east of the airport are mapped for ‘transport and communication’, while the quarried area within the land to the east of Proserpine Airport is mapped as ‘mining’.

The study area contains areas of Queensland State Government managed land including Andromache Conservation Park, which is mapped as ‘nature conservation’, and the adjacent Proserpine State Forest which is ‘managed resource protection’. Some areas of the study area, largely on the steeper slopes and adjacent to the State managed land are mapped as ‘other minimal use’.

1.4 Project team

The GHD project team are included in Table 1-2.

Table 1-2 Project team

<table>
<thead>
<tr>
<th>Name</th>
<th>Project role</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simon Pearce</td>
<td>GHD Project Director</td>
<td>B.Nat.Res.</td>
</tr>
<tr>
<td>Emma Cornelius</td>
<td>GHD Project Manager</td>
<td>B.Sc.(Hons)</td>
</tr>
<tr>
<td></td>
<td>Senior Environmental Scientist</td>
<td>Cert II Bushland Regeneration</td>
</tr>
<tr>
<td>Peter Moonie</td>
<td>Senior Ecologist</td>
<td>BSc (Ecology), BAppSc, Grad Dip</td>
</tr>
<tr>
<td>Shannon Blatchford</td>
<td>Environmental Scientist / Ecologist</td>
<td>B.Sc., Dip Conservation and Land Management</td>
</tr>
</tbody>
</table>

1.5 Scope and limitations

1.5.1 General

This report: has been prepared by GHD for Department of Defence and may only be used and relied on by Department of Defence for the purpose agreed between GHD and the Department of Defence as set out in Section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Defence arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no
responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.6 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Department of Defence and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has not been involved in the preparation of the Defence Environmental Report and has had no contribution to, or review of the Environmental Report other than in the preparation of this document. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any other part of the Environmental Report.

The opinions, conclusions and any recommendations in this report are based on information obtained from, with, specific survey locations. Site conditions at other parts of the site may be different from the site conditions found at the specific survey locations.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

1.6 Qualifications

This report should be read with respect to the following qualifications:

- The field survey was conducted following prolonged dry conditions and many ephemeral flora species were not evident at the time of the survey. In addition, some herbaceous and graminoid species were unable to be identified due to a lack of vegetative or reproductive material present. Assessment of the Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland TEC is recommended to be undertaken in more favourable conditions to allow a greater level of confidence to be applied, particularly given the reliance of the assessment criteria on ground layer diversity. Subsequently, judgements made regarding this TEC in this report are framed in terms of its likely or potential presence rather than an absolute verification of its existence.

- This report is based upon information derived from desktop assessment and rapid site surveys over a broad study area over a four-day period. The survey was a high level (reconnaissance) assessment only and was not intended to meet general industry requirements for detailed flora and fauna surveys.

- Some areas of the study area were not accessible or had restricted survey approval. The environment in these areas was assessed via alternate survey locations (e.g. adjacent to or inferred from other areas of the study area), or based upon desktop assessment.

- Whilst field surveys were largely conducted within or in close proximity to the study area, reporting of environmental values includes areas in the region of the study area, and is not limited to the bounds of the study area.
1.7 Terminology

Study area – The study area is the area shown on Figure 1-1, which comprises the allotments in the region that are generally of interest to Defence. Surveys were largely undertaken from within the study area, although where sites were not accessible, alternate locations outside were utilised.

Rapid assessment site – The rapid assessment sites were specific locations where surveys were conducted, generally within or in close proximity to the study area, although as above, alternate locations were used where certain areas were not accessible.

Conservation significant species – Species listed as Critically Endangered, Endangered or Vulnerable under the EPBC Act as well as species listed as Endangered, Vulnerable, or Near Threatened (EVNT) under the Queensland NC Act.
2. **Methods**

2.1 **Approach**

The ecological values of the study area were investigated through a combination of desktop assessments and field flora and fauna surveys. Methods are described below.

2.2 **Desktop assessment**

2.2.1 **Overview**

A desktop assessment was conducted in order to identify documented records of environmental values that have been historically recorded or have potential to occur within the local area.

2.2.2 **Database searches**

A desktop review was undertaken to identify and collate existing information on the ecological values within study area and surrounding landscape. For most database sources, the desktop search extent encompassed the study area inclusive of a 10 km buffer to provide context about potential presence of mobile species or cryptic species that are known to occur in similar habitats within the region. The following information sources were accessed on 21 August 2019 unless otherwise stated:

- **Protected Matters Search Tool** – The Department of the Environment and Energy (DoEE) Protected Matters Search Tool (PMST) was used to identify conservation significant flora and fauna, and threatened ecological communities listed under the EPBC Act that have the potential to occur within the vicinity of the study area.

- **Wildlife Online database** – The Department of Science (DES) Wildlife Online database was searched to retrieve historical records of flora and fauna species previously recorded within the vicinity of the study area.

- **Species Profile Search database** – The DES Species Profile Search was undertaken to obtain spatial data records for conservation significant species responsible for generating high risk trigger areas intersecting the study area. The search was also undertaken to gain an understanding of the location and collection date of any protected plant records in proximity to the disturbance footprint.

- **Atlas of Living Australia database** – The Atlas of Living Australia database was searched to retrieve historical records of flora and fauna species previously observed within the vicinity of the study area.

- **Biomaps** – This mapping tool was used to review specific locations, collection date and details of records of species of conservation significance within desktop search area.

- **Regulated Vegetation Mapping** – The Department of Natural Resources and Mines and Energy (DNRME) Vegetation Management Regional Ecosystem and Remnant Map spatial layer (version 10.1) was viewed to determine the extent and type of REs mapped within the study area.

- **Essential Habitat Mapping** – The DES Essential Habitat Map spatial layer (version 4.29) was viewed to determine if vegetation within the study area has been identified as essential habitat for any conservation significant species listed under provisions of the NC Act.

- **Protected Plants Flora Survey Trigger Map** – The DES Protected Plants Flora Survey Trigger Map spatial layer was viewed to determine if the vegetation within the study area is in proximity to a record of a conservation significant flora species.
• **State Planning Policy Mapping** – State Planning Policy (SPP) mapping was reviewed to identify Matters of State Environmental Significance (MSES) that occur within or adjacent to the study area.

• **Contaminated land searches** – Searches of the Queensland Environmental Management Register (EMR) and Contaminated Land Register (CLR) were conducted for selected properties within the study area on the 24 September 2018.

• **Cultural heritage searches** – A Department of Aboriginal and Torres Strait Islander Partnership (DATSIP) search was conducted for the study area on 20 September 2018. Queensland Globe mapping was reviewed in relation to National Native Title Tribunal Claims and Indigenous Land Use Agreements relevant to the study area on 27 September 2018.

### 2.3 Field assessment

A survey was undertaken by two ecologists over four days from 12 to 15 September 2018. This was undertaken via a rapid assessment at several locations throughout the study area. The methods used are detailed below.

#### 2.3.1 Vegetation and flora assessments

Rapid vegetation assessments were undertaken at 63 sites within the study area as shown in Figure 2-1 and Figure 2-2. The methodology adopted for the respective components of the assessments is described below.

• **Threatened Ecological Communities (TECs)** - The structural and composition characteristics of vegetation communities within the study area were compared with DoEE’s technical descriptions of threatened ecological communities to determine whether any vegetation communities present met the requirements necessary to constitute a threatened ecological community. Where TECs were identified in the field, aerial photography and vegetation mapping was further scrutinized to map their likely extents within the broader study area.

• **Regional ecosystems (REs) of interest** – verification of endangered and of concern regional ecosystems was undertaken using a combination of Quaternary level assessments and informal observations (as described in Neldner et. al. 2017a). Whilst data was collected on the structural and floristic composition of vegetation communities, time constraints did not allow for the delineation of their boundaries.

• **Conservation significant flora species** - targeted searches for conservation significant flora species were undertaken within areas of suitable habitat identified within the study area. Where such species were found, data was collected on the abundance, age, structure, reproductive state, health and supporting habitat features. Locations of suitable habitat for conservation significant flora species were also recorded to assist in the delineation of areas of higher environmental sensitivity.

Opportunistic observations of introduced flora species were also undertaken. Throughout this report, an asterisk (*) is used to identify species that are listed as introduced (i.e. exotic) pursuant to the Queensland *Nature Conservation (Wildlife Regulation) 2006*. 
2.3.2 Fauna surveys

*Terrestrial habitat assessments*

Terrestrial habitat assessments were undertaken at 44 sites within the study area and an additional four sites adjacent to the study area as shown in Figure 2-1 and Figure 2-2. At each of these sites, the following were recorded as relevant:

- Structural complexity of vegetation (i.e. tree density, canopy cover, vertical structural complexity)
- Complexity of ground-level microhabitats (i.e. substrate type, vegetation cover, leaf litter, woody debris, presence of rocks)
- Habitat features (i.e. hollows, fallen logs, rock outcrops, nests; particularly raptor nests, waterbodies)
- Presence of hollow bearing trees and trees bearing arboreal mammal scratches
- Wildlife traces (i.e. scats, tracks, scratches, diggings, burrows, nests, bones)
- Opportunistic wildlife observations
- Sources of disturbance (i.e. adjacent land-use, feral animals, predation, weed infestation)
- The relative ecological value of each habitat type was assessed based on features including:
  - The relative abundance and diversity of resources
  - The size and relative connectivity of vegetation
  - Habitat condition (i.e. the level of disturbance due to weeds, feral animals, cattle grazing)
  - Species richness (i.e. the number of fauna species present)
  - The presence of conservation significant species (listed under the NC Act and/or EPBC Act)
  - Key ecological function such as value as a habitat corridor or breeding, nesting or roosting site

*Specific fauna survey methods*

**Bird Surveys**

Bird surveys were conducted within each habitat type in the study area using the methodology recommended by Birds Australia. This involves a standardised 20-minute census of all birds seen or heard calling within an approximate area of 1 ha. Additional opportunistic bird surveys were conducted at numerous locations in conjunction with rapid habitat assessments. Birds flying over the study area were not included in the census.

**Targeted searches for traces of conservation significant species**

Within suitable habitat, targeted searches were undertaken to detect characteristic traces of conservation significant species. This included searching eucalypt woodland for koala faecal pellets and scratches, searching large hollow-bearing trees for faecal pellets of the northern greater glider, and searching rocky outcrops for latrine sites of the northern quoll and faecal pellets of the Proserpine rock-wallaby.
**Active and opportunistic searches for wildlife**

Active searches were undertaken to detect reptile and amphibian species by actively searching beneath rocks, logs, bark, leaf litter and other suitable microhabitats. All incidental records of fauna observed during surveys were recorded.

**Nocturnal active searches and spotlighting**

Nocturnal active searches were undertaken at Lot 218 on SP274028, Lot 219 on SP274028, Lot 220 on SP274028 and Lot 76 on SP206007 over two nights. Species targeted included the koala, northern greater glider, grey-headed flying fox, northern quoll and powerful owl. Spotlighting was conducted via driving transects and localised walking transects using two spotlights. Animals were detected by eye-shine, identified and their location recorded.

**Call-playback for nocturnal species**

Call-playback was undertaken to detect owls. This involved broadcasting the calls of the powerful owl and masked owl, through a wireless speaker for a period of five minutes followed by a listening period of five minutes. Responding species were recorded.

**Spot Assessment Technique**

The Spot Assessment Technique (SAT) (Phillips and Callaghan 2011) was used to survey koalas by identifying the presence or absent of faecal pellets within 1 m of the base of 30 food trees in areas of potentially suitable habitat.

**Driving / flushing surveys**

Driving / flushing surveys were undertaken to detect the squatter pigeon (southern) and other small ground-dwelling birds. The vehicle was driven at a constant low speed along dirt roads and around water bodies or watercourses in the morning and afternoon at the locations shown on Figure 2-1 and Figure 2-2.

**Deployment of remote surveillance cameras**

Remote surveillance cameras were set at strategic locations (refer to Figure 2-1 and Figure 2-2) to provide information on small mammals and birds. Remote cameras were specifically deployed to target conservation significant species such as the Proserpine rock-wallaby and northern quoll, where suitable habitat or signs were observed.

**Deployment of Anabat detectors**

Anabat detectors were used to record the echolocations of microbat species. These were left overnight at six locations (refer to Figure 2-1 and Figure 2-2). Recorded calls were sent to specialist sub-consultant Greg Ford for analysis.

**2.3.3 Other environmental values**

The presence of other environmental values was recorded from the study sites as relevant, including natural and physical resources – waterways, wetlands, evident historic heritage values and indications of previous disturbances such as erosion and areas of potential contamination.
FIGURE 2-1

Distribution of Survey Effort within the Northern Region

Data Disclaimer
©2018. Whilst every care has been taken to prepare this map, GHD and
DNRME make no representations or warranties about its accuracy, reliability,
completeness or suitability for any particular purpose and cannot accept liability
and responsibility for any loss (whether in contract, tort or otherwise) for any
expenses, losses, damages and/or costs (including indirect or consequential
costs), which are or may be incurred by any party as a result of the map
being inaccurate, incomplete or unsuitable in any way and for any reason.

Department of Defence
Environmental Baseline Report for Proserpine Airport
and Surrounds Non-Defence Training Area

Project No. 41-32052
Revision No. 0
Date 18/10/2018

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

Legend
- Major Road
- Minor Road
- Cadastre
- Survey
- Anabat Location
- Remote Camera Location
- Habitat Assessment
- Vegetation Assessment
- Squatter Pigeon Transect

FIGURE 2-2

Distribution of Survey Effort within the Southern Region

Data Disclaimer
©2018. Whilst every care has been taken to prepare this map, GHD and
CNWME make no representations or warranties about its accuracy, reliability,
completeness or suitability for any particular purpose and cannot accept liability
and responsibility of any kind (whether in contract, tort orotherwise) for any
expenses, losses, damages and/or costs (including indirect or consequential
costs) which are or may be incurred by any party as a result of the map
being inaccurate, incomplete or unsuitable in any way and for any reason.
2.4 Likelihood of occurrence assessment

An assessment was conducted to attribute a ‘likelihood of occurrence’ to conservation significant species (i.e. species listed under the EPBC Act and/or NC Act) that have been previously recorded or were predicted to occur from the desktop searches. The assessment is provided in Appendix C.

The likelihood of occurrence assessment was based on a review of species distributions and habitat requirements, historical records for the region, and the results of habitat assessments and field surveys conducted within the study area. The likelihood of occurrence ranking was based on the following framework:

- **Confirmed present**: Species recorded during the field survey.
- **Likely to occur**: Species has been recorded in the desktop search extent and suitable habitat is present in the study area. Comprehensive field surveys have not been undertaken or were undertaken in sub-optimal conditions or the species is highly cryptic and/or very short-lived.
- **May occur**: Species distribution incorporates the study area but only marginal habitat is present or the species has not been recorded in the desktop extent.
- **Unlikely to occur**: Species has not been previously recorded in the desktop search extent and/or current known distribution does not encompass study area and/or suitable habitat is generally lacking from the study area.
3. Desktop assessment results

3.1 Ecological communities

3.1.1 Threatened ecological communities

The EPBC Act Protected Matters database search (Appendix A) lists the following threatened ecological communities (TECs) as potentially occurring within the region:

- Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland (endangered under the EPBC Act)
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia (critically endangered under the EPBC Act)

Regional ecosystem 8.3.2, is listed as equivalent to the broad leaf tea-tree TEC in the Threatened Species Scientific Committee (TSSC) conservation listing advice (TSSC 2012) Several vegetation polygons comprising this RE are mapped as occurring within the northern sector of the study area.

The Littoral Rainforest and Coastal Vine Thicket TEC is generally restricted to within 2 km of the coastline and is not expected to occur within the study area.

3.1.2 Mapped regional ecosystem communities

Descriptions of REs mapped within the study area are provided in Table 3-1 and mapped in Figure 4-1. REs listed occurred either as homogeneous or heterogeneous units.

Table 3-1 RE descriptions

<table>
<thead>
<tr>
<th>RE code</th>
<th>VMA Status</th>
<th>Regional ecosystem description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.1a</td>
<td>OC</td>
<td>Semi-deciduous to evergreen notophyll to mesophyll vine forest.</td>
</tr>
<tr>
<td>8.3.2</td>
<td>E</td>
<td><em>Melaleuca viridiflora</em> woodland on seasonally inundated alluvial plains with impeded drainage</td>
</tr>
<tr>
<td>8.3.3a</td>
<td>LC</td>
<td><em>Melaleuca leucadendra</em> and/or <em>M. fluviatilis</em> and/or <em>Casuarina cunninghami</em> open forest to woodland on creek banks</td>
</tr>
<tr>
<td>8.3.5</td>
<td>OC</td>
<td><em>Eucalyptus platyphylla</em> and/or <em>Lophostemon suaveolens</em> and/or <em>Corymbia clarksoniana</em> woodland on alluvial plains</td>
</tr>
<tr>
<td>8.3.6a</td>
<td>OC</td>
<td><em>Eucalyptus tereticornis</em>, <em>Corymbia intermedia</em> (or <em>C. clarksoniana</em>) and <em>Lophostemon suaveolens</em> open forest to woodland, or <em>C. tessellaris</em> open forest to woodland on alluvial levees and lower terraces</td>
</tr>
<tr>
<td>8.5.1b</td>
<td>E</td>
<td><em>Corymbia clarksoniana</em> open forest to open woodland on Tertiary sand plains and rises including small areas of shale</td>
</tr>
<tr>
<td>8.12.2</td>
<td>LC</td>
<td>Evergreen notophyll to complex notophyll vine forest of uplands, highlands and foothills, on Mesozoic to Proterozoic igneous rocks</td>
</tr>
<tr>
<td>8.12.3a</td>
<td>LC</td>
<td>Evergreen to semi-evergreen, notophyll to microphyll, vine forest to vine thicket Occurs on slopes, ridges, gullies and crests on undulating low hills to steep mountains of foothills and uplands.</td>
</tr>
<tr>
<td>8.12.6a</td>
<td>LC</td>
<td><em>Eucalyptus drepanophylla</em> and <em>E. platyphylla</em> woodland to open forest on undulating rises to rolling hills steep low hills on lowlands, foothills and uplands</td>
</tr>
</tbody>
</table>

1 *Eucalyptus drepanophylla* is an accepted synonym of *E. crebra* (CANBR, 2015)
### 3.2 Conservation significant flora species

The EPBC Act Protected Matters Search identified six conservation significant flora species that have the potential to occur within 10 km of the study area (Table 3-2).

State-based searches (i.e. Wildlife Online and Species Profile Search) identified two conservation significant flora species that have confirmed records within 10 km of the study area, namely *Eulophia venosa* and *Eucalyptus raveretiana*. An additional four conservation significant flora species are reported in the Andromache Regional Park Management Statement (NPSR 2015) as occurring within the Andromache Conservation Park (Table 3-2). One of the species listed, *Strebulus pendulinus* (endangered under the EPBC Act), is considered to be endemic to Norfolk Island and mainland *Strebulus* populations are now treated as *S. brunonianus* (not listed under the EPBC Act and least concern under the NC Act). DES confirmed that a number of species reported in the conservation values inventory for Andromache Conservation Park were not verified records, although *Omphalia celata* and *Ozothamnus eriocephalus* were considered by DES to be likely to occur as they have been found in the region in similar vegetation communities (pers. comm. Leigh Benson, DES, 9 October 2018).

The conservation status of species identified in desktop searches and details of closest occurrence records held in the DES spatial database (Species Profile Search) are provided in Table 3-2. Information regarding the likelihood of occurrence of these species or their habitat within the survey area is provided in Section 4.3 (Table 4-5). Copies of desktop searches are provided in Appendix A and Appendix B.

<table>
<thead>
<tr>
<th>Species</th>
<th>NC Act Status</th>
<th>EPBC Act Status</th>
<th>Source</th>
<th>Closest verified record</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cycas ophiolitica</em></td>
<td>E</td>
<td>E</td>
<td>PMST</td>
<td>Location information withheld but no known records within the Whitsunday Regional Council area and outside of modelled habitat for species (Butler 2012).</td>
</tr>
<tr>
<td><em>Dichanthium setosum</em></td>
<td>LC</td>
<td>V</td>
<td>PMST</td>
<td>Approximately 90 km south of study area.</td>
</tr>
<tr>
<td><em>Eulophia bicallosa</em></td>
<td>NT</td>
<td>NL</td>
<td>WO</td>
<td>3.6 km north west of the study area.</td>
</tr>
<tr>
<td><em>Eucalyptus raveretiana</em></td>
<td>LC</td>
<td>V</td>
<td>PMST WO SPS Biomaps</td>
<td>9.3 km north west of the study area.</td>
</tr>
</tbody>
</table>
### 3.3 Introduced flora species

The EPBC Act Protected Matters Search identified 20 introduced plant species as potentially present in the region that have potential to pose a significant threat to biodiversity values. The species listed are all classified as restricted invasive plants under the *Biosecurity Act 2014* and nine are listed as weeds of national significance (WONS).

### 3.4 Conservation significant fauna species

A search of the Department of Environment and Energy (DoEE) Protected Matters database identified 31 conservation significant fauna species listed under the EPBC Act that are predicted to occur within 10 km of the study area (Appendix A). The following EPBC Act listed species were predicted to occur:

- **14 bird species**, including:
  - Nine shorebird species (i.e. red knot, curlew sandpiper, great knot, greater sand plover, lesser sand plover, western Alaskan bar-tailed godwit, northern Siberian bar-tailed godwit, southern giant-petrel and eastern curlew).
  - Four terrestrial bird species (i.e. red goshawk, star finch, southern black-throated finch and masked owl).
  - One wetland bird species (i.e. Australian painted snipe).

- **Seven mammal species**, including:
  - Four marsupial species (i.e. northern quoll, greater glider, Proserpine rock-wallaby and koala).
  - Two bat species (i.e. ghost bat and grey-headed flying-fox).
  - One rodent species (i.e. water mouse).

- **Eight reptile species**, including:
Two terrestrial reptile species (i.e. ornamental snake and yakka skink).
Six marine turtle species (i.e. loggerhead turtle, green turtle, leatherback turtle, hawksbill turtle, olive ridley turtle and flatback turtle).

- One amphibian species (i.e. Eungella day frog).
- One ray species (i.e. green sawfish).

State based searches (i.e. Wildlife Online, Species Profile Search and Biomaps) identified 10 conservation significant fauna species that have been historically recorded within 10 km of the study area. Species identified in the State based searches are summarised in Table 3-3. Wildlife Online results are presented in Appendix B.

**Table 3-3** Conservation significant species historically recorded within 10 km radius of the study area

<table>
<thead>
<tr>
<th>Common name</th>
<th>Species name</th>
<th>NC Act Status</th>
<th>EPBC Act Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koala</td>
<td><em>Phascolarctos cinereus</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Northern greater glider</td>
<td><em>Petauridae volans minor</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Northern quoll</td>
<td><em>Dasyurus hallucatus</em></td>
<td>Least Concern</td>
<td>Endangered</td>
</tr>
<tr>
<td>Proserpine rock-wallaby</td>
<td><em>Petrogale persephone</em></td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td>Squatter pigeon</td>
<td><em>Geophaps scripta scripta</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Eungella honeyeater</td>
<td><em>Bolemoreus hindwoodi</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Glossy black-cockatoo</td>
<td><em>Calyptorhynchus lathami lathami</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Powerful owl</td>
<td><em>Ninox strenua</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
<tr>
<td>Australian painted snipe</td>
<td><em>Rostratula australis</em></td>
<td>Vulnerable</td>
<td>Endangered</td>
</tr>
<tr>
<td>Estuarine crocodile</td>
<td><em>Crocodylus porosus</em></td>
<td>Vulnerable</td>
<td>-</td>
</tr>
</tbody>
</table>

### 3.5 Land use planning and management registers

Searches were conducted of the DES EMR and CLR. Of the allotments searched, only one, Lot 50 on HR808298 (Proserpine Airport) has been listed on the EMR. The notifiable activity, ‘petroleum product or oil storage’ has been conducted at the airport. A summary of the results is provided in Table 3-4, whilst, full search results are provided in Appendix D. It is noted that the results only provide an indication of land that is contaminated land or on which a notifiable activity has been undertaken where DES has been notified.

**Table 3-4** EMR and CLR Search Results

<table>
<thead>
<tr>
<th>Lot and plan</th>
<th>EMR</th>
<th>CLR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 219 on SP274028</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 50 on HR808298</td>
<td>Petroleum Product or Oil Storage</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 69 on SP204624</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 76 on SP206007</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 23 on SP230504</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 77 on SP206007</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Lot 54 on HR1010</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>
3.6 Other natural and physical resources

3.6.1 Catchment and waterways

The study area is situated within the Mackay Whitsunday Isaac Region of the Great Barrier Reef catchment. The northern portion of the study area is within the Proserpine River Catchment, which extends to just north of the Andromache River, with the O’Connell River catchment covering the southern part of the study area (DES 2018).

The northern portion of the study area is situated within the Proserpine River catchment (DES 2018). Watercourses as defined by the Queensland Water Act 2000 are mapped on the watercourse identification map. This shows that the primary watercourses in this northern area within the study area are Goorganga Creek, which flows to the north of Proserpine Airport and adjoins Goorganga Plains. This ultimately adjoins the Proserpine River near its confluence with the ocean. Albert Creek, Victoria Creek and Stony Creek are tributaries of Goorganga Creek that cross the study area, whilst Deadman Creek drains directly to the Goorganga wetland (Figure 3-1).

The southern portion of the study area is located within the O’Connell River Catchment. The primary watercourses of the catchment are O’Connell and Andromache Rivers (DEHP 2017). Andromache River is approximately 46 km in length and extends from the highlands of the Clarke Connors Range and adjoins O’Connell River approximately 8 km downstream of the study area. O’Connell River then flows to the ocean approximately 11 km further downstream. In the south west, Cattle Creek, Spring Creek and Oaky Creek flow to Mares Nest Creek, and on to the Andromache River, while in the south east Fish Creek, Wriggle Creek and Scrub Creek also drain to Andromache River at the very eastern extent of the study area.

3.6.2 Wetlands

There are no wetlands of international importance (declared Ramsar wetlands) located in proximity to the study area.

Ecologically important waterholes are reported from just downstream of the confluence of the Andromache and the O’Connell rivers (DEHP 2017). High ecological significance wetlands are mapped over the coastal plain to the east of the northern portion of the study area. These comprise the Goorganga Plain wetlands complex, a Directory of Important Wetlands in Australia wetland that comprises a diverse range of wetland ecosystems and extends over an area of 16,850 ha.
3.6.3 Regional geology

Geological units mapped within and in the region of the study area are included in Table 3-5.

Table 3-5 Geological units

<table>
<thead>
<tr>
<th>Rock unit and dominant rock</th>
<th>Lithological summary</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quaternary alluvium (Qa) Alluvium</td>
<td>Clay, silt, sand and gravel; flood-plain alluvium</td>
<td>Lower lying areas of the study area</td>
</tr>
<tr>
<td>Carmila beds (Pc) Felsites (lavas, clastics &amp; high-level intrusives</td>
<td>Siltstone and mudstone, volcanilithic sandstone and conglomerate and minor altered basalt; local rhyolitic to dacitic ignimbrite and rhyolitic to andesitic volcaniclastic rocks</td>
<td>Low hills</td>
</tr>
<tr>
<td>Campwyn Volcanics (DCvc) Mixed mafites and felsites (mainly volcanics)</td>
<td>Sandstone, siltstone, mudstone (locally with radiolarians), pebbly sandstone, breccia, mafic hyaloclastite, rhyolitic ignimbrite; minor conglomerate, lapilli tuff, limestone</td>
<td>Eastern extent of Proserpine airport and very northern portion of the study area. Also present regionally over Midge Point.</td>
</tr>
<tr>
<td>Qr-QLD Colluvium</td>
<td>Clay, silt, sand, gravel and soil; colluvial and residual deposits</td>
<td>Colluvial type in the upper catchment at base of Clarke Connors Range.</td>
</tr>
<tr>
<td>Kg/5-NCON Granitoid</td>
<td>Fine to medium-grained, porphyritic (allanite-sphene-) hornblende-biotite monzogranite; variably altered with chlorite, sericite and calcite locally common</td>
<td>Clarke Connors Range to the west of the study area, small area within Andromache Conservation Park.</td>
</tr>
</tbody>
</table>

One of the key geological features in the region is reported to be a fault line that extends from Bowen through the centre of the Goorganga wetlands (DES 2018).

3.6.4 Soils

Broad scale soil mapping (Bureau of Rural Sciences 2009) indicates that the undulating plains and alluvial flats present in the study area tend to be dominated by hard setting duplex soils whilst the hills typically consist of red and brown earths. A soils and land suitability report prepared for the region (Whitsunday Shire Council 2003), suggests that the several soil units present within the study area are prone to erosion. A brief description of these units and their general location within the study area is provided in Table 3-6.

2 Mapped at a 100,000 scale in the Soils of the Whitsunday Coast Area map (Hardy, 2003).
Table 3-6 Soil units prone to erosion in study area

<table>
<thead>
<tr>
<th>Soil unit(s)</th>
<th>Description and erosion potential</th>
<th>Landscape position and location in study area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condor, Whiptail, Dunwold, Urba, Woontoon and Finley</td>
<td>Formed from acid volcanic rocks or acid intrusive rocks Prone to erosion on steeper slopes, particularly after clearing</td>
<td>Present on slopes and footslopes of hills. Principally occurring within the southern portion of the study area.</td>
</tr>
<tr>
<td>Balbera, Hillrise, Ossa, Etowrie and Wollingford</td>
<td>Alluvial-colluvial footslopes and colluvial fan soils. Usually affected by sheet erosion and sometimes gully erosion due to their low clay content, low organic matter and poor structure</td>
<td>Present on footslopes, colluvial fans and undulating rises. Minor elements within the north western extent and central portions of the study area but principally occurring within the southern portion of the NDTA.</td>
</tr>
<tr>
<td>Koolachu</td>
<td>Sodic duplex soil formed from Tertiary-Pliocene sediments Exposed subsoils are easily eroded. Extensive gully erosion is possible.</td>
<td>Present on flat to gently sloping plains with rises. Occurs within the northern portion of the study area.</td>
</tr>
</tbody>
</table>

3.6.5 Protected areas

A number of protected areas or reserves are located in the region of the study area.

Andromache Conservation Park is situated within the western portion of the study area. It covers an area of 647 ha. The Park was gazetted under the NC Act in 2000 for the purpose of protecting koala and Proserpine rock wallaby habitat (DNPSR 2015). The conservation park is contiguous with Proserpine State Forest, which extends north towards Peter Faust Dam (Figure 1-1).

Regionally, Conway National Park and Conway State Forest are located along the coastline, to the east of the study area, Dryander National Park and Dryander State Forest to the north east, and Andromache State Forest to the south west of the study area.

3.7 Heritage

3.7.1 World Heritage Properties

The study area is located approximately 9 km upstream of the Great Barrier Reef World Heritage property at its nearest point at the confluence of Proserpine River with the ocean. This world heritage property extends over 2,000 km along the Queensland coastline and covers an area of around 348,000 km². It contains the world’s largest coral reef ecosystem and supports some of the most biologically diverse ecosystems, being recognised internationally for its outstanding biodiversity (UNESCO 2018).

3.7.2 National Heritage Places

The National Heritage List includes places of outstanding heritage significance to Australia. In addition to its listing on the World Heritage List, the Great Barrier Reef is also a National Heritage Place, having been listed on the National Heritage List in 2007 (DoEE 2018).
3.7.3 Cultural heritage

Traditional owners

There are seven tribes that are the Traditional Owners for the land and sea within the Mackay Whitsunday Isaac region, these being the Juru, Gia, Ngaro, Yuwibara, Koinmerburra, Barada and Wiri peoples (Reef Catchments 2017).

Two Traditional Owners are associated with the study area, these being the Gia and the Yuwibara peoples. The Gia peoples’ country includes the mainland proximal to the Whitsunday Islands, north to Bowen, south to O’Connell River and east to the Clarke Connors Range, and extends over the northern portion of the study area, whilst the Yuwibara peoples’ boundary is north to Midge Point, south to Cape Palmerston and west to the Clarke Connors Range, and 10 nautical miles east of the coastline. This extends over the southern portion of the study area, including the Native Title Claim Area (refer to the section below) (Reef Catchments 2017).

Database search results

A search of the Department of Aboriginal and Torres Strait Islander Partnership (DATSIP) database revealed that there were no previously recorded Aboriginal or Torres Strait Islander cultural heritage site points or polygons within the search area, which covered the Proserpine Airport and Surrounds NDTA (Appendix E). Notwithstanding this, the area may possess cultural heritage sites and intangible values, which have not been the subject of this assessment.

Native title

The cultural heritage party for the southern portion of the study area is the Yuwibara People. Native Title Claim (NNTT number QC2013/007) extends over the very southern portion of the study area. The claim was lodged on 29/10/2013 and was registered from 9/01/2014 however has not yet been determined in the Federal Court. The NNTT extract is provided in Appendix E, whilst the relevant part of the claim area is shown on Figure 3-2.

Indigenous land use agreement

There is an Indigenous Land Use Agreement (ILUA) in place over Lot 22, 23 and 34 on SP230504 (the ‘agreement area’, referenced in the ILUA extract as Lot 2 and 3 on SP112425), known as Jochheim and Gia People ILUA (refer to Figure 3-2). The parties to this agreement (QI2013/073), are the State of Queensland (Department of Natural Resources Mines and Energy), members of the Gia People and Mr Ludwig Benignus Jochheim.

Although the full ILUA was not available for review, based upon the ILUA extract (Appendix E) it is likely that as a result of the ILUA, Native Title over the agreement area has been extinguished for pastoral purposes on the conversion of the land to freehold. The extract notes that the ILUA, registered 31 January 2014 will run for a period of five years from the execution date. Despite this, a number of clauses will continue to apply after the termination of the agreement, including Clause 5, which from the extract, indicates that the parties consent to the surrender of native title, and that the surrender is intended to extinguish any Native Title rights and interests that may exist in relation to the agreement area.

3.7.4 Historic heritage

A search of the Queensland Heritage Register revealed that there are no registered historic heritage places within the study area registered under the Queensland Heritage Act 1992. A search of the Whitsunday Regional Council Local Heritage Register identified the following places of local significance in proximity to the study area:

- Australian Field Experimental Station (Gunyarra Road)
• Kelsey Creek Hall (E:654107, N:7740478)

3.7.5 Natural heritage

Natural heritage includes the parts of the natural environment that have aesthetic, historic, scientific or social significance or other special value for future generations, as well as for the present community (DEWR 2007). The study area is not reported to have any outstanding natural heritage values. The Protected Matters Search indicates that the closest natural heritage site is the Great Barrier Reef, which is located 9 km downstream of the study area.
4. Field survey results

4.1 Vegetation and flora

4.1.1 Threatened ecological communities

Several vegetation patches within the study area were assessed as potentially meeting the diagnostic and condition criteria for the broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland TEC. These patches aligned broadly with the mapped polygons of RE 8.3.2 although extents varied within each mapped polygon. Smaller patches of vegetation potentially meeting the TEC criteria were also observed within broader eucalypt units where the taller canopy species were largely absent and the ecologically dominant layer comprised dense stands of *Melaleuca viridiflora* var. *viridiflora* over a diverse ground layer.

A map of areas potentially comprising the broad leaf tea-tree TEC is provided at Figure 4-1 and a field description of the potential TEC is provided in Table 4-1. It should be noted that the assessment was conducted during prolonged dry conditions and ground layer species were difficult to detect and identify. Given that native species richness in the ground layer is a key diagnostic criteria for this community and comprehensive vegetation surveys were not undertaken, caution should be applied when considering the potential presence and extents of this community and surveys should be conducted under optimal conditions to verify its presence. Furthermore, TEC eligibility may change over time in response to grazing pressures which may alter species composition in the ground layer and reduce the number of seedlings reaching maturity. Feral pigs were also prevalent in the area and may also impact on ground layer diversity due to their habit of rooting for tubers.

**Table 4-1 Potential broad leaf tea-tree TEC in study area**

<table>
<thead>
<tr>
<th>Name</th>
<th>GHD field description</th>
<th>Photograph</th>
</tr>
</thead>
</table>
| Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland | Vegetation: Low open forest dominated by a mid-dense canopy of *Melaleuca viridiflora* var. *viridiflora* (6-10 m tall) over an absent or very sparse shrub layer of *Acacia leptocarpa*, *Exocarpos latifolius*, *Coelospermum reticulatum* and *Xanthorrhoea latifolia* (0.5-3 m). The ground layer was often dense and commonly included *Imperata cylindrica*, *Heteropogon contortus*, *Aristida* sp. (indet) *Aristida contorta*, *Themedra triandra*, *Eragrostis* sp. and *Eriachne* sp. 

Landform: flat plain with either fine grey silty sands or light grey hard-setting silty clays. | ![Photograph](image1.jpg) ![Photograph](image2.jpg) |
Data Disclaimer

GHD and CWRARE make no representations or warranties about the accuracy, reliability, completeness or suitability for any particular purpose and cannot accept any liability and responsibility of any kind (whether in contract, tort or otherwise) for any inaccuracy, completeness or unsuitability in any way and for any reason.

Environmental Baseline Report for Proserpine Airport

Regional Ecosystem and Threatened Ecological Community Mapping

LEGEND

Major Road
Minor Road
Threatened Ecological Community (TEC)

Regional Ecosystem v10.1

Vegetation Management Status

Remnant Containing Endangered RE
Remnant Containing Of Concern RE
Remnant Containing Least Concern RE
High Value Regrowth Containing Endangered RE
High Value Regrowth Containing Of Concern RE
High Value Regrowth Containing Least Concern RE


Department of Defence

Environmental Baseline Report for Proserpine Airport and Surrounds Non-Defence Training Area

Project No. 41-32052
Revision No. 0
Date 18/10/2018

FIGURE 4-1
4.1.2 Regional ecosystems of interest

Although finer scale mapping may result in changes to boundaries and designations of some endangered and of concern REs within the study area, rapid vegetation assessments undertaken suggest that DNRME mapping is reasonably accurate. It is also notable that some mapped endangered and of concern high value regrowth patches were advanced and trending towards remnant vegetation. Generalised field descriptions and photographs of REs assessed within the study area are presented in Table 4-2. DNRME RE mapping is shown in Figure 4-1.
<table>
<thead>
<tr>
<th>RE</th>
<th>VMA</th>
<th>REDD Description</th>
<th>GHD Field Description</th>
<th>Photo</th>
</tr>
</thead>
</table>
| 8.3.1a  | OC  | Semi-deciduous to evergreen notophyll to mesophyll vine forest. | Vegetation: vine forest with an emergent layer of *Alstonia scholaris*, *Terminalia sericocarpa*, *Nauclea orientalis*, *Melaleuca leucadendra*, *Eucalyptus tessellaris* and occasional *E. tereticornis* (20-35 m tall) over a dense to mid-dense canopy of *Argyrodermon trifoliolatum*, *Chionanthus ramiflorus*, *Cryptocarya triplinervis* var. *pubens*, *Dysoxylum gaudichaudianum* and *Harpullia pendula* (10-15 m tall) over a sparse sub-canopy of *Aidia racemosa*, *Fitzalania bidwillii*, *Melia azedarach*, *Gossia bidwillii*, *Aryteria divaricata*, *Mallotus philippensis*, *Aphananthe philippinensis*, *Jagera pseudorhizus* var. *pseudorhizus* (4-8 m tall) over a sparse shrub layer of *Lantana camara**, *Capparis arborea*, *Cryptocarya triplinervis* and *Syzygium spp.* (0.5-3 m tall). The ground layer was very sparse and included *Oplismenus aemulus* and *Ottochloa nodosa*. Common vine species included *Maclura cochinchinensis**, *Austrosteenis blackii* and *Flagellaria indica*. Landform/soils: banks of watercourses with loose sands (alluvial) Note: This unit provides potential habitat for the following conservation significant flora species:  
  - *Eulophia bicallosa*, particularly when comprising elements of RE 8.3.6a  
  - *Eucalyptus raveretiana*, particularly when comprising elements of RE 8.3.3a |
<table>
<thead>
<tr>
<th>RE</th>
<th>VMA</th>
<th>REDD Description</th>
<th>GHD Field Description</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.2</td>
<td>E</td>
<td><em>Melaleuca viridiflora</em> woodland on seasonally inundated alluvial plains with impeded drainage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vegetation: Low open forest dominated by a mid-dense canopy of <em>Melaleuca viridiflora</em> var. <em>viridiflora</em> (7-10 m tall) with occasional <em>Corymbia clarksoniana</em>, <em>Eucalyptus platyphylla</em>, <em>Lophostemon suaveolens</em>, <em>Alphitonia excelsa</em> and <em>Pandanus cookii</em> over a very sparse shrub layer of <em>Acacia leptocarpa</em>, <em>Exocarpos latifolius</em>, <em>Coelospermum reticulatum</em> and <em>Xanthorrhoea latifolia</em> (0.5-3 m). Common species in the mid-dense ground layer included <em>Themeda triandra</em>, <em>Heteropogon contortus</em>, <em>T. triticeus</em>, <em>Aristida sp.</em>, <em>Jasminum simplicifolium</em> subsp. <em>australiense</em> and <em>Fimbristylis dichotoma</em>. Landform/soils: Gently undulating plains with either fine grey silty sands or light grey hard-setting silty clays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3.3a</td>
<td>LC</td>
<td><em>Melaleuca leucadendra</em> and/or <em>M. fluviatilis</em> and/or <em>Casuarina cunninghamiana</em> open forest to woodland (to low open forest to low-woodland) on creek banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vegetation: consistent with RE description. Landform: banks of ephemeral watercourses Note: This unit provides potential habitat for <em>Eucalyptus raveretiana</em>, particularly when comprising elements of RE 8.3.3a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>VMA</td>
<td>REDD Description</td>
<td>GHD Field Description</td>
<td>Photo</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>8.3.5</td>
<td>OC</td>
<td><em>Eucalyptus platyphylla</em> and/or <em>Lophostemon suaveolens</em> and/or <em>Corymbia clarksoniana</em> woodland on alluvial plains</td>
<td>Vegetation: Woodland to open woodland dominated by a sparse to very sparse canopy of <em>Eucalyptus platyphylla</em>, <em>Lophostemon suaveolens</em>, <em>Corymbia clarksoniana</em>, <em>Pandanus cookii</em> and <em>Alphitonia excelsa</em> (10-18 m tall) over a sub-canopy of <em>Melaleuca viridiflora</em> var. <em>viridiflora</em> and juvenile canopy species (4-8 m). The shrub layer was sparse and typically comprised <em>M. viridiflora</em> var. <em>viridiflora</em>, <em>Planchonia careya</em>, <em>Coelospermum reticulatum</em> and <em>Acacia leptocarpa</em>. Common ground layer species included <em>Imperata cylindrica</em>, <em>Themeda triandra</em> and introduced grasses such as <em>Sporobolus spp.</em>, <em>Themieta quadrivalvis</em>, <em>Hyparrhenia rufa</em> and <em>Bothriochloa pertusa</em>.&lt;br&gt;&lt;br&gt;Landform: gently undulating plain; silty clay&lt;br&gt;&lt;br&gt;Note: Riverine vegetation within this unit (comprising elements of RE 8.3.1a and RE 8.3.3a) provides potential habitat for <em>Eucalyptus raveretiana</em>.</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<p>| 8.3.6a| OC  | <em>Eucalyptus tereticornis</em>, <em>Corymbia intermedia</em> (or <em>C. clarksoniana</em>) and <em>Lophostemon suaveolens</em> open forest to woodland, or <em>C. tessellaris</em> open forest to woodland on alluvial levees and lower terraces | Vegetation: Woodland dominated by a sparse canopy of <em>Eucalyptus platyphylla</em>, <em>Melaleuca leucadendra</em>, <em>Corymbia tessellaris</em>, <em>C. clarksoniana</em> (to 20 m tall) over a sub-canopy of <em>M. viridiflora</em> var. <em>viridiflora</em> and <em>Planchonia careya</em>. The ground layer was dominated by <em>Imperata cylindrica</em> with a mix of other native and introduced grasses present.&lt;br&gt;&lt;br&gt;Landform: alluvial plain and watercourses&lt;br&gt;&lt;br&gt;Note:&lt;br&gt;&lt;br&gt;1. This unit provides potential habitat for the conservation significant flora species, <em>Eulophia bicallosa</em>, particularly when comprising elements of RE 8.3.1a | <img src="image2.jpg" alt="Image" /> |</p>
<table>
<thead>
<tr>
<th>RE</th>
<th>VMA</th>
<th>REDD Description</th>
<th>GHD Field Description</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>2.</strong> This mapped community requires further interrogation as <em>E. platyphylla</em> was often the dominant canopy species present, rather than those listed in the RE description.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.5.1b</td>
<td>E</td>
<td><em>Corymbia clarksoniana</em> open forest to open woodland on Tertiary sand plains and rises including small areas of shale</td>
<td>Vegetation: Open forest to woodland dominated by a mid-dense to sparse canopy of <em>Corymbia clarksoniana</em>, <em>C. tessellaris</em> with associated <em>Eucalyptus tessellaris</em> (10-14 m tall) over a sub-canopy of <em>Alphitonia excelsa</em>, <em>Planchonia careya</em>, <em>Acacia leptocarpa</em> and juvenile canopy species (3-8 m tall) over a very sparse shrub layer dominated by <em>Xanthorrhoea latifolia</em> and <em>Coelospermum reticulatum</em>. The ground layer was very sparse, with introduced herbs such as <em>Sida cordifolia</em> occurring within disturbed areas. Landform: flat plain with gravelly loam soils</td>
<td></td>
</tr>
<tr>
<td>8.12.20a</td>
<td>LC</td>
<td><em>Eucalyptus drepanophylla</em> and/or <em>E. platyphylla</em> woodland to open forest on low gently undulating landscapes on Mesozoic to Proterozoic igneous rocks</td>
<td>Vegetation: woodland dominated by a canopy of <em>Eucalyptus crebra</em>, <em>E. platyphylla</em>, <em>Corymbia clarksoniana</em> and associated <em>C. tessellaris</em> over a very sparse sub-canopy of <em>Melaleuca viridiflora</em> var. <em>viridiflora</em>, <em>Planchonia careya</em>, and juvenile canopy species. <em>Xanthorrhoea latifolia</em> was often prominent in the typically sparse shrub layer. The ground layer was dense, with a mix of native and introduced grass species present. Landform: undulating rises and low hills</td>
<td></td>
</tr>
</tbody>
</table>
4.1.3 Conservation significant flora

One conservation significant flora species was identified at two locations within the study area during the field survey, namely *Eucalyptus raveretiana* (black ironbox) (Figure 4-4). This species is listed as vulnerable under the EPBC Act. Background information on *Eucalyptus raveretiana* and field survey results are provided in the following subsections.

Suitable habitat for *Eulophia bicallosa* was identified within areas mapped as comprising the heterogeneous polygon RE 8.3.6a/8.3.1a (Figure 4-1). This species was not detected within the study area during the field survey but is considered likely to occur (Section 4.3).

**Background information**

*E. raveretiana* is a medium-sized tree that grows to 30 m tall. The bark is dark grey, longitudinally fissured and often extends up to the base of larger branches. Upper branches are smooth, white grey or pale blue. The adult leaves are narrowly lance shaped to ovate, 8-15 cm long by 1-3 cm wide and strongly discolourous. Flowering has been recorded from December to January with flowers formed in terminal cluster at the end of branchlets. Fruits are hemispherical, small (2 mm x 2 mm) with extended values. Seeds are ellipsoidal and brown (Halford 1997).

*E. raveretiana* is endemic to central Queensland, with its known distribution extending from Rockhampton and Ayr (DEWHA 2008a). It typically occurs along rivers and creeks on soils ranging from sands to cracking clays. Representative photographs of *E. raveretiana* in the study area are provided in Plate 4-1.

![Plate 4-1 E. raveretiana in the study area](image)

**Population extent**

Approximately 50 individuals were recorded along the banks and terraces of Andromache River within the southern extent of the study area, with most individuals recorded on the northern banks and terraces (Figure 4-4). Individuals occurred as isolated individuals or in clusters of up to 30 individuals. Heights ranged from 15 m to 32 m with diameter at breast height (dbh) ranging from 20 cm to 90 cm. Tree health ranged from poor to good, with some individuals showing signs of recent stress (defoliation and resprouting) as well as physical damage from past cyclone and storm events.
Supporting habitat

Occurrences of *E. raveretiana* were observed growing on loose white/brown sands. Supporting habitat typically consisted of a sparse canopy of *E. tereticornis*, *Casuarina cunninghamii*, *Alstonia scholaris*, *E. raveretiana* over a dense to mid-dense sub-canopy of *Corymbia tessellaris*, *Cryptocarya triplinervis*, *Nauclea orientalis*, *Fitzalania bidwillii* and *Arytera divaricata*, *Chionanthus ramiflorus*. Common shrubs and vines included *C. triplinervis*, *Ficus opposita*, *Mallotus philippensis*, *Lantana camara*, *Cryptostegia grandiflora*, *Maclura cochinchinensis* and *Cupaniopsis anacardioides* (Plate 4-2).

![Plate 4-2 Supporting habitat for *E. raveretiana*](image)

4.1.4 Introduced flora species

Introduced flora species were commonly observed throughout much of the study area, with higher abundances recorded in more heavily utilised areas of the study area, particularly within the vicinity of tracks, stockyards, water points and cattle licks. Watercourses also supported higher levels of weed abundance than less mesic environments. The following restricted invasive-Category 3 plants under the Queensland Biosecurity Act 2014 were observed within the study area during the field survey:

- *Cryptostegia grandiflora* (rubber vine) – observed along watercourses
- *Lantana camara* (lantana) – observed throughout study area but most abundant on upper banks of watercourses and alluvial flats, particularly those subject to disturbance
- *Sporobolus* spp. (American rat's tail grass and giant rats tail grass) – observed within pasture and other modified areas
- *Senna obtusifolia* (sicklepod) – observed on alluvial flats and watercourses, often in association with vine thicket vegetation on more fertile soils

Both *Cryptostegia grandiflora* and *Lantana camara* are also WONS. Anecdotal evidence also suggests that *Parthenium hysterophorus* (parthenium) may also occur along watercourses and disturbed areas; however, this species was not detected during the field survey.
4.2 Fauna

4.2.1 Habitat assessments

The landscape in the region of the Proserpine airport and surrounds NDTA has been subject to generations of cattle grazing and localised sugarcane cropping. Through these land uses, the natural environment has been subject to substantial loss and fragmentation of natural habitat.

Seven broad habitat types were identified in the study area:

- Eucalypt woodland over grasses on undulating plains
- Eucalypt woodland on low hills
- Eucalypt woodland on upper slopes of hills
- *Melaleuca viridiflora* woodlands on inundated plains
- Riparian vegetation on drainage lines with pockets of vine thickets
- Dams
- Pasture and highly modified areas including tracks and infrastructure

The ecological value of each habitat type is summarised in Table 4-3. This table details the general ecological value for least concern fauna and values for species of conservation significance. Habitat types are mapped in Figure 4-2 and Figure 4-3.
### Table 4-3 Terrestrial habitat types observed in the study area

<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Characteristics</th>
<th>Ecological values</th>
</tr>
</thead>
</table>
| 1. Eucalypt woodland over grasses on undulating plains | • Tall canopy vegetation  
• Notably moderate abundance of hollow-bearing trees  
• Very sparse shrub layer present  
• Open understorey  
• Dense leaf litter  
• Presence of hollow logs, woody debris, rocks and/or other complex ground-level microhabitats  
• Peeling bark and arboreal termite mounds present | • Foraging and nesting habitat for forest-dwelling birds  
• Microhabitat for skinks, geckos, snakes and other reptiles  
• Potential conservation significant species – koala |
| 2. Eucalypt woodland on low hills                 | • Tall canopy vegetation  
• Notably high abundance of hollow-bearing trees  
• Dense leaf litter  
• Presence of hollow logs, wood debris and other complex ground-level microhabitats  
• Peeling bark and arboreal termite mounds present | • Foraging and nesting habitat for forest-dwelling birds  
• Microhabitat for skinks, geckos, snakes and other reptiles  
• Potential conservation significant species – greater glider |
<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Characteristics</th>
<th>Ecological values</th>
</tr>
</thead>
</table>
| 3. Eucalypt woodland on upper slopes of hills | - Tall canopy vegetation  
- Notably high abundance of hollow-bearing trees  
- Presence of rocky outcrops and boulders | - Nesting and foraging habitat for canopy-dwelling birds  
- Microhabitat for skinks, geckos and other reptiles  
- Foraging habitat for macropods and other ground-dwelling mammals  
- High species diversity  
- Potential conservation significant species – powerful owl, greater glider and Proserpine rock-wallaby |
| 4. *Melaleuca viridiflora* woodlands on seasonally inundated plains | - Dense canopy cover of *M. viridiflora*  
- Shrub layer absent  
- Diverse ground layer of grasses, sedges and forbs  
- Presence of woody debris and leaf litter  
- Soft friable soils suitable for burrowing | - Foraging habitat for nectar-eating birds and mammals  
- Burrowing habitat for reptiles and frogs |
<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Characteristics</th>
<th>Ecological values</th>
</tr>
</thead>
</table>
| 5. Riparian vegetation on drainage lines with pockets of vine thickets | • Tall canopy vegetation  
• Notably low abundance of hollow-bearing trees  
• Moderately dense understorey and shrub layer  
• Soft friable soils suitable for burrowing  
• Presence of logs, woody debris, rocks and/or other complex ground-level microhabitats  
• Dense leaf litter | • Nesting and foraging habitat for forest-dwelling birds  
• Microhabitats for skinks, geckos and other reptiles  
• Foraging habitat for bandicoots, rodents and other ground-dwelling mammals  
• Foraging habitat for microbats  
• Moderate to high species diversity  
• Potential conservation significant species – squatter pigeon |

| 6. Dams | • Semi-permanent dams  
• Low density of shrubs and trees fringe the edge of the dams  
• Scattered tufts of sedges and grasses  
• Hollow-bearing stags present | • Breeding and calling sites for amphibians  
• Foraging habitat for eastern water dragon and frog-eating snakes  
• Drinking sites for birds and mammals  
• Foraging habitat for microbats  
• Moderate species diversity  
• Potential conservation significant species – squatter pigeon |
<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Characteristics</th>
<th>Ecological values</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Pasture and highly modified areas including tracks and infrastructure</td>
<td>• Canopy and shrub layer absent</td>
<td>• Foraging habitat for raptors and birds adapted to open landscapes</td>
</tr>
<tr>
<td></td>
<td>• Ground-layer heavily altered – subject to grazing and intensive cultivation</td>
<td>• Refuge and foraging habitat for snakes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Foraging habitat for macropods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low species diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Potential conservation significant species – squatter pigeon</td>
</tr>
</tbody>
</table>
Fauna Habitat Types within the Northern Region

Legend

- Major Road
- Minor Road

Fauna Habitat Type

- Eucalypt woodland over grasses on undulating plains
- Eucalypt woodland on low hills
- Melaleuca viridiflora woodlands on seasonally inundated plains
- Riparian vegetation on drainage lines with pockets of vine thickets
- Pasture and highly modified areas including tracks and infrastructure
- Dam

Data Disclaimer

©2018. Whilst every care has been taken to prepare this map, GHD and DNRME make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
Fauna Habitat Types within the Southern Region

Legend
- Minor Road
- Eucalypt woodland over grasses on undulating plains
- Eucalypt woodland on low hills
- Eucalypt woodland on upper slopes of hills
- Riparian vegetation on drainage lines with pockets of vine thickets
- Pasture and highly modified areas including tracks and infrastructure
- Dam

Data Disclaimer
©2018. Whilst every care has been taken to prepare this map, GHD and DNRME make no representations or warranties about the accuracy, reliability, completeness or availability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Department of Defence
Environmental Baseline Report for Proserpine Airport and Surrounds Non-Defence Training Area

Fauna Habitat Types

Paper Size ISO A4
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

GHD

FIGURE 4-3
4.2.2 **Terrestrial fauna species**

A total of 71 fauna species were recorded in the study area. This comprised three species of amphibians, four species of reptiles, eight species of mammals and 54 species of birds. A description of each of the fauna groups is provided below.

**Amphibians**

No conservation significant amphibian species were recorded or have the potential to occur in the study area.

A total of three amphibian species were recorded in the field survey, including the eastern sedgefrog (*Litoria fallax*), ruddy treefrog (*Litoria rubella*) and the feral cane toad (*Rhinella marina*). Within the study area, amphibian species were typically calling at numerous dams that occurred on grazier properties. No amphibian species were recorded along drainage lines, this may have been due to the dry conditions during the field survey.

Amphibian species that are common within the region and considered likely to occur in the study area, include the northern laughing treefrog (*Litoria rothii*), ruddy treefrog (*Litoria rubella*), common green treefrog (*Litoria caerulea*), eastern stony creek frog (*Litoria wilcoxi*), eastern sedgefrog (*Litoria fallax*), striped marshfrog (*Limnodynastes peronii*), ornate burrowing frog (*Platyplectrum ornatum*), marbled frog (*Limnodynastes convexiusculus*) and chirping froglet (*Crinia deserticola*). None of these amphibian species are conservation significant species.

**Reptiles**

No conservation significant reptile species were recorded in the study area, however the estuarine crocodile (*Crocodylus porosus*), which is listed as vulnerable under the NC Act, has been observed in Lethe Brook Creek by Proserpine residents.

A total of four reptile species were recorded in the study area during the field survey. Reptile species commonly encountered within woodland areas included the Bynoe’s gecko (*Heteronotia binoei*) and dubious gecko (*Gehyra dubia*). The lace monitor (*Varanus varius*) and carpet python (*Morelia spilota*) were encountered along an ephemeral creek line in the study area.

Reptile species that are likely to occur in the study area, include the frilled lizard (*Chlamydosaurus kingii*), tommy roundhead (*Diporiphora australis*), eastern water dragon (*Intellagama lesueurii*), green tree snake (*Dendrelaphis punctulatus*), eastern small-eyed snake (*Cryptophis nigrescens*), blue-throated rainbow skink (*Carlia rhomboidalis*), tree-base litter-skink (*Lygisaurus foliorum*), copper-tailed skink (*Ctenotus taeniolatus*) and Krefft’s river turtle (*Emydura macquarii kreffi*). None of these reptile species are conservation significant species.
Plate 4-3  Lace monitor (*Varanus varius*) (left) and Carpet python (*Morelia spilota*) (right) recorded in the study area.

**Mammals**

No conservation significant mammal species were recorded within the study area during the field survey. Four conservation significant mammal species, including the Proserpine rock-wallowaby (*Petrogale persephone*), koala (*Phascolarctos cinereus*), greater glider (*Petauroides volans*) and northern quoll (*Dasyurus hallucatus*), are likely to occur within the study area.

A total of ten mammal species were recorded within the study area during the field surveys. Species commonly recorded include the eastern grey kangaroo (*Macropus giganteus*), agile wallaby (*Macropus agilis*) and rufous bettong (*Aepyprymnus rufescens*). Nocturnal spotlighting surveys and surveillance cameras confirmed the presence of the common brushtail possum (*Trichosurus vulpecula*), black-headed flying-fox (*Pteropus alecto*) and short-beaked echidna (*Tachyglossus aculeatus*). Signs of pest mammal species, including the domestic dog (*Canis lupus familiaris*) and wild pig (*Sus scrofa*) were identified throughout the field survey.

The echolocation calls of two least concern microchiropteran bat species, including the northern broad-nosed bat (*Scotorepens sanborni*) and large-footed myotis (*Myotis macropus*) were recorded within the study area. Other least concern microbat species that are likely to occur due to their regional distribution, include the little bent-wing bat (*Miniopterus australis*), Troughton’s sheathtail bat (*Taphozous troughtoni*), yellow-bellied sheathtail bat (*Saccopteryx flavidus*), eastern bent-wing bat (*Miniopterus schreibersii oceanensis*), northern freetail bat (*Chaerephon jeffersii*), south-eastern broad-nosed bat (*Scotorepens orion*), northern long-eared bat (*Nyctophilus bifax*), greater broad-nosed bat (*Scoteanax rueppellii*), little broad-nosed bat (*Scotorepens greyii*), Gould’s long-eared bat (*Nyctophilus gouldi*) and Gould’s wattled bat (*Chalinolobus gouldii*). Each of these microbat species are known to roost singly or in groups in caves, tunnels, tree hollows, abandoned mines, under bark, dense tree foliage and occasionally in buildings during the day.
Plate 4-4 Short-beaked echidna (*Tachyglossus aculeatus*) (left) and agile wallaby (*Macropus agilis*)

**Birds**

One conservation significant species, the squatter pigeon (*Geophaps scripta scripta*), listed as vulnerable under the EPBC Act and NC Act was confirmed present from two locations within the study area and one immediately adjacent to it. Nine individuals were observed adjacent to open woodland within close proximity to permanent waterbodies, including dams and drainage links (Figure 4-4).

A total of 54 bird species were recorded in the field survey during the field survey. Bird species that were most abundant and widespread occurred in open eucalypt woodlands and grasslands. Bird species recorded within the study area are summarised in Table 4-4.

**Table 4-4 Bird species recorded in the study area**

<table>
<thead>
<tr>
<th>Common name</th>
<th>Species name</th>
<th>EPBC Act</th>
<th>NC Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian magpie</td>
<td><em>Gymnorhina tibicen</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Barn owl</td>
<td><em>Tyto alba</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Black-faced cuckoo-shrike</td>
<td><em>Coracina novaehollandiae</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Blue-winged kookaburra</td>
<td><em>Dacelo leachii</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Double-barred finch</td>
<td><em>Taeniopygia bichenovii</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Forest kingfisher</td>
<td><em>Todiramphus macleayii</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Galah</td>
<td><em>Eolophus roseicapillus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Grey fantail</td>
<td><em>Rhipidura albiscapa</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Laughing kookaburra</td>
<td><em>Dacelo novaeguineae</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Magpie-lark</td>
<td><em>Grallina cyanoleuca</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Noisy friarbird</td>
<td><em>Philemon corniculatus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Noisy minor</td>
<td><em>Manorina melanopephala</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pale-headed rosella</td>
<td><em>Platycercus adscitus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Peaceful dove</td>
<td><em>Geopelia striata</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pheasant coucal</td>
<td><em>Centropus phasianinus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pied butcherbird</td>
<td><em>Cracticus nigrogularis</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pied currawong</td>
<td><em>Strepera graculina</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Rainbow lorikeet</td>
<td><em>Trichoglossus haematodus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Red-backed fairy-wren</td>
<td><em>Malurus melanocephalus</em></td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Common name</td>
<td>Species name</td>
<td>EPBC Act</td>
<td>NC Act</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------------------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Red-winged parrot</td>
<td>Aprosmictus erythropterus</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Rufous whistler</td>
<td>Pachycephala rufiventris</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Scarlet honeyeater</td>
<td>Myzomela sanguinolenta</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Superb fairy-wren</td>
<td>Malurus cyaneus</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Torresian crow</td>
<td>Corvus orru</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Welcome swallow</td>
<td>Hirundo neoxena</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Willie wagtail</td>
<td>Rhipidura leucophrys</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Riparian / vine thicket dependent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>birds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australasian figbird</td>
<td>Sphecotheres vieilloti</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Australian brush-turkey</td>
<td>Alectura lathami</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Brown cuckoo-dove</td>
<td>Macropygia amboinensis</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pied imperial-pigeon</td>
<td>Ducula bicolor</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Spangled drongo</td>
<td>Dicrurus bracteatus</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Water birds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australasian darter</td>
<td>Anhinga novaehollandiae</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Australian white ibis</td>
<td>Threskiornis molucca</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Australian wood duck</td>
<td>Chenonetta jubata</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Grey teal</td>
<td>Anas gracilis</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Little pied cormorant</td>
<td>Microcarbo melanoleucos</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Pacific black duck</td>
<td>Anas superciliosa</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Purple swamphen</td>
<td>Porphyrio porphyrio</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>White-faced heron</td>
<td>Egretta novaehollandiae</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>White-necked heron</td>
<td>Ardea pacifica</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Grassland bird specialists</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australasian pipet</td>
<td>Anthus novaeseelandiae</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Australian bustard</td>
<td>Ardeotis australis</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Black kite</td>
<td>Milvus migrans</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Brahminy kite</td>
<td>Haliastur indus</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Brogla</td>
<td>Grus rubicunda</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Brown falcon</td>
<td>Falco berigora</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Cattle egret</td>
<td>Ardea ibis</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Emu</td>
<td>Dromaius novaehollandiae</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Masked lapwing</td>
<td>Vanellus miles</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Nankeen kestrel</td>
<td>Falco cenchroides</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Straw-necked ibis</td>
<td>Threskiornis spinicollis</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Squatter pigeon</td>
<td>Geophae scripta scripta</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Wedge-tailed eagle</td>
<td>Aquila audax</td>
<td>-</td>
<td>LC</td>
</tr>
<tr>
<td>Whistling kite</td>
<td>Haliastur sphenurus</td>
<td>-</td>
<td>LC</td>
</tr>
</tbody>
</table>

V – vulnerable; LC – least concern
Plate 4-5  Squatter pigeon (*Geophaps scripta scripta*) (left) and a small group of Australian bustards (*Ardeotis australis*)
Proserpine
Dittmer
CAPINGROAD
BRUCE HIGHWAY
KURKOWSKI ROAD
MALONEY ROAD
SILVER CREEK ROAD
SPOOR ROAD
GUNYARRA ROAD
HADLOW ROAD
KELSEY CREEK ROAD
HOLCOMBE ROAD
DITTMER ROAD
LLEWELLYN ROAD

FIGURE 4-4

Data Disclaimer
©2018. Whilst every care has been taken to prepare this map, GHD and DNRME make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Kilometres

Department of Defence
Environmental Baseline Report for Proserpine Airport and Surrounds Non-Defence Training Area
Conservation Significant Species Records Within and Adjacent to Study Area

Project No. 41-32052
Revision No. 1
Date 13/11/2018


Paper Size ISO A4

Map Projection: Transverse Mercator
Horizontal Datum: GDA1994
Grid: GDA1994 MGA Zone 55

Legend

- Major Road
- Minor Road
- Conservation Significant Species Record
- Desktop Record

GHD Record

- Northern Quoll
- Rock Wallaby
- Squatter Pigeon

Conservation Significant Species
Occurrence (Multiple Individuals)
4.3 **Likelihood of occurrence of conservation significant species**

A likelihood of occurrence assessment was undertaken as detailed in Section 2.4. The results of the assessment are provided in Appendix C. A summary of the likelihood of occurrence assessment is provided in Table 4-5.

**Table 4-5 Likelihood of occurrence assessment**

<table>
<thead>
<tr>
<th>Common name</th>
<th>Species name</th>
<th>NC Act</th>
<th>EPBC Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation significant species <strong>confirmed present</strong> in the study area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black ironbox</td>
<td><em>Eucalyptus raveretiana</em></td>
<td>Least Concern</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Squatter pigeon (southern)</td>
<td><em>Geophaps scripta scripta</em></td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conservation significant species <strong>likely to occur</strong> in the study area</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Eulophia bicallosa</em></td>
</tr>
<tr>
<td><em>Dasyurus hallucatus</em></td>
</tr>
<tr>
<td><em>Petauroides volans minor</em></td>
</tr>
<tr>
<td><em>Petrogale persephone</em></td>
</tr>
<tr>
<td><em>Phascolarctos cinereus</em></td>
</tr>
<tr>
<td><em>Crocodile porosus</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conservation significant species <strong>may occur</strong> in the study area</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bolemoreus hindwoodi</em></td>
</tr>
<tr>
<td><em>Calyptorhynchus lathami</em></td>
</tr>
<tr>
<td><em>Ninox strenua</em></td>
</tr>
<tr>
<td><em>Rostratula australis</em></td>
</tr>
<tr>
<td><em>Tyto noahollandiae</em></td>
</tr>
<tr>
<td><em>Macroderma gigas</em></td>
</tr>
<tr>
<td><em>Pteropus poliocephalus</em></td>
</tr>
<tr>
<td><em>Taudactylus eungellensis</em></td>
</tr>
</tbody>
</table>

4.4 **Other natural and physical resources**

4.4.1 **Waterways**

Drainage within the study area is largely characterised by a network of convergent tributary waterways, originating from the Clarke Connors Range and coastal hills of the alluvial plains. All waterways (within the extent of the study area) are ephemeral and are most likely to convey flows for relatively short periods given the limited size of the catchment and the short time of concentration following rainfall events.

Andromache River was the largest waterway within the study area. Its width was variable, but typically ranged from 40 m to 120 m (high bank to high bank). Its banks were moderately inclined to steep and substantial erosion was evident on the outer banks. Bank heights ranged from 5 m to 15 m, with terraces commonly occurring on the inner bends. Lower terraces present are likely to overtop for short periods following substantial rainfall events. Overtopping of the high bank is unlikely given the depth of the channel. The channel bed contained instream bars and sand bars and the substrate consisted of coarse white sands. Permanent pools were frequently present along the channel.
The remainder of the waterways present ranged from minor creeks to unnamed flow lines. The larger creeks present (i.e. Slater Creek, Goorganga Creek, Albert Creek, Deadman Creek and Thompson Creek) were largely dry at the time of the survey, although permanent pools were intermittently present. Channel widths of the larger creeks varied from 5-20 m wide. Banks were typically less than 4 m high and were well vegetated. Substrates were generally loose sands and instream woody debris was commonly observed.

Unnamed flowlines were typically narrow (< 5 m wide) and bed and banks were generally poorly defined. Riparian vegetation was often lacking and permanent pool habitat was largely absent. These flowlines are only likely to convey water for very short periods.

One natural permanent freshwater wetland was observed within the northern extent of the study area, adjacent to Slater Creek. This wetland is largely surrounded by pasture and cultivation and lacks a native wetland vegetated buffer but is still likely to provide low to moderate wetland habitat value for various waterbirds.

Plate 4-6  Andromache River (left); Goorganga Creek (right)

4.4.2  Protected areas

The extent of Andromache Conservation Park and Proserpine State Forest within the study area appeared to be largely intact and in excellent condition. Although the Andromache Conservation Park was not accessible, the broad vegetation groups present appeared largely consistent with Queensland Herbarium mapping (Neldner et al. 2017b) when viewed from beyond its boundaries. Habitats observed at a distance were considered suitable for the Proserpine rock-wallaby, koala, northern quoll and greater glider.

4.4.3  Soils and erosion

The majority of sites visited were located on alluvial flats or gently undulating plains where slopes were less than 5% and erosion was typically restricted to the banks of minor waterways. Erosion gullies were occasionally observed on slopes where sodic subsoils were exposed to water flows and ground disturbance. Severe erosion of alluvial soils was observed along the outer banks of the Andromache River.

4.5  Qualities and characteristics

4.5.1  Heritage values

A plane crash site was located on Lot 48 on HR1255 in the north-eastern portion of the study area. Although this is not a historic heritage site, the wreckage may hold some commemorative values. The Australian Field Experimental Station was also observed, adjacent to the study area on Gunyarra Road. Both heritage places are mapped in Figure 4-5.
No other evident heritage values were observed during the field survey.

4.5.2 Land use

The predominant land use observed during the surveys within most of the study area was grazing of cattle over predominantly cleared low lying areas or within sparsely to moderately vegetated areas on lower slopes. Small pockets of sugar cane were farmed within and adjacent to the study area. The Proserpine Whitsunday airport, operated by Whitsunday Regional Council is located in the northern portion of the study area.

4.5.3 Contamination

No evidence of contamination or activities with potential to cause contamination of land were observed within the study area.
Data Disclaimer
©2018. Whilst every care has been taken to prepare this map, GHD and CNMRE make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility for any loss, damage or cost resulting from, or in connection with, the use or content of this map, which are or may be incurred by any party as a result of this map being inaccurate, incomplete or unsuitable in any way and for any reason.

Department of Defence
Environmental Baseline Report for Proserpine Airport
and Surrounds Non-Defence Training Area

Heritage Features

FIGURE 4-5
5. Discussion

5.1 Relative environmental values

In order to inform Defence planning, a simplified map of relative environmental values has been developed in order to communicate the overall findings of the baseline environmental assessment (refer to Figure 5-1). It is important to note that mapped areas do not represent constraints, as proposed activities and potential impacts have not been considered as part of this assessment.

5.2 Mapping categories

Three categories were established to delineate areas of differing environmental value within the study area, namely, higher, moderate, and lower environmental values. These categories were established based upon desktop and field information. We note that cultural heritage values have not been included in the representation of values (although incidentally some of the areas of higher environmental values such as waterways and ridgelines may correspond with areas that may have a higher likelihood of containing artefacts).

In broad terms, areas of higher environmental value included areas that were known or likely to support threatened ecological communities or conservation significant species and/or possess substantial natural values. Areas of moderate environmental value included those areas that contain endangered or of concern regional ecosystems and/or may support conservation significant species. Those areas that did not possess the attributes of the higher or moderate environmental values were categorised as having lower relative environmental value.

Where an area possessed attributes associated with different categories of relative environmental value, the higher category was attributed to that area. A more detailed description of attributes and values associated with each category is provided in Table 5-1.

<table>
<thead>
<tr>
<th>Table 5-1 Relative environmental value categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Higher</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Category</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Lower</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Figure 5-1

Legend
- Major Road
- Minor Road
- Study Area

Relative Environmental Value
- Higher
- Moderate
- Lower

Environmental Features
- Endangered and Of Concern
- Regional Ecosystems
- Eucalyptus raveretiana
- Eulophia bicallosa
- Northern Greater Glider
- Koala
- Melaleuca viridiflora
- Northern Quoll
- Proserpine Rock Wallaby
- Squatter Pigeon

Data Disclaimer
© 2018. Whilst every care has been taken to prepare this map, GHD and DNRME make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
6. References


Department of Environment and Heritage Protection (2017) Walking the Landscape – O’Connell Catchment Story v1.0 (2018), presentation developed by the Queensland Wetlands Program in the Department of Environment and Heritage Protection, Queensland.

Department of Environment and Science (2018) Walking the Landscape – Proserpine Catchment Story v1.0 (2018), presentation developed by the Queensland Wetlands Program in the Department of Environment and Science, Queensland.


O’Connell Catchment Story v1.0 (2017), presentation, Department of Environment and Heritage Protection, Queensland.


www.ghd.com