

## **APPENDIX C**

### **PHOENIX (2017) TARGETED VEGETATION SURVEY REPORT**



Subject: Targeted flora and vegetation survey for Lake Argyle Road upgrade

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This memo presents the findings of a desktop review and targeted flora and vegetation field assessment undertaken by Phoenix Environmental Sciences, on behalf of the Shire of Wyndham-East Kimberley, for the proposed Lake Argyle Road upgrades project (the Project). The Project is located approximately 30 km south of Kununurra in the Kimberly region of Western Australia (Figure 1-1).

The study area for the assessment comprised the road reserve of Lake Argyle Road, based on a 25 m buffer from the road centreline, and four proposed borrow pits adjacent to Lake Argyle Road (Figure 1-1).

## **1 INTRODUCTION**

### **1.1 SCOPE**

The aim of the survey was to determine if conservation significant flora and/or ecological communities were present within the study area to support a native vegetation clearing permit application for the Project.

To achieve the aim, the scope of works was as follows:

- undertake desktop review to identify conservation significant flora and ecological communities previously recorded within, or in the vicinity of the study area
- undertake a desktop review to identify declared pests and Weeds of National Significance (WoNS) potentially occurring within the study area
- identify habitat requirements and key diagnostic features for the potential conservation significant flora and ecological communities identified in the desktop review
- review records and diagnostic characteristics of declared pests and WoNS potentially occurring in the study area
- undertake a targeted flora survey for the potentially occurring conservation significant flora and ecological communities within the study area
- undertake a targeted flora survey for the declared pests and WoNS within the study area
- prepare a succinct technical report detailing the findings of the above.




Shire of Wyndham  
Lake Argyle Road

Project No 1141  
Date 07-Mar-17  
Drawn by KW  
Map author GW



0 0.5 1 2 3 4  
Kilometres

1:150,000 (at A4) GDA 1994 MGA Zone 52

 Study area

**Figure 1-1**

**Location of the Project**



**PHOENIX**  
ENVIRONMENTAL SCIENCES

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## 1.2 LEGISLATIVE CONTEXT

In this report, conservation significant flora and ecological communities include those described as follows:

- Threatened Flora and Threatened Ecological Communities (TECs) listed as matters of national environmental significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- Protected Flora (Threatened Flora) listed under the *WA Wildlife Conservation Act 1950* (WC Act)
- species listed as Priority Flora by the Department of Parks and Wildlife (DPaW)
- TECs listed by the WA Minister for Environment
- Priority Ecological Communities (PECs) listed by DPaW.

Key introduced flora (weed) classifications for significant weeds that are relevant to this report are:

- Declared pest – weeds listed under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) as requiring some form of management and assigned to one of three control categories that dictate level of management required.
- Weed of National Significance (WoNS) – weeds identified at the Commonwealth level as having high impact, causing major economic, environmental, social and/or cultural impacts in a number of states/territories, and which have strong potential for further spread (Australian Weeds Committee 2012).

## 2 METHODS

The survey was conducted in accordance with the following guidelines where applicable:

- EPA Environmental Factor Guideline – Flora and Vegetation (EPA 2016a)
- EPA Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b).

### 2.1 DESKTOP STUDY

A desktop study was conducted in two parts prior to the field survey. Searches of relevant databases were initially undertaken to collate a list conservation significant flora and ecological communities that have been recorded within or in the vicinity of the study area. These included:

- DPaW Threatened and Priority Flora database and WA Herbarium database (DPaW 2016b) within a 20 km radius of the study area
- DPaW Threatened and Priority Ecological Communities database (DPaW 2016b) within a 40 km radius of the study area
- DPaW NatureMap database, including Western Australian Herbarium records (DPaW 2016a) within a (maximum) 20 km radius of the study area
- Protected Matters database via the online Search Tool (Department of the Environment and Energy 2016) within a 50 km buffer of the study area.



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A list of conservation significant species and ecological communities was generated from the database searches. The NatureMap results were also reviewed to identify existing records of declared pests and WoNS.

A review of habitat requirements and species descriptions of the conservation significant flora and ecological communities, declared pests and WoNS identified from the database searches was subsequently undertaken to assess the potential for each to occur in the study area, and to inform the field survey. Scientific papers detailing species descriptions and habitat preferences were researched for taxa that publicly available databases provided little information for. Databases were interrogated to identify recorded populations for each conservation significant species.

Information attained from the desktop review including species photos, illustrations, written descriptions and descriptions of recorded habitats were compiled into a field guide for reference during the field survey. Where no photos or illustrations of the species could be found, specimens of the target species were inspected at the WA Herbarium by the lead field botanist to assist identification during the field survey.

## 2.2 FLORA SURVEY

A field survey was conducted in the study area by experienced botanists on 10–13 February 2017. The field survey included:

- targeted searches for conservation significant flora and ecological communities identified as potentially present in the desktop study
- targeted searches for declared pests and WoNS
- description of the vegetation types within the study area for evaluation as potential habitat for conservation significant flora identified in the desktop study.

Prior to the commencement of the field survey, data including satellite imagery and study area boundary were loaded onto tablets using the application GIS Pro version 3.18 (Garafa 2016) and Garmin Montera GPS.

### 2.2.1 Targeted flora searches

Targeted flora searches comprised transect foot searches in all habitats identified as suitable habitat for the target flora species. Search areas were determined by driving slowly along the entire length of the study area and stopping to conduct searches whenever suitable habitat was identified.

During the field survey, the following information was collected when a flora species or population of conservation significance was found:

- GPS coordinates, including population boundary where applicable
- description of the habitat and floristic community of the conservation significant species
- population size estimate where applicable
- specimen collection for taxonomic identification and lodgement at the WA Herbarium
- photograph of live plant and description of important details, such as flower colour, height of individual or average height of population.

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## 2.2.2 Vegetation description

Prior to conducting the targeted searches, where possible, vegetation of known locations of conservation flora within close proximity to the study area was assessed to inform identification of suitable habitat in the study area.

Relevé (unbound site) surveys were conducted to describe the major vegetation associations within the study area and habitat of any conservation significant flora located. The following information was recorded for each relevé:

- location – the geographic coordinates in WGS84 projection
- description of vegetation – a broad description utilising the structural formation and height classes based on National Vegetation Information System (NVIS 2003).
- habitat – a brief description of landform and habitat
- geology – a broad description of surface soil type and rock type
- disturbance history – a description of any observed disturbance including an estimate of time since last fire, weed invasions, soil disturbance, human activity and fauna activity
- vegetation condition – utilising the condition scale of Trudgen (1991) (Table 2-1).
- photograph – a colour photograph of the vegetation
- flora species list – a list of the dominant flora.

Specimens of unknown species were collected and assigned a unique number to facilitate tracking, for post-field identification with local and regional flora keys and by comparison with the named species held at the Western Australian Herbarium.

**Table 2-1 Vegetation condition rating scale (Trudgen 1991)**

Vegetation condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since Europeans settlement
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs

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## 2.2.3 TEC/PEC assessment

The habitat and species composition of the relevés was compared to the habitat and species composition of the TECs and PECs identified in the desktop review to determine whether vegetation in the study area was representative of any conservation significant ecological communities.

## 2.3 SURVEY LIMITATIONS

The limitations of the survey have been considered in accordance with the *Technical Guidance: Flora and vegetation surveys for Environmental Impact Assessment* (EPA 2016b) (Table 2-2).

**Table 2-2** Survey limitations

Limitations	Limitation for this survey?	Comments
Availability of contextual information at a regional and local scale	Yes	The database searches provided a comprehensive list of conservation significant flora and ecological communities. Despite an intensive desktop review, information on species descriptions and habitat requirements was not available for two conservation significant flora identified in the database searches as potentially present in the study area.
Competency/experience of survey personnel, including taxonomy, and experience in the region surveyed	No	Both survey personnel have had more than ten years experience in conducting flora and vegetation surveys in Western Australia. The field leader, Dr Grant Wells undertook his PhD studies in the Kimberley region.
Proportion of flora recorded and/or collected, and any identification issues	No	All plant specimens collected that were considered to potentially resemble conservation significant flora were identified to species level.
Effort and extent; was the appropriate area fully surveyed	Yes	Due to the small size of some of the target species (herbs) it is possible that some plants may have been missed during the targeted searches.
Access within the survey area	No	All of the study area was readily accessible.
Timing, rainfall, season	Yes	Above average rainfall in the three months prior to the survey promoted early establishment of annual species which were in flower at the time of the survey. However, the survey was conducted outside the flowering period of some conservation significant flora species.
Disturbance that may have affected the results of the survey	No	No disturbances which interfered with recording the vegetation and flora was present.

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## 3 EXISTING ENVIRONMENT

### 3.1 INTERIM BIOGEOGRAPHIC REGIONALISATION OF AUSTRALIA

The Interim Biogeographic Regionalisation of Australia (IBRA) defines 'bioregions' as large land areas characterised by broad, landscape-scale natural features and environmental processes that influence the functions of entire ecosystems (Thackway & Cresswell 1995). They categorise the large-scale geophysical patterns that occur across the Australian continent that are linked to fauna and flora assemblages and processes at the ecosystem scale (Thackway & Cresswell 1995).

The study area lies within the Victoria Bonaparte P1 (VB1) subregion of the Victoria Bonaparte bioregion (VB1; Figure 3-1). The VB1 sub-region covers 1,932,467 ha (Graham 2001). The Bonaparte Basin in the north-west comprises Quarternary marine sediments supporting Samphire – *Sporobolus* grasslands and mangal and open savannah of high grasses on red earth plains and black soil plains. The Victoria Plateau occurs in the south and east with plateau and abrupt ranges of Proterozoic sandstone covered by skeletal sandy soils with low tree savannahs and hummock grasslands. Limited areas of gently undulating terrain support low snappy gum over hummock grasslands and gentle sloping floodplains with *Melaleuca minutifolia* low woodland over annual sorghums.

Rare features of the VB1 subregion include:

- Ramsar listed wetlands of the Ord floodplain and Lake Kununurra
- 'Wet' tropical river of the lower Ord River
- Man-made wetlands of Lake Kununurra
- Alluvial plain systems of the Ord and Weaber plains.

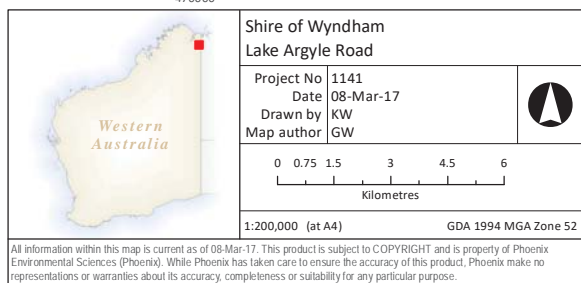
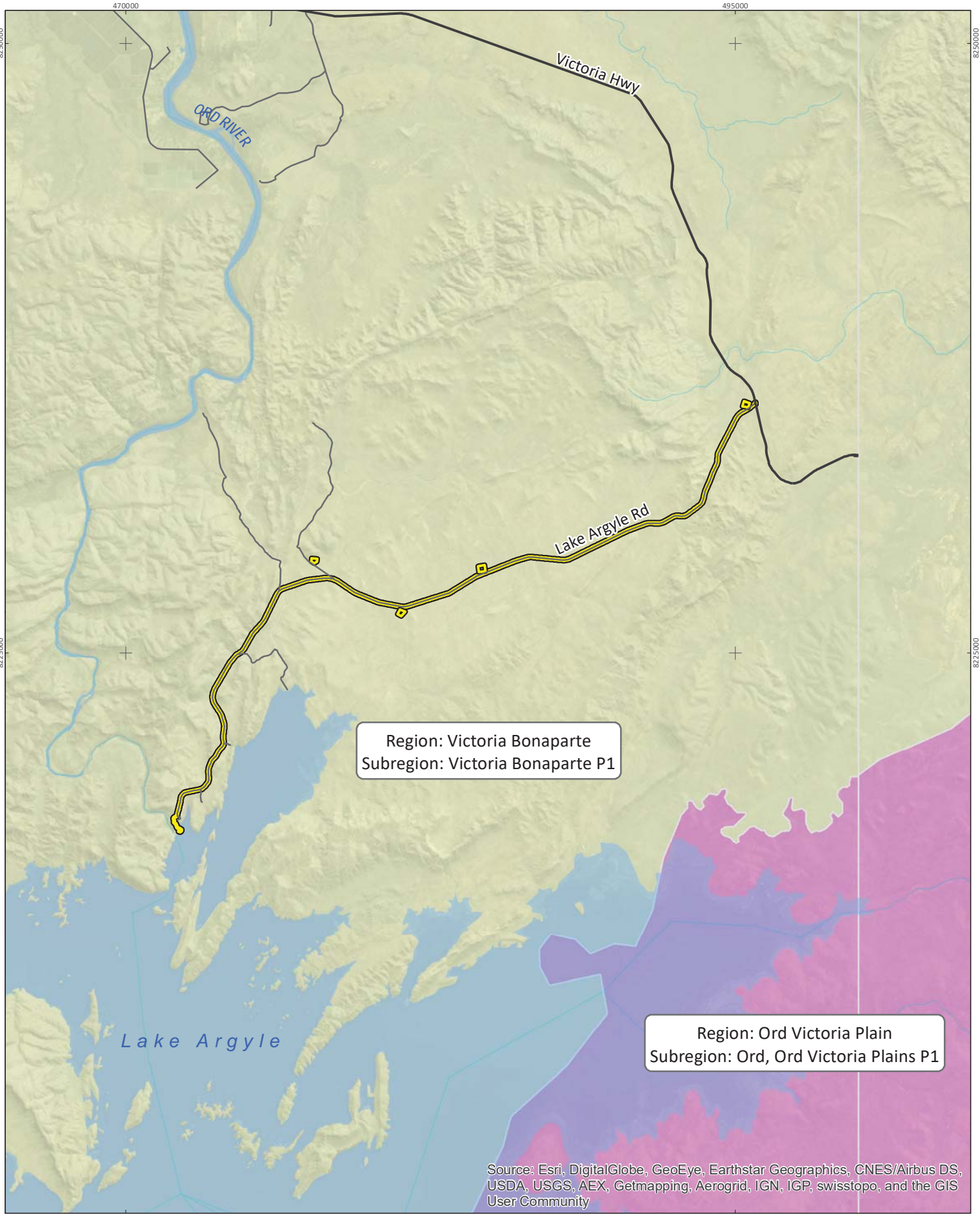
### 3.2 LAND SYSTEMS





The Department of Agriculture and Food WA has mapped broad land systems from aerial photography. Land systems are grouped according to a combination of landform, soils, vegetation and drainage patterns (Schoknecht & Payne 2011). The study area contains four land systems (Figure 3-2) with the Pinkerton and Pompey systems comprising the majority of the study area (Table 3-1). Typically, less than 0.1% of each land system is present within the study area.

**Table 3-1**      **Extent of each land system present in the study area**

Land system	Description	Total area (ha)	Area in study area (ha)	Proportion (%) of land system	Proportion (%) of study area
Cockatoo	Sandplains with eucalypt woodlands and spinifex/tussock grasses.	237800	23.60	0.009	10.81
MacPhee	Undulating plains with eucalypt woodlands and mixed grasses	110600	120.40	0.108	55.15
Pinkerton	Hills ranges and plateau with eucalypt woodlands and tall grasses.	1532500	72.50	0.005	33.21
Pompey	Hills ranges and plateau with eucalypt woodlands and spinifex.	164800	1.82	0.001	0.83

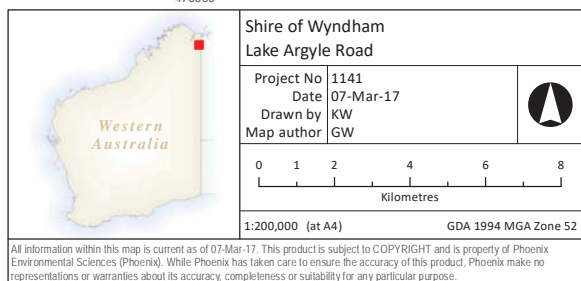
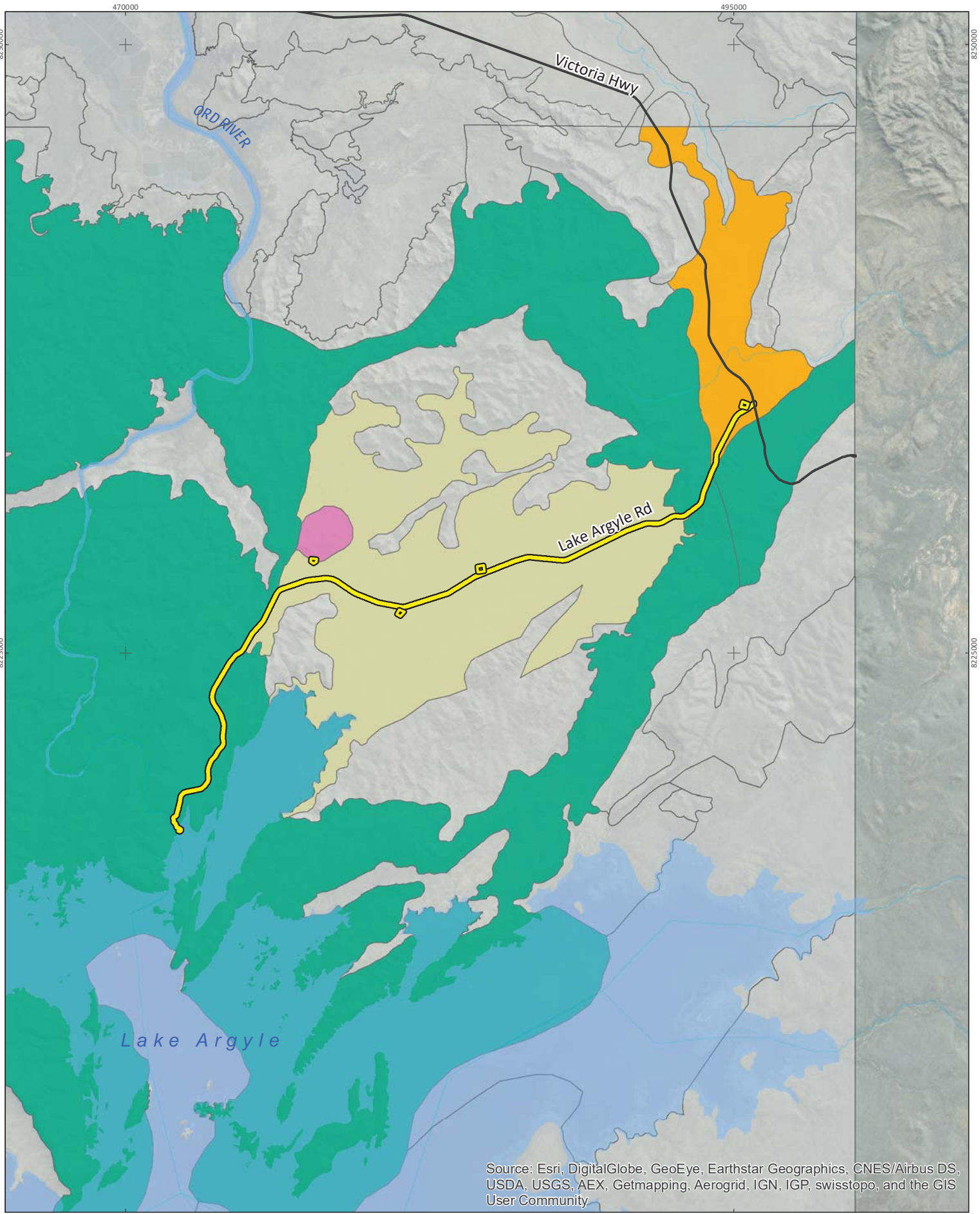




-  Study area
-  IBRA region
-  Victoria Bonaparte
-  Ord Victoria Plain

**Figure 3-1**

**IBRA region of the study area**



- Study area
- Land systems within the study area
- Cockatoo System
  - MacPhee System
  - Pinkerton System
  - Pompey System
  - All other land systems

**Figure 3-2**

**Land systems of the study area**



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### 3.3 CLIMATE AND WEATHER

The nearest Bureau of Meteorology (BOM) weather station to the study area with comprehensive data collection and historic climate data is located at Argyle (Latitude: 16.64°S, Longitude: 128.45 °E) approximately 30 km to the west. On average, Argyle records the highest maximum mean monthly temperature (38.8 °C) in November and the lowest maximum mean monthly temperature (29.4 °C) in June. Average annual rainfall is 755.7 mm with December to March (the wet season) recording the highest monthly averages (142, 161, 183 and 151 mm respectively) and very little rain in the dry season, June to September (Figure 3-3). Tropical rain-bearing depressions can cause heavy rainfall events in the wet season (BoM 2016).

Mean monthly temperatures recorded in the 12 months preceding the field survey were higher than the annual means from February to September and comparable with averages until December 2016. The mean maximum temperature a month prior to the survey was lower than average. Total monthly rainfall for the 12 months preceding the survey was below the long-term monthly average (705.4 mm) with approximately 50% below average rainfall recorded in February, March and April 2016, resulting in an early start to the dry season in 2016. However, rainfall was well above average in the three months prior to the survey (November, December 2016 and January 2017). The early onset of the wet season in 2016 had promoted early establishment of annual flora species that typically emerge after the wet season in the Kimberley.

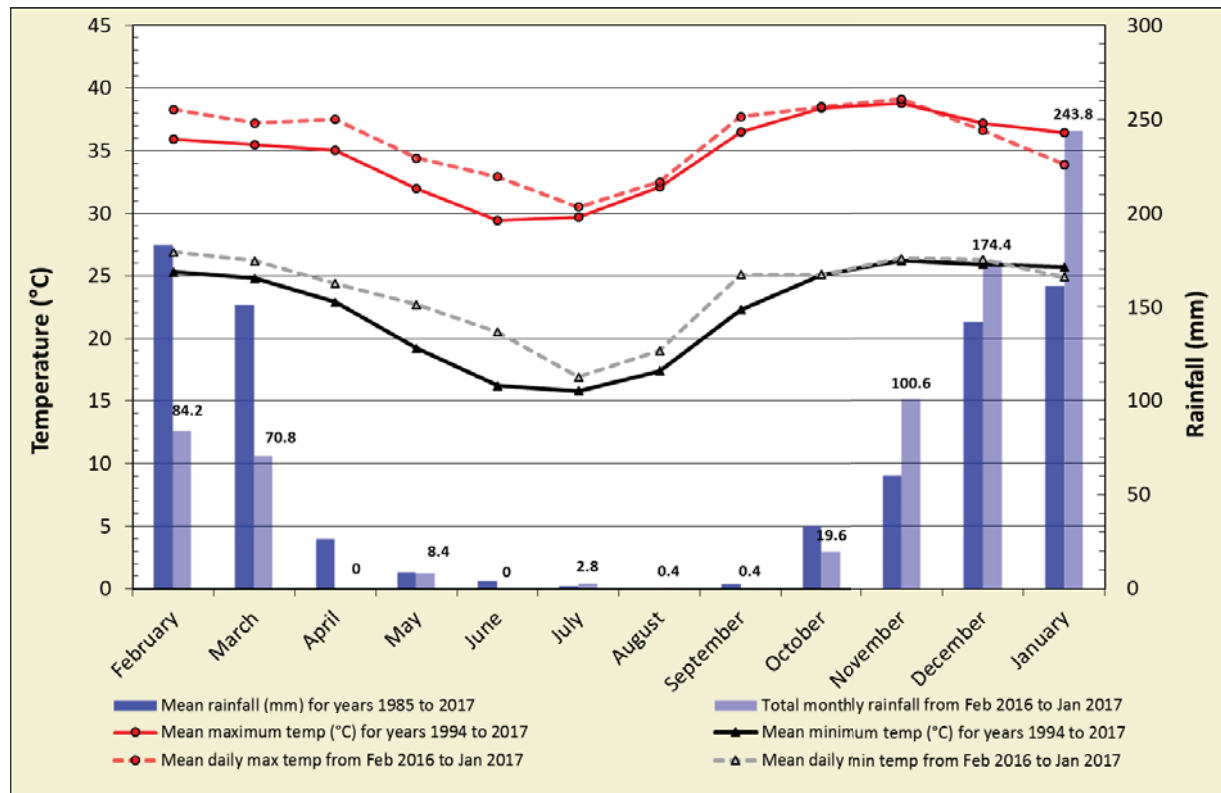


Figure 3-3 Annual climate data (average monthly temperatures and rainfall records) and records for the year preceding the field survey for 'ARGYLE AERODROME' weather station (no. 002064) (BoM 2016)

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## 4 RESULTS

### 4.1 DESKTOP REVIEW

#### 4.1.1 Conservation significant flora

A total of 43 conservation significant flora species were identified from the database searches as previously recorded within a 40 km radius of the study area (Table 4-1). These species included:

- 1 Protected Flora species, listed under the WC Act
- 23 Priority 1 species
- 6 Priority 2 species
- 12 Priority 3 species
- 1 Priority 4 species.

Of the species listed above, 18 conservation significant species were recorded within a 20 km buffer of the study area (Figure 4-1).

**Table 4-1 Conservation significant flora species identified by the database searches**

Species	Conservation status	Habitat
<i>Typhonium</i> sp. Kununurra (A.N. Start ANS 1467)	Threatened (S2, EN)	Dark grey clay, black soil. Sites which are waterlogged in summer and inundated after rain (DPaW 2017).
<i>Acacia hypermeces</i>	Priority 1	Alluvial sand over sandstone (ALA 2017; DPaW 2017).
<i>Acacia mackenziei</i>	Priority 1	Found in scattered woodland restricted to a single sandstone range near Kununurra where the population. Occurs on both sides of a high ridge dissected by a narrow gorge (Maslin & Barrett 2014).
<i>Acacia repens</i>	Priority 1	Primarily found in scattered or sparse woodlands. Also can be found in herbaceous graminoids open tussock and sparse hummock grasslands (ALA 2017). Grows on steep sandstone hillsides with spinifex ( <i>Triodia</i> ) and shrubland (WorldWideWattle 2017).
<i>Acacia seclusa</i>	Priority 1	Found only in riparian areas in scattered woodlands (WorldWideWattle 2017).
<i>Acacia setulifera</i>	Priority 1	Found in sparse and scattered woodlands, sometimes in open woodlands, also found in herbaceous graminoids sparse hummock grasslands (ALA 2017). Rarely found in herbaceous graminoids open tussock grasslands, sparse shrublands, non-vegetated bare areas and waterbodies (ALA 2017). Grows mainly on sandstone ridges or escarpments, in eucalypt or <i>Terminalia</i> woodland (WorldWideWattle 2017).
<i>Asteromyrtus arnhemica</i>	Priority 1	Primarily found in scattered, sparse or open woodlands. Sometimes in closed woodlands and herbaceous graminoids sparse hummock grasslands (ALA 2017). Sandstone, banks of seasonal streams, near waterfalls, along tracks in wet areas (ALA 2017).

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Species	Conservation status	Habitat
<i>Clerodendrum inerme</i>	Priority 1	Somewhat saline habitats, behind beach (DPaW 2017). Primarily found in scattered shrublands, closed and sparse woodlands (ALA 2017).
<i>Desmodium flagellare</i>	Priority 1	Cracking clay (DPaW 2017). Primarily found in sparse woodlands often with herbaceous graminoids open tussock grasslands, also found in open and scattered woodlands, and rarely in rainfed graminoids and closed shrublands (ALA 2017).
<i>Goodenia brachypoda</i>	Priority 1	Red sandy loam (DPaW 2017). Primarily found in sparse woodlands sometimes with herbaceous graminoids sparse hummock grasslands, can also be found in open woodlands (ALA 2017).
<i>Goodenia malvina</i>	Priority 1	Grasslands on cracking black clay soils in seasonally wet areas (DPaW 2017) (Carolin 1990). Primarily found in sparse to open woodlands sometimes with herbaceous graminoids open tussock grasslands in rainfed areas (ALA 2017).
<i>Heliotropium tachyglossoides</i>	Priority 1	Cockatoo sand (DPaW 2017). <i>Eucalyptus brevifolia</i> open woodland, sandy soil amongst rocks in small sandstone valley (ALA 2017), mid high open woodland of <i>Eucalyptus pruinosa</i> with some <i>Corymbia terminalis</i> over medium grass layer, sandy site on edge of levee forming high bank of Humbert River channel.
<i>Hullisia argillicola</i>	Priority 1	Heavy clay soils, in seasonally inundated regions eg swamps, cracking clay plains, paddocks (DPaW 2017). Damper lower areas of cracking clay plain with nardoo (ALA 2017), in and out of water on edge of seasonal ( <i>Eucalyptus microtheca</i> ) swamp, widely scattered plants in ephemeral marsh, sparse cover of annual herbs and grasses.
<i>Iseilema trichopus</i>	Priority 1	Sandy loam (DPaW 2017). Primarily found in herbaceous graminoids open tussock grasslands, can also be found in sparse to open woodlands, rarely in non-vegetated waterbodies and herbaceous graminoids rainfed pastures (ALA 2017).
<i>Scaevola</i> sp. Cockburn Range (G.W. Carr 3369 & A.C. Beaglehole 47147)	Priority 1	Recorded at a single location growing close to creekline in a sandstone gorge (ALA 2017).
<i>Scleria annularis</i>	Priority 1	Sandy soils (DPaW 2017). Primarily occurs in sparse woodlands (ALA 2017) can also be found in scattered and open woodlands sometimes with herbaceous graminoids sparse hummock grasslands, recorded in open swampy drainage line in grassland with scattered <i>Eucalyptus confertiflora</i> and <i>E. pruinosa</i> .
<i>Solanum pugiunculiferum</i>	Priority 1	Heavy soils (DPaW 2017). Margins of seasonal wetlands or lagoons (ALA 2017), flat marine plain, adjacent to salt pans, Grasslands, dark grey silty cracking clay, scattered along roadside. Herbland. Saltflat. Saline soil. In saline depression behind coastal sand dune (ALA 2017).
<i>Tephrosia</i> sp. Saw Ranges (D. Kabay s.n. PERTH 06720544)	Priority 1	No habitat information available.
<i>Triodia fitzgeraldii</i>	Priority 1	Rocky skeletal soils, sandstone hills (DPaW 2017). Above dry vine



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Species	Conservation status	Habitat
		thicket at head of gully on lateritic plateau. On top of scree slope dominated by <i>Eucalyptus umbrawarrensensis</i> , on rocky skeletal slope of sandstone hill, growing amongst other grasses near top of sandstone escarpment (ALA 2017).
<i>Triodia prona</i>	Priority 1	Lower slopes of sandstone mountain range (DPaW 2017). On lower sandstone slopes with <i>Triodia</i> spp. and low trees and shrubs (ALA 2017).
<i>Triodia racemigera</i>	Priority 1	Sandstone. Steep rocky slopes, crevices, cliffs & ridges (DPaW 2017).
<i>Triodia triticoides</i>	Priority 1	Rocky sandstone & limestone hillslopes (DPaW 2017). Common in <i>Eucalyptus miniata</i> / <i>Corymbia dichromophloia</i> open woodland with <i>Triodia triticoides</i> ; on minor gully leading from sandstone gorge, sandstone boulders and minor pavement; many thousands of plants around rim of gorge system, in tall (1.5m) grass in sandstone heathland on flat plateau. Common with <i>Triodia bitextura</i> in rocky spinifex shrubland on broken hillslope with sandstone outcropping (ALA 2017).
<i>Utricularia tridactyla</i>	Priority 1	Moist sandy soils, seepage areas, flats (DPaW 2017). Herbfield with scattered <i>Melaleuca nervosa</i> , <i>Utricularia chrysantha</i> , on rocky soil near roadside, damp depression, damp depression with <i>Melaleuca</i> sp. and low sedges/herbs (ALA 2017).
<i>Utricularia tubulata</i>	Priority 1	Ephemeral swamps (DPaW 2017). Suspended aquatic herb floating in a large swamp (ALA 2017), flooded grassland on edge of large swamp.
<i>Dolichandrone filiformis</i>	Priority 2	Sandstone, sandy soils (DPaW 2017). Primarily occurs in sparse woodlands, can also be found in open woodlands sometimes with herbaceous graminoids open tussock grasslands and in herbaceous graminoids rainfed pastures (ALA 2017).
<i>Eucalyptus ordiana</i>	Priority 2	Skeletal soils over sandstone or quartzite, steep rocky outcrops (DPaW 2017). Shrublands and low open woodlands on the upper slopes of sandstone ranges, associated species include <i>Terminalia canescens</i> , <i>Triodia</i> spp., <i>Eucalyptus brevifolia</i> and <i>E. confluens</i> (Hill & Johnson 1992).
<i>Fimbristylis laxiglumis</i>	Priority 2	Black clay (DPaW 2017). Ditch in raised banks beside road, red gravelly sand-clay, disturbed cultivated floodplain adjacent, vegetation dominated by <i>Sesbania</i> , remnant herbfield with <i>Mimosa</i> sp., <i>Fimbristylis</i> in ditch, Kununurra black clay in rice bays (ALA 2017).
<i>Melaleuca viminalis</i>	Priority 2	Restricted to a small gorge area, stoney river bed, in rapids; volcanics and sandstone. Associated vegetation: <i>Celtis</i> sp., <i>Albizia lebeck</i> , <i>Lophostemon</i> , <i>Timonius timon</i> , <i>Pandanus aquaticus</i> , grasses, growing around pools below the main falls (ALA 2017).
<i>Platysace saxatilis</i>	Priority 2	Sand, sandstone, valleys and hills, in crevices in the rock face, on sides of gorges, on cliff sides (DPaW 2017). Ruiniform sandstone towers with occasional <i>Eucalyptus pyrophora</i> , on sandy bank beside permanent watercourse in sandstone gorge; <i>Syzygium angophoroides</i> open forest (ALA 2017).

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Species	Conservation status	Habitat
<i>Tephrosia</i> sp. Kununurra (T. Handasyde TH00 250)	Priority 2	No habitat information available
<i>Acacia jasperensis</i>	Priority 3	Sandstone outcrops (DPaW 2017). Primarily occurs in sparse woodlands, can also be found in scattered and open woodlands sometimes with herbaceous graminoids sparse hummock grasslands (ALA 2017).
<i>Acacia richardsii</i>	Priority 3	Sandstone, hills, creek beds, rocky areas (DPaW 2017). Primarily occurs in sparse woodlands near non-vegetated waterbodies sometimes with herbaceous graminoids sparse hummock grasslands, can be also found in scattered and open woodlands (ALA 2017).
<i>Brachychiton tuberculatus</i>	Priority 3	Red or yellow sand, undulating plains (DPaW 2017). Primarily occurs in sparse woodlands, can also be found in scattered and open woodlands and in non-vegetated water bodies. Rarely in closed woodlands (ALA 2017).
<i>Eragrostis schultzei</i>	Priority 3	Often in low-lying habitats (DPaW 2017). Often in low-lying alluvial habitats (in or near lagoons, small streams, swamps, lakes, drainage channels, waterfalls); in usually sandy or loam soils associated with sandstone, quartzite, granite or laterite (ALA 2017).
<i>Euphorbia stevenii</i>	Priority 3	Clay, sandy soils (DPaW 2017). Primarily occurs in sparse woodlands often with herbaceous graminoids hummock and tussock grasslands. Can be also found in scattered and open woodlands, shrublands, and non-vegetated waterbodies and rainfed areas.
<i>Fuirena nudiflora</i>	Priority 3	Sand, swamps, creek beds (DPaW 2017). Primarily occurs in sparse woodlands often with herbaceous graminoids sparse hummock grasslands. Can be also found in scattered, open and woodlands.
<i>Goodenia sepalosa</i> var. <i>glandulosa</i>	Priority 3	Red sand or loam (DPaW 2017). Primarily occurs in sparse woodlands sometimes with herbaceous graminoids sparse hummock grasslands or open tussock grasslands, can also be found in open woodlands (ALA 2017).
<i>Pityrodia obliqua</i>	Priority 3	Sandstone or quartzite, rocky faces in mountain ranges (DPaW 2017). Primarily occurs in sparse woodlands sometimes with herbaceous graminoids sparse hummock grasslands and in rainfed herbaceous graminoids, can be also found in scattered woodlands (ALA 2017).
<i>Stylidium prophyllum</i>	Priority 3	Sandy, black silty or clayey sandy soils, loam, seasonally wet floodway depressions & seepage areas (DPaW 2017). In white sandy soils, black silty soils and sand and laterite soils on wet season seepage areas and floodways, growing long and lax up through dense grass in wetter areas, shortly erect and self supporting in open areas amongst open grass and herbs with <i>Stylidium fissilobium</i> ., <i>S. costulatum</i> , <i>Drosera derbyensis</i> <i>D. indica</i> , <i>Byblis liniflora</i> subsp. <i>occidentalis</i> and <i>Utricularia chrysantha</i> in Silent Grove region; with <i>Drosera ordensis</i> , <i>Byblis liniflora</i> subsp. <i>liniflora</i> ., <i>Byblis liniflora</i> subsp. <i>occidentalis</i> <i>D. indica</i> , <i>Utricularia tridactyla</i> and <i>Utricularia chrysantha</i> west of Kununurra (Lowrie &

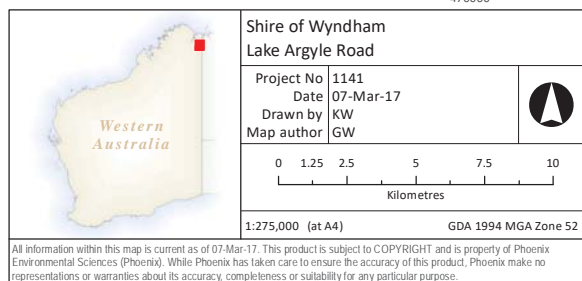
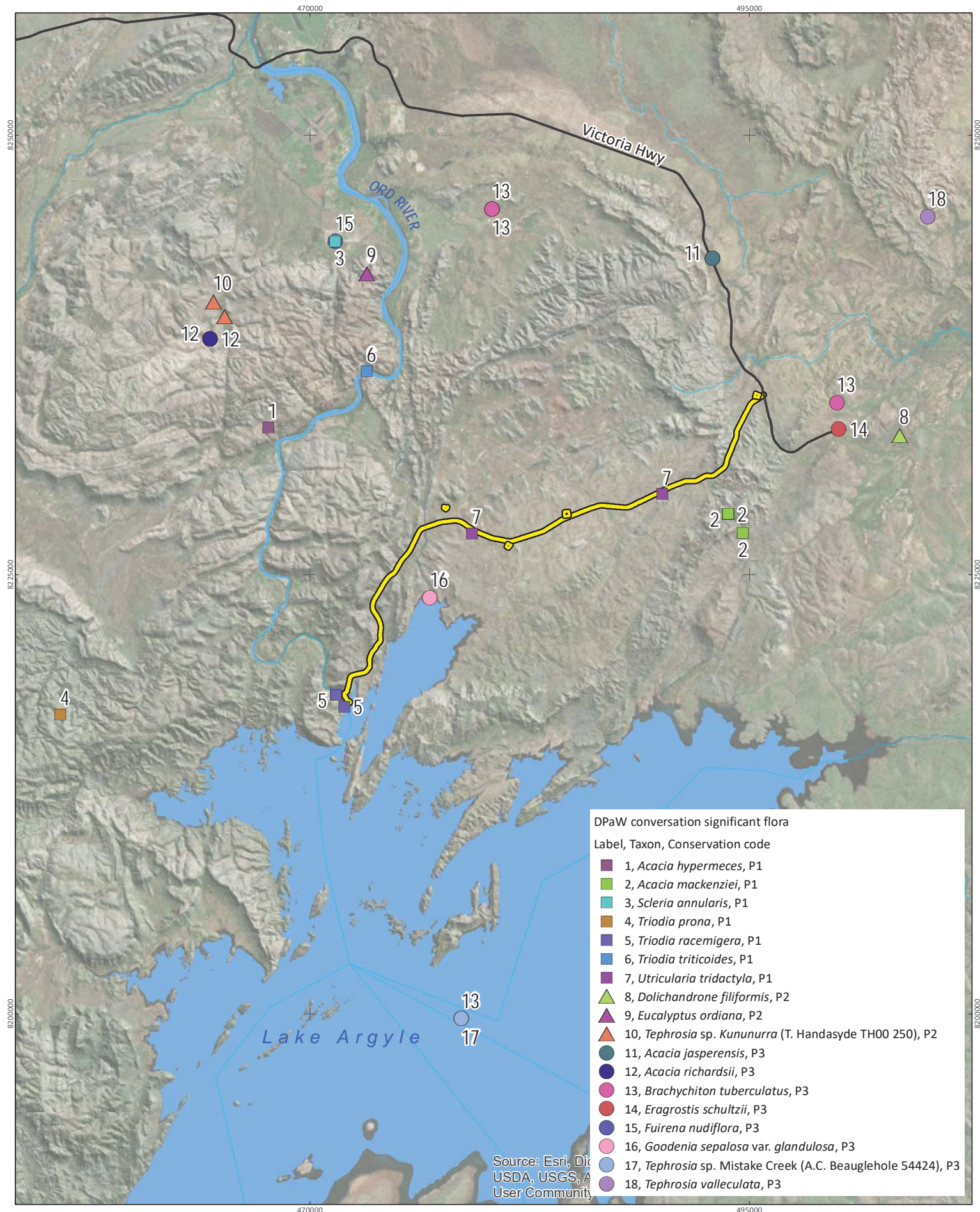
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Species	Conservation status	Habitat
		Keneally 1997).
<i>Tephrosia</i> sp. Mistake Creek (A.C. Beaglehole 54424)	Priority 3	Primarily occurs in herbaceous graminoids sparse hummock grasslands and scattered to sparse woodlands, also found in herbaceous graminoids open tussock grasslands and closed shrublands. Rarely found in non-vegetated waterbodies (ALA 2017).
<i>Tephrosia valleculata</i>	Priority 3	Sandy, often shallow, soil around sandstone, rock outcrops (DPaW 2017). Primarily occurs in sparse woodlands often with sparse herbaceous graminoids hummock grasslands, can be also found in scattered woodlands (ALA 2017).
<i>Utricularia muelleri</i>	Priority 3	Seasonal swamps (DPaW 2017). Primarily occurs in sparse and open woodlands sometimes in water bodies. can be also found in closed woodlands, rarely in sparse herbaceous graminoids tussock or hummock grasslands and shrublands (ALA 2017).
<i>Ficus lilliputiana</i>	Priority 4	Sandstone, rocky sites (DPaW 2017). Primarily occurs in sparse and scattered woodlands on rock faces sometimes with sparse herbaceous graminoids hummock grasslands (ALA 2017).





Study area

#### Figure 4-1

Location of conservation significant flora from DPaW database searches occurring within 20 km of the study area



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## 4.1.2 TEC/PECs

The DPaW threatened and priority ecological communities database search identified six State listed PECs within a 40 km buffer of the study area (Table 4-2; Figure 4-1). The closest PEC, Plant assemblages on vertical sandstone surfaces (P1) occurs approximately 3 km south of the study area. Other PECs are Priority 3 and occur more than 10 km from the study area.

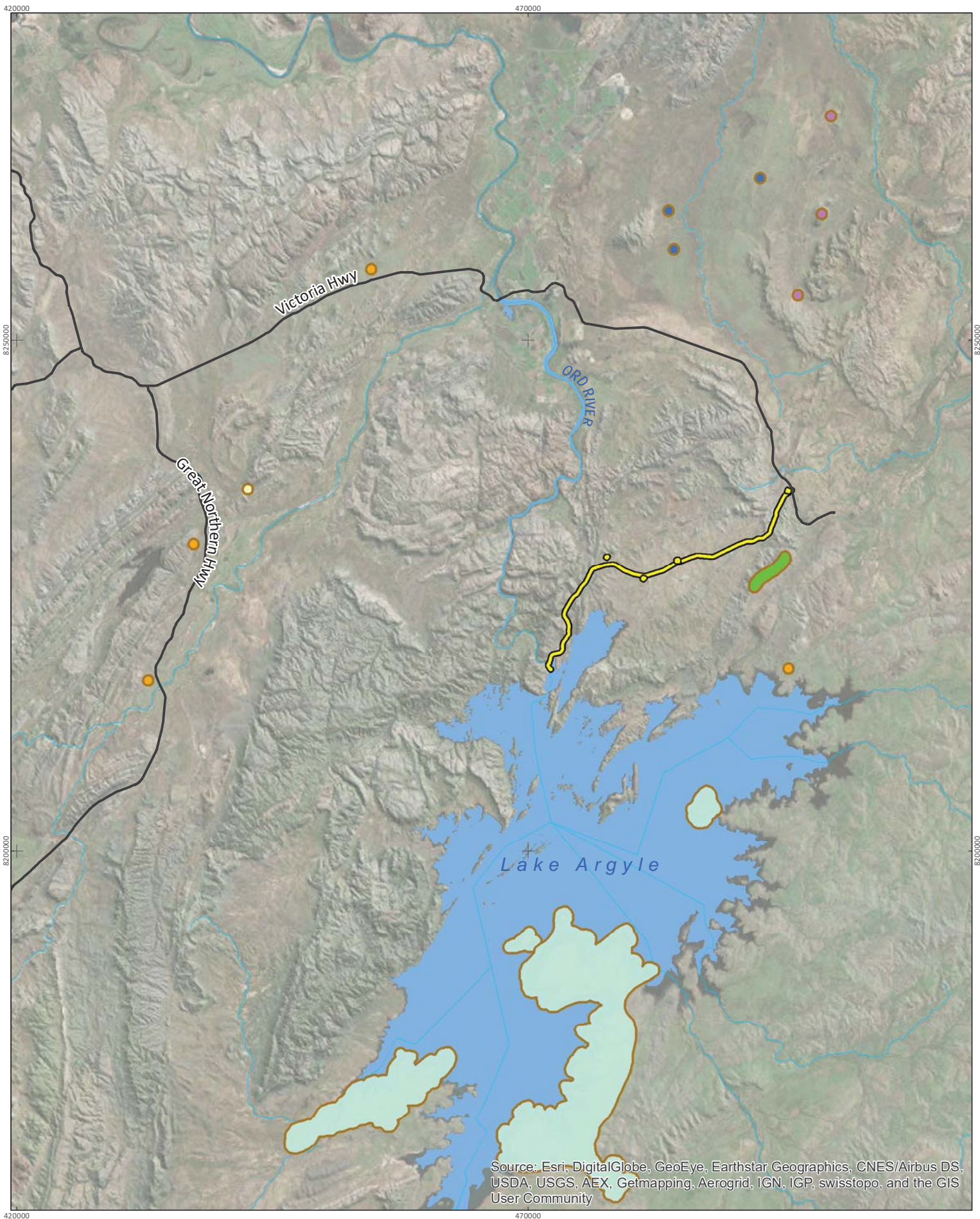
Plant assemblages on vertical sandstone surfaces in the east Kimberley occur on cliffs and sparsely vegetated rocky slopes that provide habitat for a number of conservation listed or poorly known plant species for Western Australia including *Adiantum capillus-veneris* L., *Doodia caudata* (Cav.) R.Br., *Eucalyptus ordiana* Dunlop & Done, *Ficus lilliputiana* D.J.Dixon, *Jacquemontia* sp. Keep River (J.L. Egan 5015), *Lindernia cleistandra* W.R.Barker (s. str.), *Lindernia eremophiloides* W.R.Barker, *Pityrodia obliqua* W.V.Fitzg., *Taenitis pinnata* (J.Sm.) Holttum, *Triodia bunglensis* S.W.L. Jacobs, *T. fitzgeraldii* N.T.Burb., *T. fissura* R.L.Barrett, G.B.Wells & K.W.Dixon, *T. racemigera* C.A.Gardner, *Triodia barbata* R.L. Barret & M.D.Barrett and *Triodia cremnophila* R.L. Barret & M.D.Barrett (Maslin & Barrett 2014).

The Protected Matters database search did not return any EPBC Act or WC Act listed TECs within 40 km of the study area.

**Table 4-2** Priority ecological communities recorded within 40 km of the study area

Community identification	Community name	PEC Code	Approximate nearest location to study area
Vertical sandstone surfaces	Plant assemblages on vertical sandstone surfaces	P1	3 km south-east
Argyle Land System	Argyle Land System of the Kimberley region	P3	22 km south
Dinnabung	Dinnabung Land System	P3	30 km north
Ivanhoe Land System	Ivanhoe Land System	P3	34 km north-west
Tanmurra Land System	Tanmurra Land System	P3	19 km north
Willeroo Land System	Willeroo Land System	P3	14 km south





Shire of Wyndham  
Lake Argyle Road

Project No 1141  
Date 07-Mar-17  
Drawn by KW  
Map author GW









0 2 4 8 12 16  
Kilometres

1:475,000 (at A4) GDA 1994 MGA Zone 52



Study area

TEC/PEC search results

-  Plant assemblages on vertical sandstone surfaces (P1)
-  Argyle Land System of the Kimberley region (P3)
-  Dinnaburg Land System (P3)
-  Ivanhoe Land System (P3)
-  Tanmurra Land System (P3)
-  Willeroo Land System (P3)

**Figure 4-2**

**Location of TECs/PECs  
within 40 m of the study  
area**



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ENVIRONMENTAL SCIENCES

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## 4.1.3 Declared pests and WoNS

A total of 15 declared pest flora species were identified from the database searches previously recorded within 40 km radius of the study area (Table 4-3). The species include six WoNS.

**Table 4-3 Declared pests and WoNS identified in the database searches**

Species	Status
* <i>Andropogon gayanus</i>	Declared pest
* <i>Cryptostegia madagascariensis</i>	Declared pest
* <i>Datura inoxia</i>	Declared pest
* <i>Jatropha gossypifolia</i>	Declared pest, WoNS
* <i>Lantana camara</i>	Declared pest, WoNS
* <i>Parkinsonia aculeata</i>	Declared pest, WoNS
* <i>Parthenium hysterophorus</i>	Declared pest, WoNS
* <i>Salvinia molesta</i>	Declared pest, WoNS
* <i>Senna alata</i>	Declared pest
* <i>Senna obtusifolia</i>	Declared pest
* <i>Sida acuta</i> subsp. <i>acuta</i>	Declared pest
* <i>Sida cordifolia</i>	Declared pest
* <i>Themeda quadrivalvis</i>	Declared pest
* <i>Vachellia nilotica</i> subsp. <i>indica</i>	Declared pest, WoNS
* <i>Ziziphus mauritiana</i>	Declared pest

## 4.2 FIELD SURVEY

### 4.2.1 Vegetation descriptions

Vegetation types were described at eight relevés (Table 4-4; Figure 4-3). The most prominent vegetation type comprised low *Eucalyptus*, *Melaleuca* and *Terminalia* woodlands over sparse mixed shrublands over mixed grasslands with *Sorghum*, *Eriachne* and *Triodia* species prominent on flat plains in clay/clay-loam soils.

The rocky hills, which were largely restricted to the eastern and western ends of the study area, were vegetated by *Eucalyptus* spp., *Cochlospermum fraseri*, *Owenia vernicosa* and *Terminalia canescens* woodlands over mixed sparse shrublands over *Triodia* spp. grasslands. The numerous drainage lines in the study area were vegetated by low open *Corymbia* sp., *Terminalia canescens* and *Cochlospermum fraseri* woodland over grasslands dominated by *Sorghum* spp.

Condition of vegetation was excellent (based on Trudgen 1991) at all sites, except for borrow pits where it was a combination of excellent (surrounding vegetation) and degraded (excavated pit).

Vegetation characterised at two known locations of a Priority Flora species, *Utricularia tridactyla* comprised low *Terminalia canescens* and *Melaleuca viridiflora* woodland over dense grassland with *Sorghum* and *Triodia* species dominant in low lying plain (inundated in approximately 10 cm of water






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at the time of the survey) in clay with surface laterite. This habitat was subsequently targeted in the field survey.

**Table 4-4 Habitat described in the study area**

Relevé	Habitat description	Vegetation	Photograph
OPP034	Flat plain with red-brown clay soil and granite outcropping.	Low open <i>Terminalia canescens</i> woodland over isolated tall <i>Dolichandrone filiformis</i> shrubland over mid <i>Sorghum</i> sp. and <i>Eriachne obtusa</i> grassland.	 12 FEB 2017 523 E: 482746.6 N: 8027294.1
OPP044 Known loc of U.t None found	Flat plain, seepage/drainage area inundated with large areas inundated with water, red-brown clay/laterite soil.	Low <i>Terminalia canescens</i> woodland over <i>Sorghum</i> sp. and <i>Triodia bitextura</i> grassland over <i>Lindernia clausa</i> and <i>Drosera ordensis</i> forbs.	
OPP048	Hill top with outcropping sandstone and brown clay loam soil	Low <i>Eucalyptus</i> sp., <i>Owenia vernicosa</i> and <i>Terminalia canescens</i> woodland over isolated tall <i>Cochlospermum fraseri</i> shrubs over <i>Triodia bitextura</i> and <i>T. stenostachya</i> grassland.	

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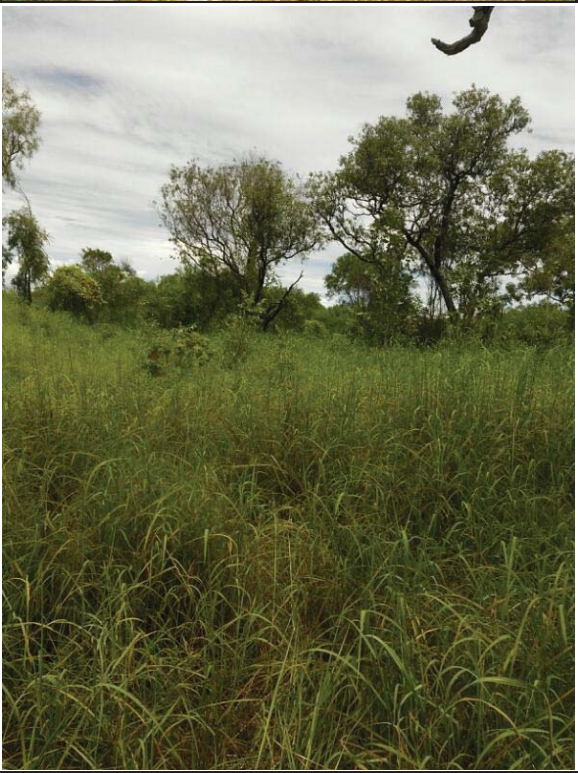
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Relevé	Habitat description	Vegetation	Photograph
OPP050	Drainage line on hill slope with red orange clay loam soil and sandstone rock outcrops	Low open woodland of <i>Eucalyptus</i> sp. and <i>Owenia vernicosa</i> over isolated mid <i>Celrodendrum floribundum</i> subsp. <i>coriaceum</i> over <i>Triodia bitextura</i> grassland.	
OPP056	Drainage line on hill slope with red orange clay loam soil and granite rock outcrops	Low open <i>Cochlospermum fraseri</i> and <i>Eucalyptus</i> sp. woodland over a mid <i>Triumfetta clivorum</i> , <i>Tephrosia phaeosperma</i> and <i>T. virens</i> shrubland over mid <i>Sorghum timorense</i> and <i>Triodia bitextura</i> grassland.	
OPP060	Undulating plain with seepage areas inundated with up to 5 cm water with red-brown clay soil and granite boulders.	Low <i>Melaleuca viridiflora</i> and <i>Terminalia canescens</i> woodland over mid <i>Eriachne obtusa</i> , <i>Leptochloa digitata</i> and <i>Sorghum</i> sp. grassland over low sparse <i>Drosera ordensis</i> , <i>Lindernia clausa</i> and <i>Utricularia tridactyla</i> forbland and low open <i>Cyperus pulchella</i> sedgeland.	



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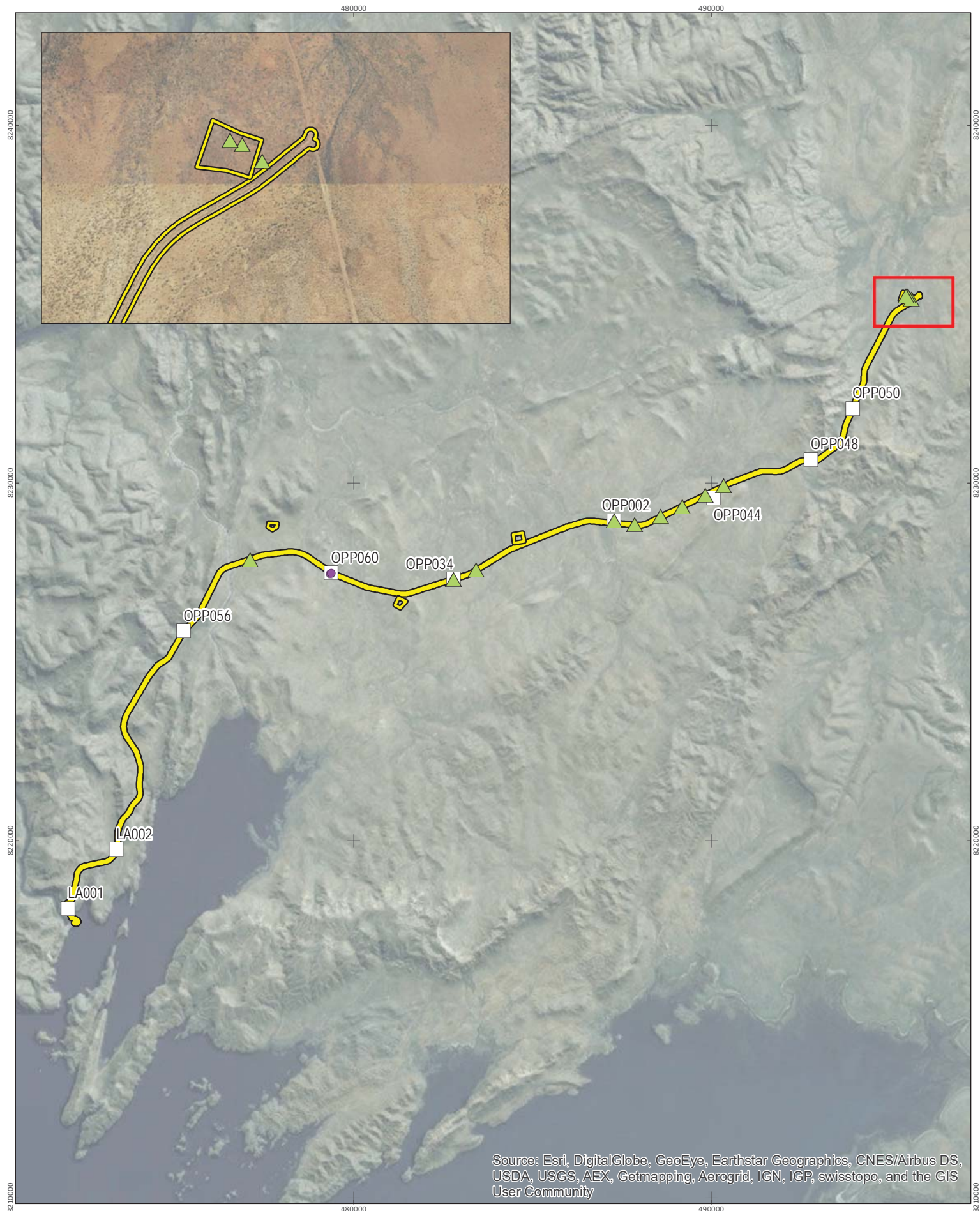
Relevé	Habitat description	Vegetation	Photograph
LA001	Hill crest with red-orange clay soil and granite rocks	Low <i>Terminalia canescens</i> and <i>Cochlospermum fraseri</i> woodland over mid open <i>Cajanus pubescens</i> , <i>Corchorus sidoides</i> subsp. <i>sidoides</i> and <i>Triumfetta clivorum</i> shrubland over low open <i>Triodia bynoei</i> and <i>T. burbridgeana</i> grassland.	
LA002	Broad drainage line with black clay loam soil.	Low open <i>Corymbia flavescens</i> , <i>Terminalia canescens</i> and <i>Cochlospermum fraseri</i> woodland over tall <i>Sorghum</i> sp. grassland.	

## 4.2.2 Conservation significant flora

Two Priority Flora species were recorded in the study area during the survey, *Utricularia tridactyla* (P1) and *Dolichandrone filiformis* (P2) (Figure 4-3). No Commonwealth or State listed Threatened Flora were recorded in the survey.

Two database records for the Priority 1 species *Triodia racemigera* in the study area were revisited during the survey; however, no plants of this species were located.





Western Australia

Shire of Wyndham Lake Argyle Road	
Project No	1141
Date	07-Mar-17
Drawn by	KW
Map author	GW

0 0.5 1 2 3 4  
Kilometres

1:135,000 (at A4) GDA 1994 MGA Zone 52

All information within this map is current as of 07-Mar-17. This product is subject to COPYRIGHT and is property of Phoenix Environmental Sciences (Phoenix). While Phoenix has taken care to ensure the accuracy of this product, Phoenix make no representations or warranties about its accuracy, completeness or suitability for any particular purpose.

- Study area
- Relevé
- Priority flora records
- Utricularia tridactyla*, P1
  - Dolichandrone filiformis*, P2

**Figure 4-3**

**Locations of priority flora recorded during the field survey**



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## 4.2.2.1 *Utricularia tridactyla*

Status: Priority 1 (DPaW)

Description: Terrestrial annual herb with violet-purple flowers in March (DPaW 2017) (Figure 4-4).

Distribution and ecology: *Utricularia tridactyla* is known from 11 locations, eight in Western Australia and three in the Northern Territory including an island off the Northern Territory coast (ALA 2017). All eight records in Western Australia are located in the Victoria Bonaparte IBRA region (DPaW 2017). No population numbers are provided for any records of *U. tridactyla* with the exception of a comment on a 1978 record that the species was 'very common'. Habitat descriptions for the species include:

- on roadside
- on rocky soil near roadside
- damp depression
- amongst dense Cyperaceous sward in *Corymbia polycarpa* open wet woodland; humic loam in drainage depression on plain
- sedgeland swamp with dark soils and scattered paperbarks, in shallow water
- swampy depression near roadside drain with sedges
- wet orange sand in *Grevillea pteridifolia* woodland over *Triodia* grassland
- back soil swampy flat with paperbarks over sedgeland, in shallow water
- open, sandy seepage area at base of slope
- moist sandy flat savanna country; open ground, layer of grasses, sedges and herbs
- damp depression with *Melaleuca* sp. and low sedges/herbs.

Records and distribution in the study area: The desktop study identified two populations of *Utricularia tridactyla* in close proximity to the study area. Targeted searches for the species at these locations identified one large population within and extending out of the study area (Figure 4-3; Figure 4-5). The recorded population of *Utricularia tridactyla* comprised in excess of 130 individuals. The closest recorded plant of the species occurred approximately 10m from the current road reserve (the mapped polygon provides a 5 m buffer for the population).

No plants were sighted at the second desktop record despite intensive foot searches at this location.



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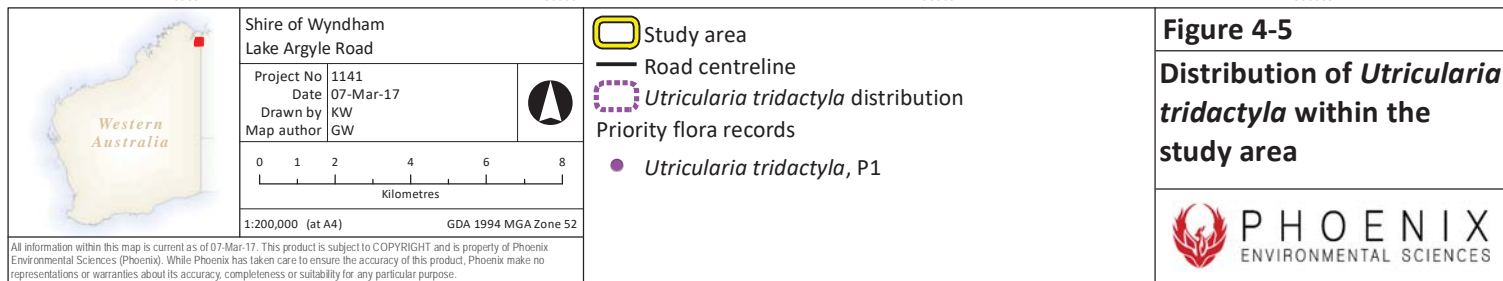
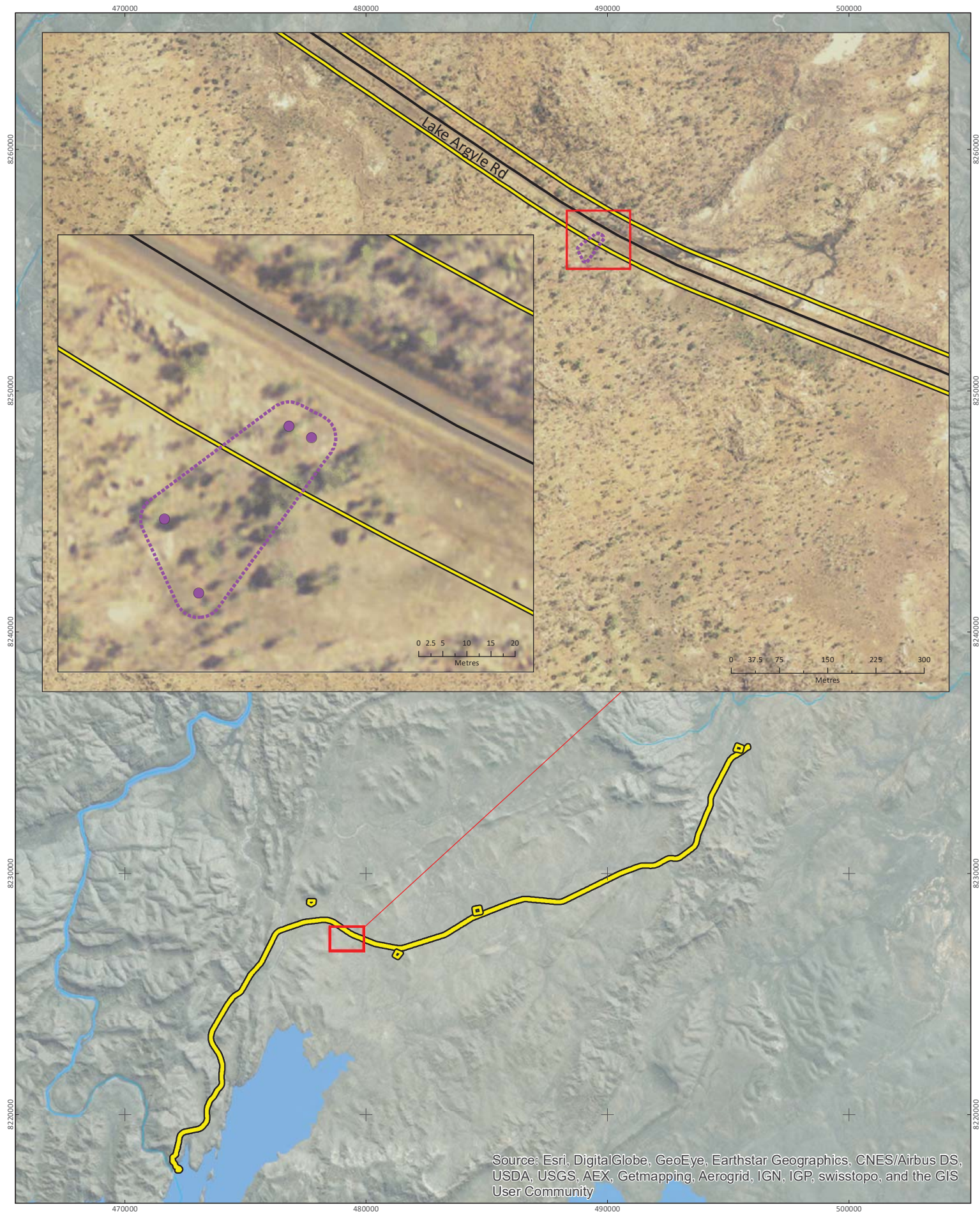
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Figure 4-4 *Utricularia tridactyla* in the population located in the study area





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## 4.2.2.2 *Dolichandrone filiformis*

Status: Priority 2 (DPaW)

Description: Shrub or tree to 4 m high with white flowers in December (DPaW 2017) (Figure 4-6).

Distribution and ecology: *Dolichandrone filiformis* is known from 91 locations, six in Western Australia and the remainder in the Northern Territory including an island off the Northern Territory coast (ALA 2017). In Western Australia, the species has been recorded in the Victoria Bonaparte P1 subregion of the Victoria Bonaparte IBRA region and the Berkely sub-region of the Northern Kimberley IBRA region (DPaW 2017). No population numbers are provided for any records from Western Australia, comments in records from the Northern Territory include 'rare' and 'occasional' indicating that the species is present in low numbers. Habitat descriptions for the species include:

- monsoon forest; volcanic rock
- on gravelly recently burnt plain with *Pandanus spiralis* and occasional *Alphitonia*
- beside sandy creeksite in low open woodland
- *Eucalyptus* open woodland; sandy loam
- *Eucalyptus tetrodonta*/*E. miniata* open forest
- red soil
- on sandstone
- in dry sandy scrub
- on edge of closed grassland.

Records and distribution in the study area: *Dolichandrone filiformis* was recorded at 12 locations in the study area (Figure 4-3) and a total of 99 individuals were recorded. These represent new records for the species which occurred in the following habitats:

- flat plain in red clay-loam soil in low *Terminalia canescens* woodland over *Sorghum* sp. and *Eriachne obtusa* grassland
- flat plain in red clay-loam soil in low *Eucalyptus* sp. and *Terminalia canescens* woodland over *Sorghum* sp. and *Triodia bitextura* grassland
- undulating plain in rocky red clay-loam in low *Eucalyptus* sp. and *Terminalia canescens* woodland over *Triodia bitextura* grassland
- riparian vegetation in black sandy loam in low *Corymbia* sp. and *Cochlospermum fraseri* woodland over *Senna venusta* open shrubland and *Sorghum timorense* grassland.

The three records of *Dolichandrone filiformis* at the eastern end of the Lake Argyle Road represent one population as the plants occur within 500 m of each other, in accordance with population definition in Stack (2010). Each of the remaining nine records represent individual populations as they are over 500 m apart. Population size ranged from one to 47 individuals. The majority of plants were located greater 10 m from the road reserve. One population occurred within a borrow pit and included two mature plants within a disturbed/excavated area.



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Figure 4-6 *Dolichandrone filiformis* at locations within the study area in riparian vegetation (top) and on flat plain

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Of the 43 conservation significant flora species identified in the desktop study, suitable habitat was identified in the study area for an additional seven Priority Flora to the two recorded taxa (Table 4-5). It is considered unlikely that any of the remaining species would occur in the study area.

**Table 4-5 Likelihood of conservation significant flora species to occur in the study area**

Species	Likelihood of presence	Reason
<i>Typhonium</i> sp. Kununurra (A.N. Start ANS 1467), T	Highly unlikely	No prior records in close proximity to the study area; very limited suitable habitat for the species in the study area, all of which was searched.
<i>Acacia hypermeces</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Acacia mackenziei</i> P1	Highly unlikely	Restricted to a single sandstone range outside of the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Acacia repens</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Acacia seclusa</i> P1	Highly unlikely	All riparian vegetation in the study area was searched.
<i>Acacia setulifera</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Asteromyrtus arnhemica</i> P1	Highly unlikely	All areas of suitable habitat for the species in the study area was searched.
<i>Clerodendrum inerme</i> P1	Highly unlikely	Little suitable habitat in the study area, specimens were collected for all <i>Clerodendrum</i> plants sighted and all were identified as <i>Clerodendrum floribundum</i> subsp. <i>coriaceum</i> .
<i>Desmodium flagellare</i> P1	Highly unlikely	No suitable soil type in study area.
<i>Goodenia brachypoda</i> P1	Possible	Suitable habitat in study area but no prostrate <i>Goodenia</i> species sighted.
<i>Goodenia malvina</i> P1	Highly unlikely	No suitable soil type in study area.
<i>Heliotropium tachyglossoides</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Hullisia argillicola</i> P1	Unlikely	Similar habitat to <i>Utricularia tridactyla</i> , which was searched.
<i>Iseilema trichopus</i> P1	Possible	Suitable habitat in study area but no <i>Iseilema</i> species sighted.
<i>Scaevola</i> sp. Cockburn Range (G.W. Carr 3369 & A.C. Beaglehole 47147) P1	Highly unlikely	Only known from a single record and all suitable habitat in the study area was searched.
<i>Scleria annularis</i> P1	Possible	Suitable habitat in study area but no <i>Scleria</i> species sighted.
<i>Solanum pugiunculiferum</i> P1	Highly unlikely	Similar habitat to <i>Utricularia tridactyla</i> , which was searched.
<i>Tephrosia</i> sp. Saw Ranges (D. Kabay s.n. PERTH 06720544) P1	Indeterminable	Lack of any habitat information precludes capacity to assess likelihood of occurrence.

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## Targeted flora and vegetation survey for proposed Lake Argyle Road upgrade

Species	Likelihood of presence	Reason
<i>Triodia fitzgeraldii</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Triodia prona</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Triodia racemigera</i> P1	Highly unlikely	All recorded locations of the species in the study area were searched and plants were not relocated; all suitable habitat in study area searched.
<i>Triodia triticoides</i> P1	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Utricularia tridactyla</i> P1	Definite	One population recorded.
<i>Utricularia tubulata</i> P1	Unlikely	Similar habitat to <i>Utricularia tridactyla</i> which was searched, all standing bodies of water were searched for this species
<i>Dolichandrone filiformis</i> P2	Definite	Ten populations recorded.
<i>Eucalyptus ordiana</i> P2	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Fimbristylis laxiglumis</i> P2	Highly unlikely	All areas of suitable habitat in the study area were searched.
<i>Melaleuca viminalis</i> P2	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Platysace saxatilis</i> P2	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Tephrosia</i> sp. Kununurra (T. Handasyde TH00 250) P2	Indeterminable	Lack of any habitat information precludes capacity to assess likelihood of occurrence.
<i>Acacia jasperensis</i> P3	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Acacia richardsii</i> P3	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Brachychiton tuberculatus</i> P3	Highly unlikely	All suitable habitat for the species in the study area was searched.
<i>Eragrostis schultzei</i> P3	Possible	Suitable habitat in the study area but no <i>Eragrostis</i> species sighted.
<i>Euphorbia stevenii</i> P3	Possible	Suitable habitat in the study area but only <i>Euphorbia tannensis</i> was sighted.
<i>Fuirena nudiflora</i> P3	Possible	Suitable habitat in the study area but no <i>Fuirena</i> species sighted.
<i>Goodenia sepalosa</i> var. <i>glandulosa</i> P3	Possible	Suitable habitat in the study area but no prostrate <i>Goodenia</i> species sighted.
<i>Pityrodia obliqua</i> P3	Highly unlikely	No prior records in close proximity to the study area; limited



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Species	Likelihood of presence	Reason
		suitable habitat for the species in the study area, all of which was searched.
<i>Stylidium prophyllum</i> P3	Highly unlikely	Similar habitat to <i>Utricularia tridactyla</i> which was searched.
<i>Tephrosia</i> sp. Mistake Creek (A.C. Beaglehole 54424) P3	Highly unlikely	All suitable habitat searched; several collections of specimens of a very similar looking species <i>Tephrosia phaeosperma</i> were collected during the field survey to confirm they were not the P3 species.
<i>Tephrosia valleculata</i> P3	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.
<i>Utricularia muelleri</i> P3	Highly unlikely	Similar habitat to <i>Utricularia tridactyla</i> which was searched.
<i>Ficus lilliputiana</i> P4	Highly unlikely	No prior records in close proximity to the study area; limited suitable habitat for the species in the study area, all of which was searched.

The seven Priority Flora that were considered to have potential to occur are all known from multiple records and most have distributions extending beyond WA:

- *Goodenia brachypoda* is known from 46 locations (ALA 2017) 19 in Western Australia and 27 in the Northern Territory. In Western Australia it has been recorded in the Northern Kimberley and Victoria Bonaparte bioregions (DPaW 2017).
- *Iseilema trichopus* is known from three locations in Western Australia (ALA 2017) and six locations in the Northern Territory. In Western Australia it has been recorded in the Central Kimberley and Victoria Bonaparte bioregions (DPaW 2017).
- *Scleria annularis* is known from just two locations in Western Australia (ALA 2017) in the Victoria Bonaparte bioregion (DPaW 2017) but has a broad distribution in the Northern Territory where it is known from 33 locations.
- *Eragrostis schultzei* is known from three locations in Western Australia but has a broad distribution in the Northern Territory and Queensland with dozens of records for both states (ALA 2017). In Western Australia it has been recorded in the Northern Kimberley and Victoria Bonaparte bioregions (DPaW 2017).
- *Euphorbia stevenii* is known from seven locations in Western Australia and has a broad distribution with hundreds of records in the Northern Territory, Queensland, South Australia and New South Wales (ALA 2017). In Western Australia the species has been recorded in the Pilbara and Victoria Bonaparte bioregions (DPaW 2017).
- *Fuirena nudiflora* is known from four locations in Western Australia and a further 27 locations spread across the Northern Territory and Queensland (ALA 2017). In Western Australia the species has been recorded in the Central Ranges and Victoria Bonaparte bioregions (DPaW 2017).
- *Goodenia sepulosa* var. *glandulosa* is known from 13 locations all of which occur in Western Australia with one record in the Victoria Bonaparte bioregion (ALA 2017). The majority of locations of the species occur in the Dampierland and Northern Kimberley bioregions.

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## 4.2.3 TECs/PECs

None of the vegetation in the study area was considered to represent a TEC or PEC. The P1 PEC Plant assemblages on vertical sandstone surfaces in the east Kimberley is the closest known conservation significant ecological community to the study area. None of the vegetation types within the study area are floristically representative of this PEC.

## 4.2.4 Declared pests and WoNS

No declared pest or WoNS was recorded in the study area. Specimens of *Senna venusta*, which resembles the declared pest *Senna alata*, were collected during the surveys but were subsequently identified as the native species. Specimens of *Vachelia farnesiana* and *Tamarindus indica*, which resemble the declared pest *Vachellia nilotica*, were collected in disturbed areas in the borrow pits during the surveys. While both of these species are introduced flora they are not a declared pest or WoNS.

## 5 DISCUSSION

It is considered unlikely that any Threatened Flora listed under the EPBC Act or the WC Act is present in the study area. Database records for the only Threatened species identified in the desktop study, *Typhonium* sp. Kununurra (A.N. Start ANS 1467), are located more than 20 km from the study area and the very limited suitable habitat for the species in the study area was intensively searched. Survey timing and conditions (high rainfall, large areas of free standing water) were considered optimal for locating *Typhonium* sp. Kununurra.

The single population of *Utricularia tridactyla* (P1) recorded in the survey is a prior record for the species and therefore represents 12.5% of the known populations in WA. The study area only intercepts a portion of the population indicating that disturbance from road works will not result in the complete removal of this population and it is possible that disturbance to the population may be avoidable.

The second desktop record from the study area that could not be located may not have been established at the time of the survey (*U. tridactyla* is an annual species) and it may still be present at this location as seed in the soil seed bank. On this basis, additional populations may be also present (as soil bank seed) in suitable habitat (seepage areas under *Melaleuca* and *Terminalia* woodlands over mixed grassland) in the study area. Several areas of suitable habitat for the species were searched within the study area and it is considered highly likely that suitable habitat and additional populations would occur in the broader landscape surrounding the study area.

The records of *Dolichandrone filiformis* (P2) within the study area indicate it is locally common. The ten populations recorded for the current survey increase the number of known locations for the species in Western Australia from six (ALA 2017) to 16, representing more than half of known locations for the State and approximately 10% of all known locations in Australia. *Dolichandrone filiformis* has a wide distribution in the Northern Territory and the results of the current survey indicate that the species has a greater distribution in Western Australia than is currently documented. *Dolichandrone filiformis* was recorded in vegetation types that are likely to be well represented in the wider landscape surrounding the study area and it is therefore considered highly likely that additional populations occur in the broader vicinity.

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The presence of some plants in close proximity to the current road reserve (and one borrow pit) indicates the potential for some plants of this species to be removed for the proposed works. However, the plant is readily identifiable from its characteristic fine leaves and thick corky bark and as such may be easily detected at all times of year providing an opportunity to minimise impacts by avoiding disturbance wherever possible.

The potential for seven additional Priority Flora to occur in the study area could not be completely ruled out as suitable habitat was present and, due to their small size, it is possible that plants were missed during the targeted searches. The seven species comprising three Priority 1 taxa (*Scleria annularis*, *Iseilema trichopus*, *Goodenia brachypoda*) and four Priority 3 taxa (*Eragrostis schultzei*, *Euphorbia stevenii*, *Fuirena nudiflora*, *Goodenia sepalosa* var. *glandulosa*) and all known from multiple locations and, with the exception of one (*Goodenia sepalosa* var. *glandulosa*), have broad distributions. Suitable habitat is likely to be present for all of these species in the broader landscape. All other conservation significant flora identified in the desktop study were considered unlikely to be present in the study area either due to a lack of suitable habitat or, for species for which there was suitable habitat present, it was considered that this habitat was satisfactorily searched to detect any plants of these species.

The vegetation of the study area was not considered to resemble any federal or state listed TEC or PEC including the Priority 3 PEC, plant assemblages on vertical sandstone surfaces in the east Kimberley located in close proximity. The study area lacked suitable habitat, i.e. cliffs and sparsely vegetated rocky slopes and none of the Priority Flora which are characteristic of this PEC were observed in the study area.

As no declared pests or WoNS were recorded in the study area, there are no specific management requirements for weeds. However, a small number of weed species were recorded in borrow pit areas and as the surrounding vegetation appeared to be largely in excellent, near pristine condition, it is recommended that due care be taken to minimise the potential spread of weeds during road construction/management activities.



# Memo

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## **APPENDIX D**

### **DESKTOP FAUNA SEARCH REPORTS**







# EPBC Act Protected Matters Report

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

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

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 22/02/17 18:17:08

[Summary](#)

[Details](#)

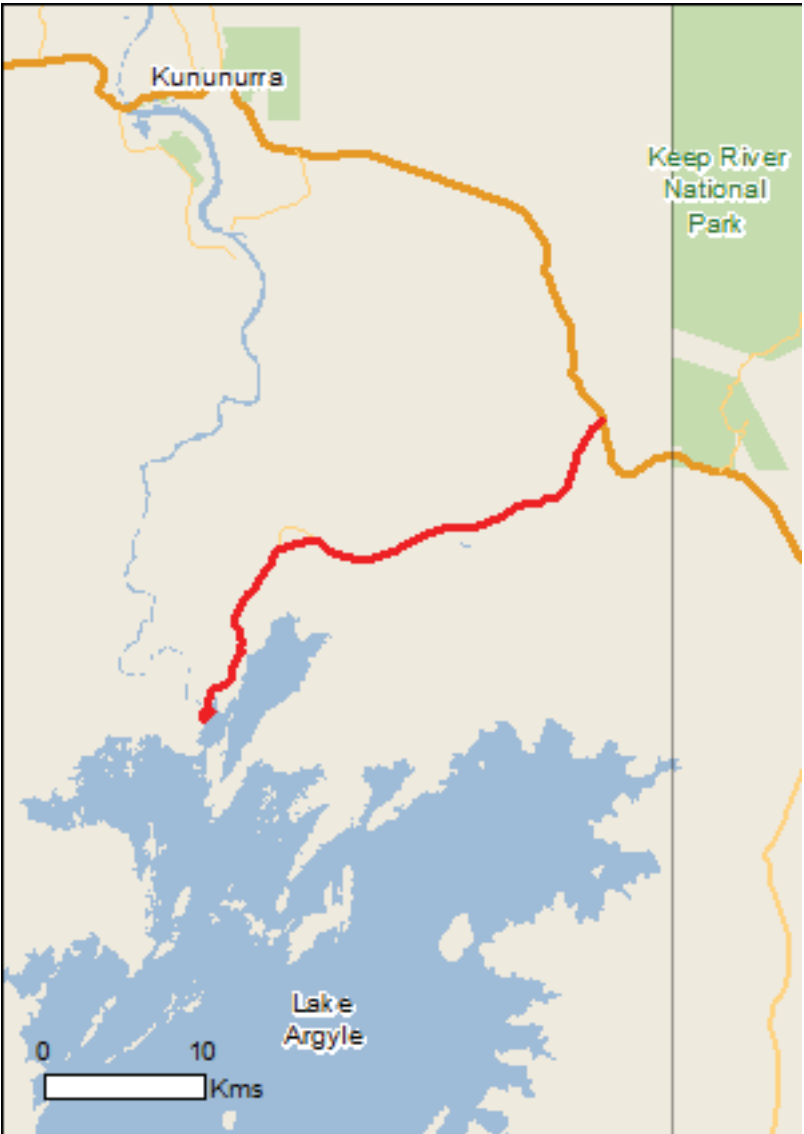
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

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[Coordinates](#)

[Buffer: 1.0Km](#)



# Summary

## Matters of National Environmental Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	2
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	15
<a href="#">Listed Migratory Species:</a>	14

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	21
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	17
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[ Resource Information ]
Name		Proximity
<a href="#">Lakes argyle and kununurra</a>		Within Ramsar site
<a href="#">Ord river floodplain</a>		50 - 100km upstream

Listed Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
Birds		
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Erythrura gouldiae</a> Gouldian Finch [413]	Endangered	Species or species habitat known to occur within area
<a href="#">Falcunculus frontatus whitei</a> Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Malurus coronatus coronatus</a> Purple-crowned Fairy-wren (western) [64442]	Endangered	Extinct within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<a href="#">Tyto novaehollandiae kimberli</a> Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area
Mammals		
<a href="#">Dasyurus hallucatus</a> Northern Quoll, Digul [331]	Endangered	Species or species habitat likely to occur within area
<a href="#">Macroderma gigas</a> Ghost Bat [174]	Vulnerable	Breeding likely to occur within area
<a href="#">Macrotis lagotis</a> Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area



Name	Status	Type of Presence
<a href="#">Saccolaimus saccolaimus nudicluniatus</a>		
Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat may occur within area
Reptiles		
<a href="#">Acanthophis hawkei</a>		
Plains Death Adder [83821]	Vulnerable	Species or species habitat may occur within area
Sharks		
<a href="#">Pristis pristis</a>		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Listed Migratory Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Apus pacificus</a>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
<a href="#">Crocodylus porosus</a>		
Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
<a href="#">Pristis pristis</a>		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<a href="#">Cecropis daurica</a>		
Red-rumped Swallow [80610]		Species or species habitat may occur within area
<a href="#">Cuculus optatus</a>		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
<a href="#">Hirundo rustica</a>		
Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a>		
Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a>		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
<a href="#">Calidris ferruginea</a>		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a>		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
<a href="#">Glareola maldivarum</a>		
Oriental Pratincole [840]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a>		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a>		
Osprey [952]		Species or species

Name	Threatened	Type of Presence
<a href="#">Tringa nebularia</a>		habitat known to occur within area
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

### Other Matters Protected by the EPBC Act

Commonwealth Land	[ <a href="#">Resource Information</a> ]
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The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species	[ <a href="#">Resource Information</a> ]
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\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
<a href="#">Anseranas semipalmata</a>		
Magpie Goose [978]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a>		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a>		
Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a>		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a>		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
<a href="#">Cuculus saturatus</a>		
Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
<a href="#">Glareola maldivarum</a>		
Oriental Pratincole [840]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a>		
White-bellied Sea-Eagle [943]		Species or species habitat known to occur

Name	Threatened	Type of Presence
<a href="#">Himantopus himantopus</a> Black-winged Stilt [870]		within area  Species or species habitat known to occur within area
<a href="#">Hirundo daurica</a> Red-rumped Swallow [59480]		Species or species habitat may occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Reptiles		
<a href="#">Crocodylus johnstoni</a> Freshwater Crocodile, Johnston's Crocodile, Johnston's River Crocodile [1773]		Species or species habitat may occur within area
<a href="#">Crocodylus porosus</a> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

## Extra Information

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



Name	Status	Type of Presence
Birds		
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina		
Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Camelus dromedarius		
Dromedary, Camel [7]		Species or species habitat likely to occur within area
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus		
House Mouse [120]		Species or species habitat likely to occur within area
Rattus rattus		
Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa		
Pig [6]		Species or species habitat likely to occur within area
Plants		
Brachiaria mutica		
Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris		
Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Jatropha gossypifolia		
Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Mimosa pigra		
Mimosa, Giant Mimosa, Giant Sensitive Plant, Thorny Sensitive Plant, Black Mimosa, Catclaw Mimosa, Bashful Plant [11223]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat may occur within area
Vachellia nilotica		
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Nationally Important Wetlands		[ <u>Resource Information</u> ]
Name		State
<a href="#">Lake Argyle</a>		WA

# Caveat

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

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

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

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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

- migratory and
- marine

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

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

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

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

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

## Coordinates

-16.119007 128.735409,-16.119996 128.736718,-16.121686 128.737212,-16.122387 128.736847,-16.1228 128.735903,-16.123542 128.735538,-16.123789 128.735731,-16.123707 128.736118,-16.123418 128.736246,-16.123171 128.736375,-16.123068 128.737491,-16.122964 128.737705,-16.120676 128.739722,-16.120697 128.740559,-16.120326 128.740795,-16.119872 128.740345,-16.119192 128.739014,-16.118058 128.7388,-16.117419 128.737984,-16.11577 128.737856,-16.115028 128.739057,-16.107113 128.741317,-16.106289 128.743592,-16.104846 128.7493,-16.101712 128.751402,-16.0973 128.751402,-16.094043 128.752862,-16.093136 128.753892,-16.090662 128.755308,-16.088229 128.757325,-16.085548 128.756939,-16.08159 128.757411,-16.079239 128.756853,-16.07693 128.755866,-16.072518 128.75299,-16.070126 128.75299,-16.068559 128.753462,-16.063486 128.756381,-16.056476 128.761101,-16.054455 128.763762,-16.051609 128.765908,-16.044804 128.770671,-16.041834 128.773118,-16.032101 128.778139,-16.031276 128.779126,-16.027893 128.789468,-16.026903 128.797107,-16.027605 128.799553,-16.032513 128.807493,-16.035441 128.814703,-16.037462 128.824101,-16.03771 128.82629,-16.037339 128.828736,-16.033915 128.839679,-16.032843 128.842984,-16.030286 128.847619,-16.026697 128.853841,-16.023851 128.860622,-16.020922 128.868733,-16.01919 128.874097,-16.01919 128.875342,-16.020427 128.887487,-16.020262 128.888946,-16.013415 128.904009,-16.009043 128.912936,-16.006691 128.920103,-16.006609 128.924909,-16.004381 128.929673,-16.00401 128.930746,-16.004092 128.933621,-16.002442 128.936453,-16.000215 128.939586,-15.998606 128.940702,-15.99481 128.942032,-15.983713 128.946538,-15.981526 128.946581,-15.976658 128.94877,-15.966797 128.954306,-15.964569 128.957782,-15.962258 128.961001



# Acknowledgements

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

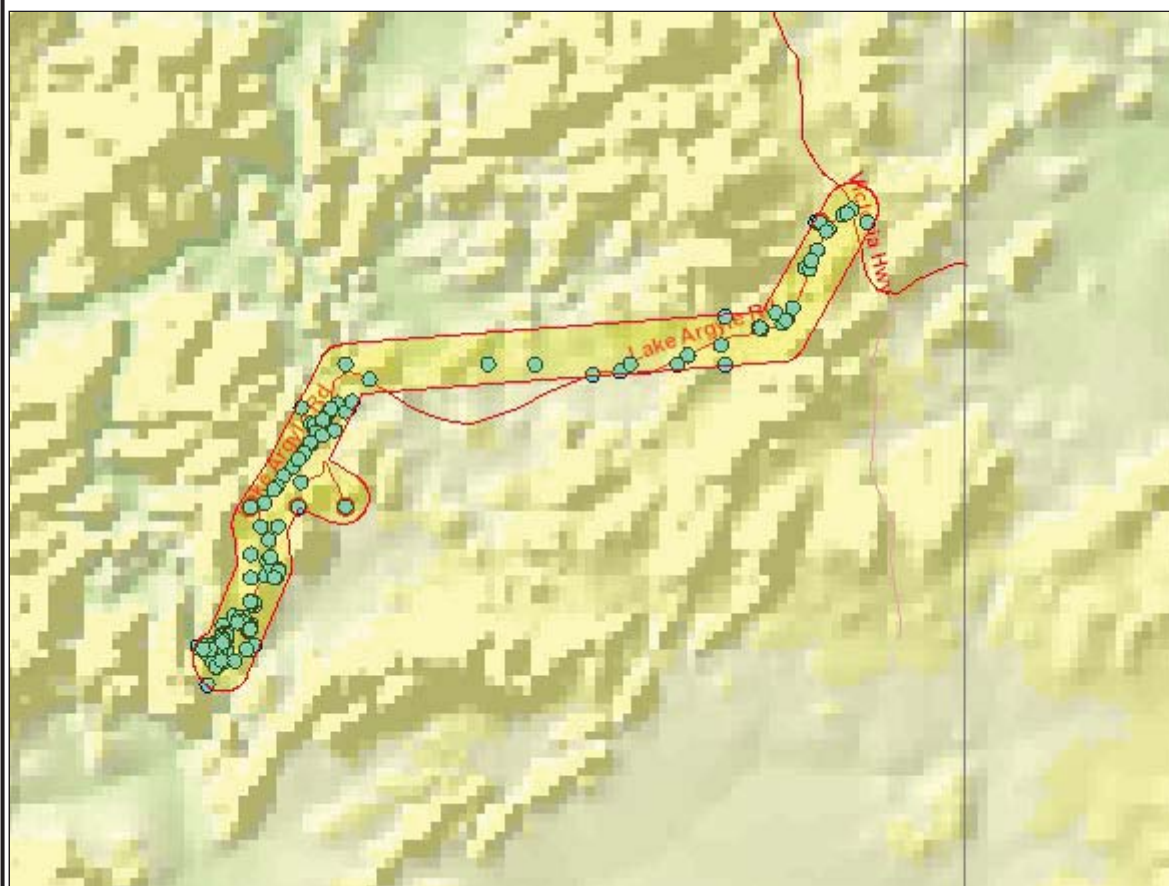
The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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

## LAR DPaW Species Map

Printed by Guest user on 22/2/2017

**Query details :** Current Names Only=Yes; Core Datasets Only=Yes; Method='By Line'; Vertices=15° 57' 42" S, 128° 57' 39" E 16° 00' 24" S, 128° 56' 07" E 16° 01' 06" S, 128° 46' 58" E 16° 03' 11" S, 128° 45' 53" E 16° 03' 48" S, 128° 46' 55" E 16° 03' 20" S, 128° 45' 48" E 16° 04' 21" S, 128° 45' 09" E 16° 05' 14" S, 128° 45' 17" E 16° 07' 19" S, 128° 44' 24" E 16° 07' 08" S, 128° 44' 19" E ;



### Search Results

#### Selected

- Selected Species

#### All Results

- Default
- Confirmed
- Corrected
- Reported
- Unverifiable

### Reference Layers

#### Major WA Towns

- 

#### Roads

- Sealed
- Unsealed
- Other

#### State Borders

- 

#### Australian Continent

-

# NatureMap Species Report

Created By Guest user on 22/02/2017

Current Names Only Yes

Core Datasets Only Yes

Method 'By Line'

Vertices 15° 57' 42" S, 128° 57' 39" E 16° 00' 24" S, 128° 56' 07" E 16° 01' 06" S, 128° 46' 58" E 16° 03' 11" S, 128° 45' 53" E 16° 03' 48" S, 128° 46' 55" E 16° 03' 20" S, 128° 45' 48" E 16° 04' 21" S, 128° 45' 09" E 16° 05' 14" S, 128° 45' 17" E 16° 07' 19" S, 128° 44' 24" E 16° 07' 08" S, 128° 44' 19" E

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1.	19262	<i>Abildgaardia schoenoides</i>			
2.	16919	<i>Abutilon hannii</i>			
3.	4901	<i>Abutilon otocarpum</i> (Desert Chinese Lantern)			
4.	19123	<i>Acacia asperulacea</i>			
5.	18225	<i>Acacia lamprocarpa</i>			
6.	3429	<i>Acacia lycopodiifolia</i>			
7.	3472	<i>Acacia orthotricha</i>			
8.	3483	<i>Acacia pellita</i>			
9.	14977	<i>Acacia plectocarpa</i> subsp. <i>plectocarpa</i>			
10.	16155	<i>Acacia wickhamii</i> subsp. <i>wickhamii</i>			
11.	25535	<i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
12.	25536	<i>Accipiter fasciatus</i> (Brown Goshawk)			
13.	25755	<i>Acrocephalus australis</i> (Australian Reed Warbler)			
14.	17422	<i>Adriana tomentosa</i> var. <i>tomentosa</i>			
15.	6564	<i>Alstonia spectabilis</i>			
16.	42372	<i>Amalosia rhombifer</i> (Zigzag velvet gecko)			
17.	11392	<i>Amyema villiflora</i> subsp. <i>villiflora</i>			
18.		<i>Anhinga novaehollandiae</i>			
19.	24317	<i>Anseranas semipalmata</i> (Magpie Goose, Pied Goose)			
20.	25317	<i>Antaresia childreni</i> (Children's Python)			
21.	14486	<i>Aphyllodium biarticulatum</i>			
22.	24719	<i>Aprosmictus erythropterus</i> (Red-winged Parrot)			
23.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
24.	25558	<i>Ardea ibis</i> (Cattle Egret)		IA	
25.	25559	<i>Ardea intermedia</i> (Intermediate Egret)			
26.	41324	<i>Ardea modesta</i> (Eastern Great Egret)		IA	
27.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
28.	212	<i>Aristida inaequiglumis</i> (Feathertop Threeawn)			
29.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)			
30.	25567	<i>Artamus leucorhynchus</i> (White-breasted Woodswallow)			
31.	24355	<i>Artamus minor</i> (Little Woodswallow)			
32.	25320	<i>Aspidites melanocephalus</i> (Black-headed Python)			
33.	24318	<i>Aythya australis</i> (Hardhead)			
34.	41821	<i>Bauhinia monandra</i>	Y		
35.		<i>Bauhinia purpurea</i>			
36.	7860	<i>Blumea integrifolia</i>			
37.	2770	<i>Boerhavia coccinea</i> (Tar Vine, Wituka)			
38.	25324	<i>Boiga irregularis</i> (Brown Tree Snake)			
39.	6608	<i>Bonamia pannosa</i>			
40.	12715	<i>Brachychiton fitzgeraldianus</i>			
41.	12753	<i>Brachychiton viscidulus</i>			
42.	25334	<i>Brachyuropsis roperi</i> (Northern Shovel-nosed Snake)			
43.	7048	<i>Buchnera ramosissima</i> (Blackrod)			
44.	24359	<i>Burhinus grallarius</i> (Bush Stone-curlew)			
45.	18073	<i>Byblis filifolia</i>			
46.	25713	<i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
47.	25716	<i>Cacatua sanguinea</i> (Little Corella)			
48.	25599	<i>Cacomantis variolosus</i> (Brush Cuckoo)			
49.	11059	<i>Cajanus latisepalus</i>			
50.	13696	<i>Cajanus reticulatus</i> var. <i>grandifolius</i>			
51.	25717	<i>Calyptrorhynchus banksii</i> (Red-tailed Black-Cockatoo)			



	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
52.	5436	<i>Calytrix achaeta</i>			
53.	5457	<i>Calytrix exstipulata</i> (Kimberley Heather)			
54.	5293	<i>Carallia brachiata</i>			
55.	25012	<i>Carlia amax</i> (Two-spined Rainbow Skink)			
56.	25600	<i>Centropus phasianinus</i> (Pheasant Coucal)			
57.		<i>Ceyx azureus</i>			
58.	24863	<i>Chlamydosaurus kingii</i> (Frill-necked Lizard)			
59.	24565	<i>Cissomela pectoralis</i> (Banded Honeyeater)			
60.	25756	<i>Cisticola exilis</i> (Golden-headed Cisticola)			
61.	2983	<i>Cleome cleomoides</i> (Justago)			
62.	2988	<i>Cleome viscosa</i> (Tickweed, Tjinduwadhu)			
63.	6732	<i>Clerodendrum tomentosum</i>			
64.	25582	<i>Climacteris melanura</i> (Black-tailed Treecreeper)			
65.	3769	<i>Clitoria ternatea</i>	Y		
66.	24615	<i>Colluricincla woodwardi</i> (Sandstone Shrike-thrush)			
67.	24566	<i>Conopophila rufogularis</i> (Rufous-throated Honeyeater)			
68.	24361	<i>Coracina maxima</i> (Ground Cuckoo-shrike)			
69.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
70.	25569	<i>Coracina papuensis</i> (White-bellied Cuckoo-shrike, Little Cuckoo-shrike)			
71.	4863	<i>Corchorus pumilio</i>			
72.	24416	<i>Corvus bennetti</i> (Little Crow)			
73.	25593	<i>Corvus orru</i> (Torresian Crow)			
74.	17080	<i>Corymbia confertiflora</i>			
75.	17101	<i>Corymbia ptychocarpa</i>			
76.	17102	<i>Corymbia ptychocarpa</i> subsp. <i>ptychocarpa</i>			
77.	25701	<i>Coturnix ypsilophora</i> (Brown Quail)			
78.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			
79.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
80.		<i>Craterocephalus stramineus</i>			
81.	25397	<i>Crinia bilingual</i> (Bilingual Froglet)			
82.	24858	<i>Crocodylus johnstoni</i> (Freshwater Crocodile)		S	
83.	767	<i>Crosslandia setifolia</i>			
84.	3773	<i>Crotalaria crispata</i> (Kimberley Horse Poison)			
85.	20179	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>			
86.	11231	<i>Crotalaria novae-hollandiae</i> subsp. <i>novae-hollandiae</i>			
87.	25048	<i>Ctenotus inornatus</i>			
88.	84	<i>Cycas pruinosa</i> (Argyle Cycad)			
89.	25371	<i>Cyclorana australis</i> (Giant Frog)			
90.	25374	<i>Cyclorana longipes</i> (Long-footed Frog)			
91.	6585	<i>Cynanchum pedunculatum</i>			
92.	46558	<i>Cynodon convergens</i>			
93.	781	<i>Cyperus compressus</i>	Y		
94.		<i>Cyperus cunninghamii</i> subsp. <i>cheradicus</i>			
95.	787	<i>Cyperus cuspidatus</i>			
96.	12933	<i>Cyperus haspan</i> subsp. <i>juncoides</i>			
97.	797	<i>Cyperus holoschoenus</i>			
98.	802	<i>Cyperus macrostachyos</i>			
99.	12806	<i>Cyperus microcephalus</i> subsp. <i>chersophilus</i>			
100.	804	<i>Cyperus nervulosus</i>			
101.	806	<i>Cyperus polystachyos</i> (Bunchy Sedge)	Y		
102.	814	<i>Cyperus squarrosus</i>			
103.	817	<i>Cyperus tenuispica</i>			
104.	818	<i>Cyperus vaginatus</i> (Stiffleaf Sedge)			
105.	820	<i>Cyperus viscidulus</i>			
106.	25547	<i>Dacelo leachii</i> (Blue-winged Kookaburra)			
107.	14174	<i>Decaisnina angustata</i>			
108.	24996	<i>Delma borea</i>			
109.	25294	<i>Demansia papuensis</i> (Great Black Whipsnake)			
110.	7320	<i>Dentella repens</i>			
111.	3853	<i>Desmodium filiforme</i>			
112.	25607	<i>Dicaeum hirundinaceum</i> (Mistletoebird)			
113.	24892	<i>Diporiphora bennettii</i>			
114.	24895	<i>Diporiphora magna</i>			
115.	39860	<i>Dodonia hispidula</i> var. <i>Phylloptera</i> (F. von Mueller s.n. MEL 101393)			
116.	4774	<i>Dodonia physocarpa</i>			
117.	7115	<i>Dolichandrone heterophylla</i> (Lemonwood)			
118.	3093	<i>Drosera burmanni</i> (Tropical Sundew)			
119.		<i>Egretta garzetta</i>			
120.		<i>Egretta novaehollandiae</i>			
121.		<i>Egretta picata</i>			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
122.	38510	<i>Eleocharis sanguinolenta</i>			
123.		<i>Euseyornis melanops</i>			
124.	355	<i>Elythrophorus spicatus</i> (Spikegrass)			
125.	25341	<i>Emydura victoriae</i>			
126.		<i>Entomyzon cyanotis</i>			
127.		<i>Eolophus roseicapillus</i>			
128.	25578	<i>Ephippiorhynchus asiaticus</i> (Black-necked Stork)			
129.	7183	<i>Eremophila bignoniiflora</i> (Gooramurra)			
130.	404	<i>Eriachne ciliata</i> (Slender Wandarrie Grass)			
131.	407	<i>Eriachne festucacea</i> (Plains Wandarrie Grass)			
132.	16483	<i>Eriachne major</i>			
133.	420	<i>Eriachne sulcata</i>			
134.	24379	<i>Erythronys cinctus</i> (Red-kneed Dotterel)			
135.	24292	<i>Erythrorichis radiatus</i> (Red Goshawk)		T	
136.	24632	<i>Erythrura gouldiae</i> (Gouldian Finch)		P4	
137.	5564	<i>Eucalyptus brachyandra</i> (Tropical Red Box)			
138.	5599	<i>Eucalyptus confluens</i> (Kimberley Gum)			
139.	5715	<i>Eucalyptus miniata</i> (Woollybutt, Manawan)			
140.	42849	<i>Euphorbia hassallii</i>			
141.	4629	<i>Euphorbia hirta</i> (Asthma Plant)	Y		
142.	11416	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			
143.	11169	<i>Exocarpos latifolius</i> (Broad-leaved Cherry)			
144.	25621	<i>Falco berigora</i> (Brown Falcon)			
145.	25622	<i>Falco cenchroides</i> (Australian Kestrel)			
146.	19648	<i>Ficus brachypoda</i>			
147.	841	<i>Fimbristylis caespitosa</i>			
148.	850	<i>Fimbristylis depauperata</i>			
149.	851	<i>Fimbristylis dichotoma</i> (Eight Day Grass)			
150.	858	<i>Fimbristylis leucocolea</i>			
151.	859	<i>Fimbristylis littoralis</i>			
152.	862	<i>Fimbristylis microcarya</i>			
153.	867	<i>Fimbristylis nutans</i>			
154.	870	<i>Fimbristylis oxystachya</i>			
155.	872	<i>Fimbristylis pauciflora</i>			
156.	878	<i>Fimbristylis rara</i>			
157.	880	<i>Fimbristylis schultzei</i>			
158.	883	<i>Fimbristylis signata</i>			
159.	15906	<i>Fimbristylis</i> sp. C Kimberley Flora (T.G. Hartley 14511)			
160.	886	<i>Fimbristylis sphaerocephala</i>			
161.	890	<i>Fimbristylis tetragona</i>			
162.	892	<i>Fimbristylis trigastrocarya</i>			
163.	895	<i>Fimbristylis xyridis</i>			
164.	896	<i>Fuirena ciliaris</i>			
165.	25301	<i>Furina ornata</i> (Moon Snake)			
166.	17561	<i>Gardenia resinosa</i> subsp. <i>resinosa</i>			
167.	24952	<i>Gehyra australis</i>			
168.	30821	<i>Gehyra koira</i> subsp. <i>koira</i>			
169.	24954	<i>Gehyra nana</i>			
170.	24956	<i>Gehyra pilbara</i>			
171.	24401	<i>Geopelia cuneata</i> (Diamond Dove)			
172.	24402	<i>Geopelia humeralis</i> (Bar-shouldered Dove)			
173.	25585	<i>Geopelia striata</i> (Zebra Dove)			
174.	24404	<i>Geophaps plumifera</i> (Spinifex Pigeon)			
175.	18227	<i>Gomphrena humifusa</i>			
176.	18368	<i>Gomphrena leptoclada</i> subsp. <i>saxosa</i>			
177.	7500	<i>Goodenia coronopifolia</i>			
178.	13162	<i>Goodenia sepalosa</i> var. <i>glandulosa</i>		P3	
179.	24443	<i>Grallina cyanoleuca</i> (Magpie-lark)			
180.	19566	<i>Grevillea decurrens</i>			
181.	13444	<i>Grevillea dryandri</i> subsp. <i>dryandri</i>			
182.	2016	<i>Grevillea heliosperma</i> (Rock Grevillea)			
183.	19570	<i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>			
184.	15975	<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>			
185.	15675	<i>Grevillea refracta</i> subsp. <i>glandulifera</i>			
186.	2118	<i>Grevillea velutinella</i>			
187.	24484	<i>Grus rubicunda</i> (Brolga)			
188.	24293	<i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)		IA	
189.	24295	<i>Haliastur sphenurus</i> (Whistling Kite)			
190.	24633	<i>Heteromunia pectoralis</i> (Pictorella Mannikin)			
191.	24961	<i>Heteronotia binoei</i> (Bynoe's Gecko)			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
192.	4933	<i>Hibiscus leptocladus</i>			
193.	4934	<i>Hibiscus meraukensis</i> (Merauke Hibiscus)			
194.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
195.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
196.	5215	<i>Hybanthus aurantiacus</i>			
197.	166	<i>Hydrilla verticillata</i> (Water Thyme)			
198.		<i>Hydroprogne caspia</i>			
199.	5180	<i>Hypericum gramineum</i> (Small St John's Wort)			
200.	14587	<i>Indigastrium parviflorum</i>			
201.	3976	<i>Indigofera haplophylla</i>			
202.	3980	<i>Indigofera linifolia</i>			
203.	6619	<i>Ipomoea aquatica</i> (Potato Vine)			
204.		<i>Irediparra gallinacea</i>			
205.	13894	<i>Ischaemum australe</i> var. <i>australe</i>			
206.	25562	<i>Ixobrychus flavicollis</i> (Black Bittern)			
207.	25126	<i>Lerista borealis</i>			
208.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
209.	30931	<i>Limnodynastes lignarius</i> (Carpenter Frog)			
210.	952	<i>Lipocarpa microcephala</i>			
211.	25380	<i>Litoria caerulea</i> (Green Tree Frog)			
212.	25381	<i>Litoria coplandi</i> (Rock Frog)			
213.	25385	<i>Litoria inermis</i> (Bumpy Rocket Frog)			
214.	25390	<i>Litoria pallida</i> (Pale Rocket Frog)			
215.	25391	<i>Litoria rothii</i> (Northern Laughing Tree Frog)			
216.	25392	<i>Litoria rubella</i> (Little Red Tree Frog)			
217.	25393	<i>Litoria splendida</i> (Splendid Tree Frog)			
218.	30811	<i>Litoria watjulumensis</i> (Wotjulum Frog)			
219.	7401	<i>Lobelia dioica</i>			
220.	25683	<i>Lonchura castaneothorax</i> (Chestnut-breasted Mannikin)			
221.	6135	<i>Ludwigia octovalvis</i> (Willow Primrose)			
222.	6136	<i>Ludwigia perennis</i>			
223.	4070	<i>Macroptilium atropurpureum</i> (Purple Bean)	Y		
224.	24135	<i>Macropus robustus</i> subsp. <i>erubescens</i> (Euro, Biggada)			
225.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
226.	25653	<i>Malurus melanocephalus</i> (Red-backed Fairy-wren)			
227.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
228.	5939	<i>Melaleuca minutifolia</i> (Tea Tree)			
229.	5989	<i>Melaleuca viridiflora</i> (Broadleaf Paperbark)			
230.	24585	<i>Melithreptus albogularis</i> (White-throated Honeyeater)			
231.	25665	<i>Melithreptus gularis</i> (Black-chinned Honeyeater)			
232.	5053	<i>Melochia pyramidata</i>	Y		
233.	24736	<i>Melopsittacus undulatus</i> (Budgerigar)			
234.	25185	<i>Menetia maini</i>			
235.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)		IA	
236.	38200	<i>Merremia incisa</i>			
237.		<i>Microcarbo melanoleucos</i>			
238.	25693	<i>Microeca fascians</i> (Jacky Winter)			
239.	25542	<i>Milvus migrans</i> (Black Kite)			
240.	6519	<i>Mitrasacme connata</i>			
241.	6522	<i>Mitrasacme exserta</i>			
242.	6530	<i>Mitrasacme nudicaulis</i>			
243.	6531	<i>Mitrasacme nummularia</i>			
244.	487	<i>Mnesithea formosa</i>			
245.	1170	<i>Monochoria cyanea</i>			
246.	25610	<i>Myiagra inquieta</i> (Restless Flycatcher)			
247.	25611	<i>Myiagra rubecula</i> (Leaden Flycatcher)			
248.	139	<i>Najas tenuifolia</i> (Water Nymph)			
249.	7173	<i>Nelsonia campestris</i>			
250.	25684	<i>Neochmia phaeton</i> (Crimson Finch)			
251.	24964	<i>Nephurus sheai</i>			
252.	24327	<i>Nettapus pulchellus</i> (Green Pygmy-goose)			
253.	25748	<i>Ninox novaeseelandiae</i> (Boobook Owl)			
254.	4112	<i>Nomismia rhomboidea</i>			
255.	25429	<i>Notaden melanoscaphus</i> (Northern Spadefoot)			
256.	25198	<i>Notoscincus ornatus</i> subsp. <i>wotjulum</i>			
257.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
258.	24975	<i>Oedura gracilis</i>			
259.	24976	<i>Oedura marmorata</i> (Marbled Velvet Gecko)			
260.	13346	<i>Oldenlandia delicata</i>			
261.	7339	<i>Oldenlandia galioides</i>			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
262.	13342	<i>Oldenlandia kochiae</i>			
263.	13343	<i>Oldenlandia mitrasacmoides</i> subsp. <i>mitrasacmoides</i>			
264.	24608	<i>Oriolus sagittatus</i> (Olive-backed Oriole)			
265.	6130	<i>Osbeckia australiana</i>			
266.	4519	<i>Owenia vernicosa</i> (Emu Apple)			
267.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
268.		<i>Pandion cristatus</i>			
269.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
270.	3673	<i>Parkinsonia aculeata</i> (Parkinsonia)	Y		
271.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
272.	546	<i>Perotis rara</i> (Comet Grass)			
273.	4672	<i>Petalostigma quadriloculare</i> (Quinine Tree, Dillingeri)			
274.	24140	<i>Petrogale brachyotis</i> (Short-eared Rock-wallaby)			
275.	25507	<i>Petrophassa albipennis</i> (White-quilled Rock Pigeon)			
276.	25697	<i>Phalacrocorax carbo</i> (Great Cormorant)			
277.	24667	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
278.	25699	<i>Phalacrocorax varius</i> (Pied Cormorant)			
279.	25667	<i>Philemon argenticeps</i> (Silver-crowned Friarbird)			
280.	25668	<i>Philemon citreogularis</i> (Little Friarbird)			
281.	24749	<i>Platycercus venustus</i> (Northern Rosella)			
282.	42305	<i>Platypsectrum ornatum</i> (Ornate Burrowing Frog)			
283.	35276	<i>Plectranthus scutellarioides</i>			
284.	24843	<i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
285.	24643	<i>Poephila acuticauda</i> (Long-tailed Finch)			
286.	25688	<i>Poephila personata</i> (Masked Finch)			
287.	2898	<i>Polycarpaea corymbosa</i>			
288.	2901	<i>Polycarpaea holtzei</i>			
289.	2903	<i>Polycarpaea longiflora</i>			
290.	41363	<i>Polygala galeocephala</i>			
291.	6653	<i>Polymeria ambigua</i> (Morning Glory)			
292.	25706	<i>Pomatostomus temporalis</i> (Grey-crowned Babbler)			
293.	25731	<i>Porphyrio porphyrio</i> (Purple Swamphen)			
294.	2880	<i>Portulaca digyna</i>			
295.	113	<i>Potamogeton tricarlinatus</i> (Floating Pondweed)			
296.	24104	<i>Pseudantechinus ningbing</i> (Ningbing Pseudantechinus)			
297.	25261	<i>Pseudechis australis</i> (Mulga Snake)			
298.		<i>Psitteuteles versicolor</i>			
299.	25725	<i>Ptilonorhynchus nuchalis</i> (Great Bowerbird)			
300.	2705	<i>Ptilotus capitatus</i>			
301.	2725	<i>Ptilotus fusiformis</i>			
302.	37980	<i>Ptilotus giganteus</i>			
303.	30822	<i>Pygopus steelescottii</i>			
304.	25614	<i>Rhipidura leucophrys</i> (Willie Wagtail)			
305.	25616	<i>Rhipidura rufiventris</i> (Northern Fantail)			
306.	959	<i>Rhynchospora affinis</i>			
307.	5286	<i>Rotala mexicana</i>			
308.	17890	<i>Ruellia tuberosa</i>	Y		
309.	599	<i>Schizachyrium fragile</i> (Senale Redgrass)			
310.	601	<i>Schizachyrium pseudeulalia</i>			
311.	1032	<i>Scleria rugosa</i>			
312.	12302	<i>Senna cladophylla</i>			
313.	12319	<i>Senna venusta</i>			
314.	4196	<i>Sesbania cannabina</i> (Sesbania Pea)			
315.	30948	<i>Smicromis brevirostris</i> (Weebill)			
316.	7004	<i>Solanum echinatum</i>			
317.	7021	<i>Solanum lucani</i>			
318.	28345	<i>Spermacoce dolichosperma</i>			
319.	24482	<i>Stiltia isabella</i> (Australian Pratincole)			
320.	8240	<i>Streptoglossa odora</i>			
321.	25517	<i>Strophurus ciliaris</i>			
322.	17445	<i>Stylidium adenophorum</i>			
323.	25307	<i>Suta punctata</i> (Spotted Snake)			
324.	13337	<i>Synaptantha scleranthoides</i>			
325.	25705	<i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
326.	25552	<i>Tadorna radjah</i> (Radjah Shelduck)			
327.	30872	<i>Taeniopygia bichenovii</i> (Double-barred Finch)			
328.	30870	<i>Taeniopygia guttata</i> (Zebra Finch)			
329.	24175	<i>Taphozous georgianus</i> (Common Sheathtail-bat)			
330.	36447	<i>Tecoma stans</i> var. <i>stans</i>	Y		
331.	4265	<i>Tephrosia coriacea</i>			



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332.	4276 <i>Tephrosia phaeosperma</i> (Leini)			
333.	19529 <i>Tephrosia rosea</i> var. <i>rosea</i>			
334.	34716 <i>Tephrosia</i> sp. <i>Pentecost River</i> (I.D. Cowie 4168)			
335.	5301 <i>Terminalia carpentariae</i> (Wild Peach)			
336.	5314 <i>Terminalia volucris</i> (Rosewood)			
337.	24844 <i>Threskiornis molucca</i> (Australian White Ibis)			
338.	25202 <i>Tiliqua multifasciata</i> (Central Blue-tongue)			
339.	25208 <i>Tiliqua scincoides</i> subsp. <i>intermedia</i>			
340.	42351 <i>Todiramphus pyrrhopygius</i> (Red-backed Kingfisher)			
341.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
342.	44362 <i>Trianthema triquetrum</i>			
343.	4371 <i>Tribulopsis pentandra</i>			
344.	6727 <i>Trichodesma zeylanicum</i> (Camel Bush, Kumbalin)			
345.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
346.	13089 <i>Triodia burbridgeana</i>			
347.	696 <i>Triodia pungens</i> (Soft Spinifex)			
348.	697 <i>Triodia racemigera</i> (Rock Spinifex)		P1	
349.	702 <i>Triodia stenostachya</i>			
350.	16232 <i>Triumfetta clivorum</i> subsp. <i>clivorum</i>			
351.	16235 <i>Triumfetta longipedunculata</i>			
352.	13468 <i>Triumfetta pentandra</i>	Y		
353.	4881 <i>Triumfetta plumigera</i>			
354.	25522 <i>Tropidonophis mairii</i> subsp. <i>mairii</i>			
355.	98 <i>Typha domingensis</i> (Bulrush, Djandjidi)			
356.	25437 <i>Uperoleia borealis</i> (Northern Taodlet)			
357.	7130 <i>Utricularia chrysantha</i> (Sun Bladderwort)			
358.	30716 <i>Vachellia farnesiana</i> (Mimosa Bush)	Y		
359.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
360.	25209 <i>Varanus acanthurus</i> (Spiny-tailed Monitor)			
361.	25220 <i>Varanus mertensi</i> (Merten's Water Monitor)			
362.	25222 <i>Varanus panoptes</i> subsp. <i>panoptes</i>			
363.	25214 <i>Varanus scalaris</i> (Spotted Tree Monitor)			
364.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
365.	4328 <i>Zornia muriculata</i> subsp. <i>angustata</i>			

**Conservation Codes**

T - Rare or likely to become extinct  
X - Presumed extinct  
IA - Protected under international agreement  
S - Other specially protected fauna  
1 - Priority 1  
2 - Priority 2  
3 - Priority 3  
4 - Priority 4  
5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.