

Barracca Nature Reserve (R4070)
Environmental Assessment
2022



Prepared for: Department of Biodiversity, Conservation and Attractions
(DBCA)
Perth Hills District
District Nature Conservation Program

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EXECUTIVE SUMMARY

This report has been prepared by Del Botanics on behalf of Department of Biodiversity, Conservation and Attractions (DBCA) to review remnant flora, fauna and vegetation within Barracca Nature Reserve (R4070). A site survey was undertaken on 9th and 10th November 2022. The site is approximately 57 kilometres north of the Perth central area, in the Shire of Chittering.

Barracca Nature Reserve (R4070) consists of approximately 19 hectares of Jarrah (*Eucalyptus marginata*) – Marri (*Corymbia calophylla*) woodland, Banksia woodland, open Wandoo (*Eucalyptus wandoo*) woodland and *Kunzea recurva* wetland. The purpose of this reserve is to conserve the flora and fauna.

The vegetation within Barracca Nature Reserve (R4070) ranges from “Good” to “Very Good” condition with a low number of weed species and densities recorded. The areas recorded as Good were predominately along the fencelines and internal tracks. During the site visits, vegetation communities were broadly mapped and described by recording the dominant tree species and other upper-level flora species. The vegetation described on site can be categorised into four broad vegetation communities.

Barracca Nature Reserve (R4070) is a conservation reserve for the protection of flora and fauna. The reserve is currently in predominantly very good condition and provides valuable and diverse habitats for fauna and an array of flora species.

STATEMENT OF LIMITATIONS

This environmental report has been prepared in accordance with the scope of services set out in the original quotation. In preparing the report, Del Botanics has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report. Del Botanics has not verified the accuracy or completeness of the data to the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Del Botanics will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed.

In accordance with the scope of services, Del Botanics has have relied on publically available data and information supplied by DBCA and have conducted environmental field monitoring in the preparation of the report. The nature and extent of monitoring conducted is described in the report. Within the limitations imposed by the scope of services, the monitoring and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care. No other warranty, express or implied, is made.

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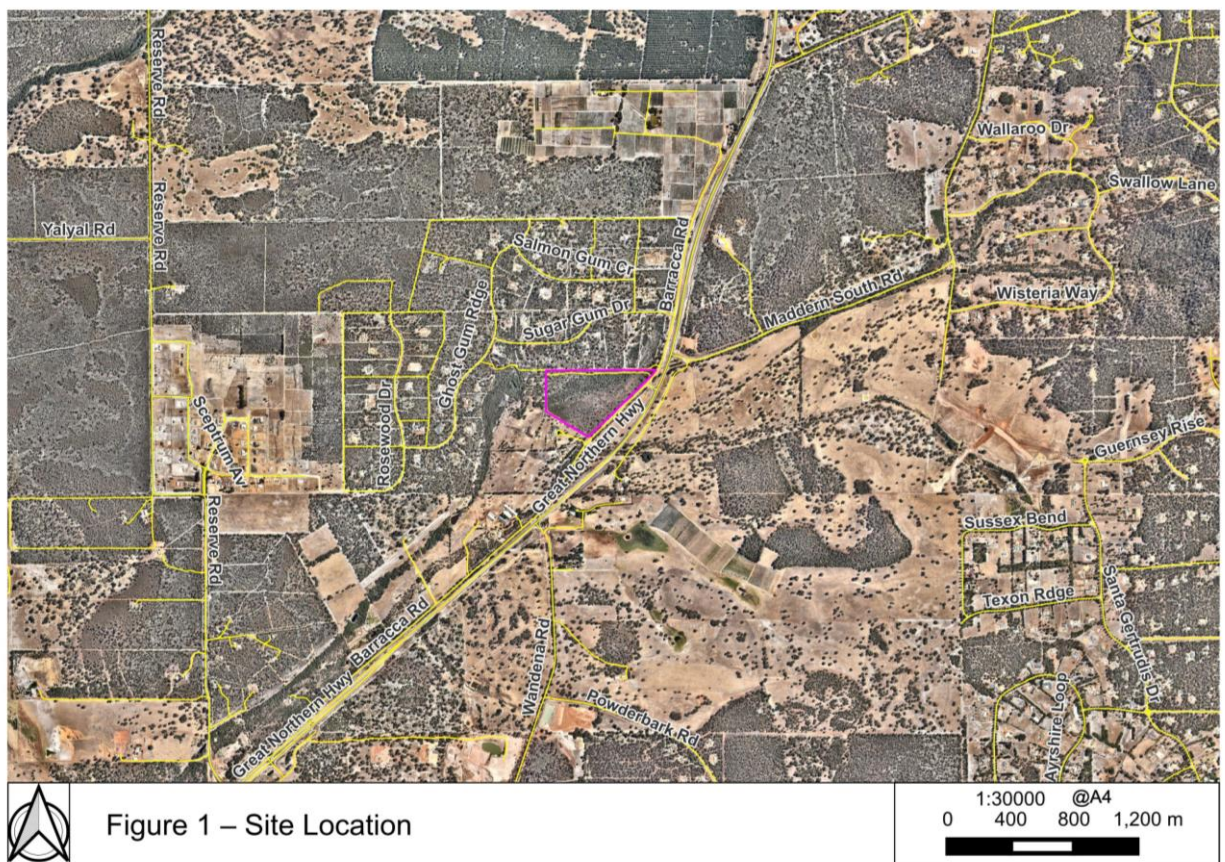
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1. INTRODUCTION

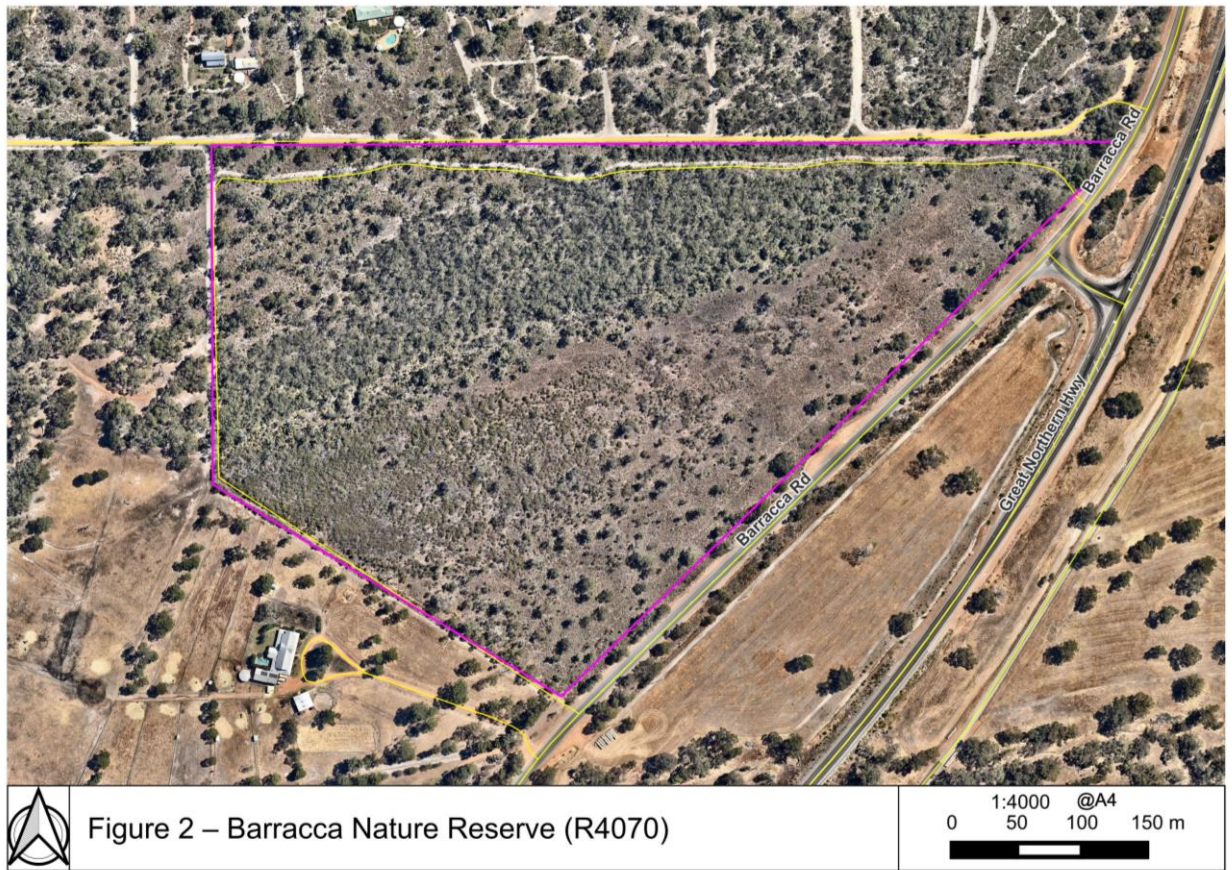
1.1 BARRACCA NATURE RESERVE (R4070)

This report has been prepared by Del Botanics on behalf of Department of Biodiversity, Conservation and Attractions (DBCA) to review remnant flora, fauna and vegetation at Barracca Nature Reserve (R4070). A site survey was undertaken on 9th and 10th November 2022. The site is approximately 57 kilometres north of the Perth central area, in the Shire of Chittering. The location of the site is shown on **Figure 1** below.



The Shire of Chittering covers an area of approximately 1,200 square kilometres, along the northeastern fringe of the Perth metropolitan area. The Shire has a unique landscape of large areas of untouched bushland, state forest, wetlands, and industrial and commercial estates.

Barracca Nature Reserve (R4070) is approximately 26 km west of the Chittering town site and is shown on **Figure 2** below. The purpose of this reserve is for the conservation of flora and fauna. Barracca Nature Reserve (R4070) consists of approximately 19 hectares of Jarrah (*Eucalyptus marginata*) – Marri (*Corymbia calophylla*) woodland, Banksia woodland, open Wandoo (*Eucalyptus wandoo*) woodland and *Kunzea recurva* wetland.



1.2 HISTORY

The Shire of Chittering was first established as the Chittering Brook Road District on 10 January 1896, it was renamed the Chittering Road District on 7 February that year. On 1 July 1961, it became a Shire following the enactment of the Local Government Act 1960, which reformed all remaining road districts into Shires. The local economy is based on broad-acre farming, orchards, small rural and semi-rural lifestyle residential properties. There is limited industry, being extractive industry operations (gravel, clay and sand), the state livestock yards (WAMIA), mineral sands processing (Tronox), tourist attractions, viticulture, wineries and other small businesses (Shire of Chittering, 2023).



Photo 1: Barracca Nature Reserve (R4070)

2. EXISTING ENVIRONMENT

2.1 SOILS AND LANDFORMS

2.1.1 Landforms

Barracca Nature Reserve occurs on the Dandaragan plateau. The plateau is bordered by the Derby and Dandaragan Faults. Cretaceous marine sediments are mantled by sands and laterites. The vegetation is characterised by Banksia low woodland, Jarrah - Marri woodland, Marri woodland, and by scrub-heaths on laterite pavement and on gravelly sandplains. The climate is Warm Mediterranean and annual rainfall is 700 mm and the subregional area is 447,862 ha (DPAW, 2001).

2.1.2 Soils

The soils which occur within Barracca Nature Reserve are part of the Reagan System and the Mogumber system.

The Reagan System consists of gentle slopes from the Dandaragan plateau to the Pinjarra plain. It contains brown, yellow and pale sands that may be shallow to very deep with clay or duricrust underlying (DataWA, 2023).

The Mogumber System consists of gentle to moderate sloping sandplain, varying from pale to yellow clayey sand with gravel and laterised ridges (DataWA, 2023).

2.2 VEGETATION

The survey area lies in the Drummond Botanical Subdistrict within the Southwest Botanical Province as described by Beard (1990). Flora composition has been described by Beard (1990) as predominantly consisting of Banksia low woodlands on leached sands with Melaleuca swamps where ill drained and woodlands of Eucalyptus spp. on less leached soils. This area has been described by Beard (1990) as the Northern Jarrah Forrest Botanical District.

The latest version, IBRA7, classifies Australia's landscapes into 89 large geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The IBRA description of vegetation for this area is best categorised as Jarrah Forest.

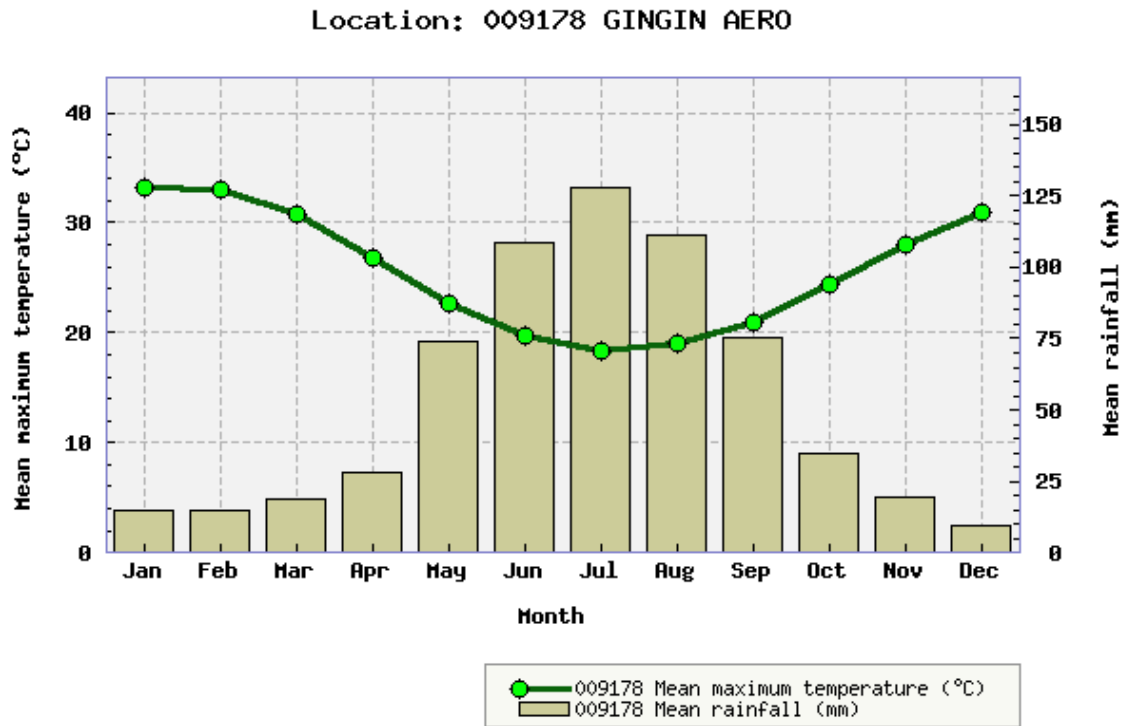
The southwest of Western Australia has been divided into districts, known as Natural Resource Zones, which are determined by their vegetation type, drainage/catchment system and rainfall. The Shire of Chittering is part of the Northern Jarrah Forrest Vegetation Zone (Cresswell, 1995).

Vegetation complexes are based on the pattern of vegetation at a regional scale as they reflect the underlying key determining factors of landforms, soils and climate. The Perth and Peel Regions are spread over two IBRA regions, the Swan Coastal Plain and Jarrah Forest. The Jarrah Forest IBRA region can be divided into two sub-regions, the Northern Jarrah Forest, and the Southern Jarrah Forest. The Perth and Peel Region extends only to the Northern Jarrah Forest IBRA sub-region. Barracca NR falls within the Northern Jarrah Forest sub region (Havel, 2000).

2.3 CLIMATE

The Shire's climate consists of a warm Mediterranean climate with hot dry summers and mild wet winters. The Shire of Chittering's closest weather station is at the Gingin Aero site no. 9178, which is approximately 20.4km from the survey area. The average rainfall per annum recorded from 1996 to 2022 is 620mm. The average maximum temperatures range from 33.2°C in January and 18.4°C in July, while average minimum temperatures range from 17.1°C in February to 6.5°C in July.

The survey was undertaken in November 2022, which followed a few months of significant rainfall, hence why there was a lot of water still visible and a number of flora species in flower. It was noted that 2022 overall had a decrease in rainfall from 2021 by 232.20mm (BoM, 2023).



Australian Government
Bureau of Meteorology

Created on Mon 16 Jan 2023 14:28 PM AEDT

Graph 1: Shire of Chittering annual weather data

3. FLORA, FAUNA AND VEGETATION

3.1 FLORA

The site is dominated by Jarrah (*Eucalyptus marginata*) – Marri (*Corymbia calophylla*) woodland, Banksia woodland, open Wandoo (*Eucalyptus wandoo*) woodland and *Kunzea recurva* wetland. There is high species diversity across the site with low densities of weed species, which occur predominantly in areas bounding private property.

A species list is available in **Appendix A**, this provides a list of flora species identified during the field survey.

3.1.1 Threatened flora

A search of the Department of Biodiversity, Conservation and Attractions (DBCA) NatureMap database identified eleven Threatened (T), six Priority 4 (P4), 10 Priority 3 (P3), twelve Priority 2 (P2), and three Priority 1 (P1) species within a 10 km radius, that are likely to occur within the area. These species are listed in **Table 1** below.

Table 1: NatureMap listed flora species

| Taxon | Conservation Status | WA Ranking |
|--|---------------------|------------|
| <i>Acacia anomala</i> | T | VU |
| <i>Acacia cummingiana</i> | 3 | |
| <i>Acacia drummondii</i> subsp. <i>affinis</i> | 3 | |
| <i>Acacia pulchella</i> var. <i>reflexa</i> acuminate bracteole variant (R.J. Cumming 882) | 3 | |
| <i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i> | 3 | |
| <i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i> | 4 | |
| <i>Caustis gigas</i> | 2 | |
| <i>Chamaescilla gibsonii</i> | 3 | |
| <i>Chamelaucium lullfitzii</i> | T | VU |
| <i>Cyathochaeta teretifolia</i> | 3 | |
| <i>Darwinia foetida</i> | T | EN |
| <i>Diuris drummondii</i> | T | |
| <i>Drosera sewelliae</i> | 2 | |
| <i>Eryngium pinnatifidum</i> subsp. <i>umbraphilum</i> (G.J. Keighery 13967) | 2 | |
| <i>Gastrolobium nudum</i> | 2 | |
| <i>Grevillea althoferorum</i> subsp. <i>fragilis</i> | T | CR |
| <i>Grevillea candolleana</i> | 2 | |
| <i>Grevillea corrugata</i> | T | VU |
| <i>Grevillea curviloba</i> | T | |
| <i>Grevillea curviloba</i> subsp. <i>curviloba</i> | T | CR |
| <i>Grevillea curviloba</i> subsp. <i>incurva</i> | T | EN |

| | | |
|---|---|----|
| <i>Hibbertia glomerata</i> subsp. <i>ginginensis</i> | 2 | |
| <i>Hypocalymma sylvestre</i> | T | EN |
| <i>Hypolaena robusta</i> | 4 | |
| <i>Isotropis cuneifolia</i> subsp. <i>glabra</i> | 3 | |
| <i>Millotia tenuifolia</i> var. <i>laevis</i> | 2 | |
| <i>Netrostylis</i> sp. Chandala (G.J. Keighery 17055) | 2 | |
| <i>Ornduffia submersa</i> | 4 | |
| <i>Poranthera moorokatta</i> | 2 | |
| <i>Ptychosema pusillum</i> | T | VU |
| <i>Schoenus griffinianus</i> | 4 | |
| <i>Stylidium longitubum</i> | 4 | |
| <i>Stylidium squamellosum</i> | 2 | |
| <i>Stylidium striatum</i> | 4 | |
| <i>Styphelia filifolia</i> | 3 | |
| <i>Synaphea grandis</i> | 4 | |
| <i>Synaphea panhesya</i> | 1 | |
| <i>Thelymitra stellata</i> | T | EN |
| <i>Thelymitra variegata</i> | 2 | |
| <i>Thysanotus</i> sp. Badgingarra (E.A. Griffin 2511) | 2 | |
| <i>Verticordia lindleyi</i> subsp. <i>lindleyi</i> | 4 | |
| <i>Verticordia rutilastra</i> | 3 | |
| <i>Verticordia serrata</i> var. <i>linearis</i> | 3 | |

A search of the Department of Agriculture, Water and the Environment (DAWE) Protected Matters database identified twenty-seven flora species of significance within a 10 km radius, which are likely to occur within the area. Six flora species have been listed as Vulnerable, nineteen species are listed as Endangered and two are listed as Critically Endangered. These species are listed in **Table 2** below.

Table 2: DAWE Protected Matters listed flora species

| Genus /Species | Common Name | Priority |
|--|---------------------------------------|--|
| <i>Acacia anomala</i> | Grass Wattle, Chattering Grass Wattle | Vulnerable |
| <i>Andersonia gracilis</i> | Slender Andersonia | Endangered |
| <i>Anigozanthos viridis</i> subsp. <i>terraspectans</i> | Dwarf Green Kangaroo Paw | Vulnerable |
| <i>Banksia mimica</i> | Summer Honeypot | Endangered |
| <i>Caleana dixonii</i> | Sandplain Duck Orchid | Endangered (listed as <i>Paracaleana dixonii</i>) |
| <i>Chamelaucium lullfitzii</i> | Gingin Wax | Endangered (listed as <i>Chamelaucium</i> sp. Gingin (N.G.Marchant 6)) |
| <i>Conospermum densiflorum</i> subsp. <i>unicephalatum</i> | One-headed Smokebush | Endangered |
| <i>Darwinia carnea</i> | Mogumber Bell, Narrogin Bell | Endangered |
| <i>Darwinia foetida</i> | Muchea Bell | Critically Endangered |
| <i>Diplolaena andrewsii</i> | | Endangered |

| | | |
|--|---|-----------------------|
| <i>Diuris drummondii</i> | Tall Donkey Orchid | Vulnerable |
| <i>Diuris purdiei</i> | Purdie's Donkey-orchid | Endangered |
| <i>Drakaea elastica</i> | Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid | Endangered |
| <i>Eleocharis keigheryi</i> | Keighery's Eleocharis | Vulnerable |
| <i>Eucalyptus leprophloia</i> | Scaly Butt Mallee, Scaly-butt Mallee | Endangered |
| <i>Goodenia arthrotricha</i> | | Endangered |
| <i>Grevillea corrugata</i> | | Endangered |
| <i>Grevillea curviloba</i> subsp. <i>curviloba</i> | Curved-leaf Grevillea | Endangered |
| <i>Grevillea curviloba</i> subsp. <i>incurva</i> | Narrow curved-leaf Grevillea | Endangered |
| <i>Grevillea flexuosa</i> | Zig Zag Grevillea | Vulnerable |
| <i>Hypocalymma sylvestre</i> | | Endangered |
| <i>Macarthuria keigheryi</i> | Keighery's Macarthuria | Endangered |
| <i>Melaleuca sciotostyla</i> | Wongan Melaleuca | Endangered |
| <i>Ptychosema pusillum</i> | Dwarf Pea | Vulnerable |
| <i>Synaphea</i> sp. Fairbridge Farm | Selena's Synaphea | Critically Endangered |
| <i>Thelymitra dedmaniarum</i> | Cinnamon Sun Orchid | Endangered |
| <i>Thelymitra stellata</i> | Star Sun-orchid | Endangered |

3.1.2 Weeds

Invasive plants are widespread in fragmented landscapes that have been highly modified, and where nutrient enrichment of soils and frequent disturbance encourages the establishment of weeds over native vegetation. Established weeds compete with native plants, affecting their recruitment and survival, therefore reducing the habitat quality for native fauna.

Grassy weeds can also increase the flammability of the vegetation, increasing fire frequency and intensity. Once established, weeds become a long-term and potentially costly management issue.

Weed densities are low on average across the site, however there are areas of high weed densities, in particular grass weeds along the south west boundary.

Weeds are dominant along the edges of the reserve, adjacent to roads and private properties and scattered throughout the reserve. Weed control may be applied to the areas along the boundary fence lines and roads, however due to weed infestations occurring on neighbouring properties weeds may continue to be an issue. It is important to minimise the encroachment of weeds into bushland areas. Most of the dominant weeds are grasses.



Photo 2: Weeds adjacent to the reserve on neighbouring private property

3.2 FAUNA

This reserve is an important stepping stone of native vegetation in this landscape as most of the natural bushland has been cleared. The site has a variety of fauna habitats available with large trees containing hollows (natural and artificial), a wetland, fallen logs and dense understorey for ground dwelling fauna. During the survey a number of bird species were observed, as well as scats from Kangaroo's. There was evidence of Black Cockatoo foraging within the reserve. A species list is available in **Appendix B**, this provides a list of fauna species identified during the field survey.



Photo 3: Artificial bird nesting box, located within Barracca Nature Reserve.

3.2.1 Threatened Fauna.

A search of the Department of Biodiversity, Conservation and Attractions (DBCA) NatureMap database identified twenty priority species within a 10 km radius, which are likely to occur within the area. Of these, one is listed as MI (Migratory), one is listed as OS (Other, Specially Protected), one is listed as CD (Conservation Dependant), two are listed as Vulnerable (VU), three are listed as Endangered (EN), two are listed as Priority 3 (P3) and two as Priority 4 (P4) species. The list is provided in **Table 3** below.

Table 3: NatureMap listed fauna species

| Taxon | Common Name | WA Status | EPBC Status |
|--|--|-----------|-------------|
| <i>Calyptorhynchus banksii naso</i> | Forest red-tailed black cockatoo | VU | VU |
| <i>Calyptorhynchus latirostris</i> | Carnaby's cockatoo | EN | EN |
| <i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo' | White-tailed black cockatoo | EN | |
| <i>Dasyurus geoffroii</i> | Chuditch, western quoll | VU | VU |
| <i>Falco peregrinus</i> | Peregrine falcon | OS | |
| <i>Galaxiella nigrostriata</i> | Black-stripe minnow, black-striped dwarf galaxias | EN | EN |
| <i>Idiosoma sigillatum</i> | Swan Coastal Plain shield-backed trapdoor spider | P3 | |
| <i>Isodon fusciventer</i> | Quenda, southwestern brown bandicoot | P4 | |
| <i>Neelaps calonotos</i> | Black-striped snake, black-striped burrowing snake | P3 | |
| <i>Notamacropus irma</i> | Western brush wallaby | P4 | |

| | | | |
|---------------------------------------|--|----|----|
| <i>Phascogale tapoatafa wambenger</i> | South-western brush-tailed phascogale, wambenger | CD | |
| <i>Tringa nebularia</i> | Common greenshank | MI | MI |
| <i>Westralunio carteri</i> | Carter's freshwater mussel | VU | VU |

A search of the Department of Agriculture, Water and the Environment (DAWE) Protected Matters database identified ten fauna species of significance likely to occur within a 10km radius of the reserve. Three fauna species are listed as Critically Endangered, six species are listed as Endangered and four species are listed as Vulnerable. These species are listed in **Table 4** below.

Table 4: DAWE Protected Matters listed fauna species

| Genus /Species | Common Name | Priority |
|--------------------------------------|--|--|
| <i>Bettongia penicillata ogilbyi</i> | Woylie | Endangered |
| <i>Botaurus poiciloptilus</i> | Australasian Bittern | Endangered |
| <i>Calidris ferruginea</i> | Curlew Sandpiper | Critically Endangered |
| <i>Calyptorhynchus banksii naso</i> | Forest Red-tailed Black-Cockatoo, Karrak | Vulnerable |
| <i>Dasyurus geoffroii</i> | Chuditch, Western Quoll | Vulnerable |
| <i>Galaxiella nigrostriata</i> | Blackstriped Dwarf Galaxias, Black-stripe Minnow | Endangered |
| <i>Hesperocolletes douglasi</i> | Douglas' Broad-headed Bee, Rottnest Bee | Critically Endangered |
| <i>Leipoa ocellata</i> | Malleefowl | Vulnerable |
| <i>Numenius madagascariensis</i> | Eastern Curlew, Far Eastern Curlew | Critically Endangered |
| <i>Petrogale lateralis lateralis</i> | Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby | Endangered |
| <i>Rostratula australis</i> | Australian Painted Snipe | Endangered |
| <i>Westralunio carteri</i> | Carter's Freshwater Mussel, Freshwater Mussel | Vulnerable |
| <i>Zanda latirostris</i> | Carnaby's Black Cockatoo, Short-billed Black-cockatoo | Endangered (listed as <i>Calyptorhynchus latirostris</i>) |

3.2.2 Feral Animals

Several species of invasive animals have established in the region, which have impacted upon native vegetation and fauna. Feral cats (*Felis catus*) and the European Fox (*Vulpes vulpes*) are key predators that prey upon ground-dwelling native fauna. The European Rabbit (*Oryctolagus cuniculus*) causes direct loss of plant species, and indirect loss of native plant and animal species through changes to soil structure and nutrient dynamics by their digging, burrowing and grazing activities. There was evidence of rabbits occurring in this reserve.

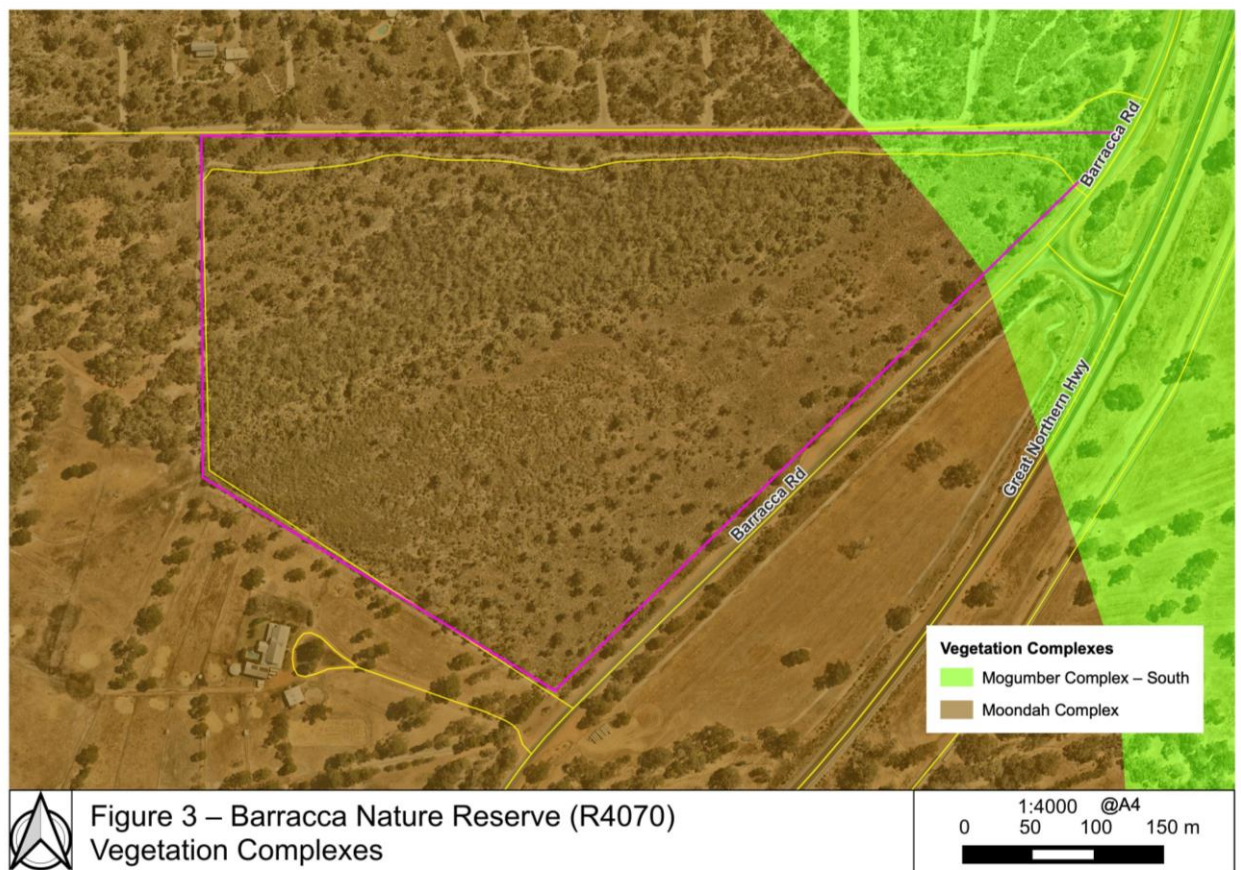
3.3 VEGETATION

Barracca Nature Reserve (R4070) is predominately in Very Good condition. The vegetation is dominated by Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*), Candle stick Banksia (*Banksia attenuata*) and Firewood Banksia (*Banksia menziesii*) with pockets of Wandoo (*Eucalyptus wandoo*) and

a rich diversity of native understorey species. The low-lying areas are dominated by *Kunzea recurva* and wetland flora species.

3.3.1 Vegetation Complexes

There are 18 vegetation complexes represented within the Jarrah Forest portions of the Perth and Peel Scheme Regions. The vegetation complexes shown on **Figure 3** provides the vegetation distribution coverage of pre-1750 south west forest region of Western Australia. This mapping was undertaken by Matiske and Havel (1998) as part of the biodiversity assessment for the comprehensive regional assessment for the south west forest region. Two local vegetation complexes occur within Barracca Nature Reserve. The description of the vegetation complexes are provided below and are shown on **Figure 3**:



3.3.2 Vegetation complexes found within Barracca Nature Reserve (R4070)

Moondah Vegetation Complex

Moondah Vegetation Complex consists of low closed to low open forest of *Banksia attenuata* (Slender Banksia) - *Banksia menziesii* (Firewood Banksia) - *Eucalyptus tottiana* (Pricklybark) - *Banksia prionotes* (Acorn Banksia) on slopes and open woodland of *Corymbia calophylla* (Marri) - *Banksia* species in valleys.

Mogumber South Vegetation Complex

Mogumber South Vegetation Complex consists of open woodland of *Corymbia calophylla*, with some admixture of *Eucalyptus marginata* (Jarrah) and a second storey of *Eucalyptus todtiana* (Pricklybark) - *Banksia attenuata* - *Banksia menziesii* (Firewood Banksia) - *Banksia ilicifolia* (Holly-leaved Banksia).

3.3.3 Barracca Nature Reserve Local Vegetation Communities

During the site visit, vegetation communities were broadly mapped and described by recording the dominant flora species. The vegetation described on site can be categorised into four broad vegetation communities. These communities are described in **Table 5** and shown on **Figure 4**.

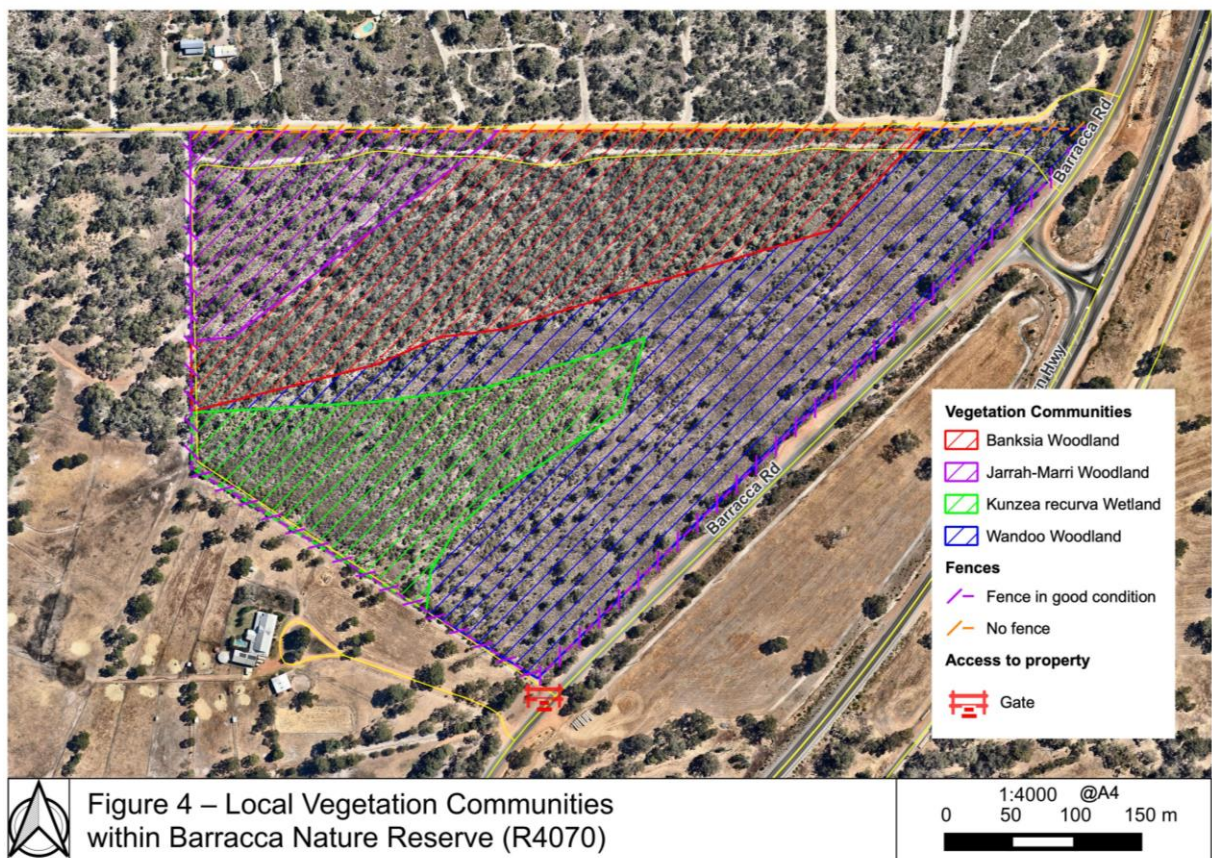


Table 5: Local Vegetation Communities

| | |
|---|---|
| Community Description | |
| Vegetation Community 1 – Jarrah – Marri Woodland | |
| 1 | Open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over shrubland of <i>Adenanthos cygnorum</i> , <i>Banksia nivea</i> , <i>Acacia pulchella</i> and <i>Hibbertia hypericoides</i> |
| Community Description | |
| Vegetation Community 2 – Wandoo Woodland | |
| 2 | Open woodland of <i>Eucalyptus wandoo</i> over shrubland of <i>Hypocalymma angustifolium</i> and <i>Hakea trifurcata</i> and <i>Conosytilis setigera</i> over herbland of <i>Hyalosperma cotula</i> |
| Community Description | |
| Vegetation Community 3 – Banksia Woodland | |
| 3 | Low woodland of <i>Banksia grandis</i> , <i>Banksia attenuata</i> and <i>Banksia meneziesii</i> over shrubland of <i>Allocasuarina humilis</i> , <i>Patersonia occidentalis</i> , <i>Dasypogon bromeliifolius</i> and <i>Eremaea pauciflora</i> |
| Community Description | |
| Vegetation Community 4 – <i>Kunzea recurva</i> Wetland | |
| 4 | Tall shrubland of <i>Kunzea recurva</i> over shrubland of <i>Verticordia ?plumosa</i> over sedgeland of <i>Lepidosperma</i> spp. over herbland of <i>Burchardia</i> sp., <i>Cassytha</i> sp. Over grassland of <i>*Avena barbata</i> and <i>Neurachne alopecuroidea</i> . |



Photo 4: Jarrah- Marri Woodland

Vegetation Community 1 – Jarrah – Marri Woodland

| | |
|-----------------|-----------------------------------|
| Jarrah Woodland | <i>*Gladiolus caryophyllaceus</i> |
| | <i>*Ursinia anthemoides</i> |
| | <i>Acacia pulchella</i> |
| | <i>Adenanthos cygnorum</i> |
| | <i>Amphipogon turbinatus</i> |
| | <i>Austrostipa elegantissima</i> |
| | <i>Austrostipa compressa</i> |
| | <i>Banksia attenuata</i> |
| | <i>Banksia grandis</i> |
| | <i>Banksia ilicifolia</i> |
| | <i>Banksia menziesii</i> |
| | <i>Banksia nivea</i> |
| | <i>Bossiaea eriocarpa</i> |
| | <i>Burchardia umbellata</i> |
| | <i>Calothamnus sanguineus</i> |
| | <i>Calytrix</i> sp. Yellow |
| | <i>Cassytha</i> sp |
| | <i>Conospermum stoechadis</i> |
| | <i>Conostylis aurea</i> |
| | <i>Corymbia calophylla</i> |
| | <i>Lysinema pentapetalum</i> |
| | <i>Dampiera alata</i> |
| | <i>Dasyogon bromeliifolius</i> |
| | <i>Daviesia</i> sp |

| | |
|--|-----------------------------------|
| | <i>Desmocladius fasciculatus</i> |
| | <i>Eremaea pauciflora</i> |
| | <i>Eucalyptus marginata</i> |
| | <i>Eucalyptus todtiana</i> |
| | <i>Ficinia nodosa</i> |
| | <i>Gompholobium tomentosum</i> |
| | <i>Haemodorum</i> sp |
| | <i>Hakea ruscifolia</i> |
| | <i>Hemiandra pungens</i> |
| | <i>Hibbertia hypericoides</i> |
| | <i>Jacksonia floribunda</i> |
| | <i>Johnsonia</i> sp. |
| | <i>Kunzea glabrescens</i> |
| | <i>Lepidosperma pubisquamatum</i> |
| | <i>Leptospermum erubescens</i> |
| | <i>Levenhookia pusilla</i> |
| | <i>Desmocladius flexuosus</i> |
| | <i>Lyginia barbata</i> |
| | <i>Lyginia imberbis</i> |
| | <i>Macrozamia riedelii</i> |
| | <i>Melaleuca ?radula</i> |
| | <i>Mesomelaena tetragona</i> |
| | <i>Nuytsia floribunda</i> |
| | <i>Patersonia occidentalis</i> |
| | <i>Petrophile linearis</i> |
| | <i>Pterochaeta paniculata</i> |
| | <i>Rytidosperma</i> sp. |
| | <i>Lechenaultia floribunda</i> |
| | <i>Stirlingia</i> sp |
| | <i>Morelotia octandra</i> |
| | <i>Thysanotus sparteus</i> |
| | <i>Tricoryne elatior</i> |
| | <i>Tripterococcus brunonis</i> |
| | <i>Waitzia suaveolens</i> |
| | <i>Xanthorrhoea gracilis</i> |
| | <i>Xanthorrhoea preissii</i> |



Photo 5: Wandoo Woodland

Vegetation Community 2 – Wandoo Woodland

| | |
|------------------------|-----------------------------------|
| Wandoo woodland | <i>*Ehrharta calycina</i> |
| | <i>*Eragrostis curvula</i> |
| | <i>*Oxalis glabra</i> |
| | <i>Austrostipa elegantissima</i> |
| | <i>Comesperma virgatum</i> |
| | <i>Conostylis setigera</i> |
| | <i>Corymbia calophylla</i> |
| | <i>Daviesia decurrens</i> |
| | <i>Desmocladius flexuosa</i> |
| | <i>Drosera</i> sp. |
| | <i>Eucalyptus marginata</i> |
| | <i>Eucalyptus wandoo</i> |
| | <i>Haemodorum</i> sp. |
| | <i>Hakea trificata</i> |
| | <i>Hyalosperma cotula</i> |
| | <i>Hypocalymma angustifolium</i> |
| | <i>Hypolaena exsulca</i> |
| | <i>Isopogon dubius</i> |
| | <i>Johnsonia</i> sp |
| | <i>Lepidosperma leptostachyum</i> |
| | <i>Lechenaultia biloba</i> |
| | <i>Pimelea imbricata</i> |
| | <i>Siloxerus</i> sp |
| | <i>Stylidium</i> sp. <i>White</i> |

| | |
|--|------------------------------------|
| | <i>Stylidium</i> sp. Pink |
| | <i>Tricoryne elatior</i> |
| | <i>Tripterococcus brunonis</i> |
| | <i>Verticordia</i> sp |
| | <i>Verticordia</i> sp. yellow |
| | <i>Waitzia suaveolens</i> |
| | <i>Xanthorrhoea preissii</i> |
| | <i>Waitzia nitida</i> |
| | <i>Xanthorrhoea acanthostachya</i> |



Photo 6: Banksia Woodland

Vegetation Community 3 – Banksia Woodland

| | |
|-------------------------|----------------------------------|
| Banksia woodland | <i>*Acacia iteaphylla</i> |
| | <i>*Geranium molle</i> |
| | <i>Acacia pulchella</i> |
| | <i>Adenanthos cygnorum</i> |
| | <i>Allocasuarina humilis</i> |
| | <i>Anigozanthos manglesii</i> |
| | <i>Austrostipa compressa</i> |
| | <i>Austrostipa elegantissima</i> |
| | <i>Banksia attenuata</i> |
| | <i>Banksia grandis</i> |
| | <i>Banksia ilicifolia</i> |
| | <i>Banksia menzeissii</i> |
| | <i>Burchardia umbellata</i> |

| | |
|--|-----------------------------------|
| | <i>Cassytha</i> sp. |
| | <i>Caustis dioica</i> |
| | <i>Conospermum stoechadis</i> |
| | <i>Corymbia calophylla</i> |
| | <i>Dampiera linearis</i> |
| | <i>Dampiera alata</i> |
| | <i>Dasypogon bromeliifolius</i> |
| | <i>Desmocladius fasciculatus</i> |
| | <i>Eremaea pauciflora</i> |
| | <i>Eucalyptus marginata</i> |
| | <i>Eucalyptus todtiana</i> |
| | <i>Ficinia nodosa</i> |
| | <i>Gompholobium tomentosum</i> |
| | <i>Haemodorum</i> sp. |
| | <i>Hakea ruscifolia</i> |
| | <i>Hibbertia hypericoides</i> |
| | <i>Jacksonia floribunda</i> |
| | <i>Jacksonia sternbergiana</i> |
| | <i>Kunzea glabrescens</i> |
| | <i>Kunzea recurva</i> |
| | <i>Lechenaultia floribunda</i> |
| | <i>Lepidosperma pubisquamatum</i> |
| | <i>Leptospermum erubescens</i> |
| | <i>Lyginia barbata</i> |
| | <i>Macrozamia riedelii</i> |
| | <i>Melaleuca ?radula</i> |
| | <i>Mesomelaena pseudostygia</i> |
| | <i>Nuytsia floribunda</i> |
| | <i>Patersonia occidentalis</i> |
| | <i>Petrophile linearis</i> |
| | <i>Stylidium</i> sp. |
| | <i>Thysanotus</i> sp. |
| | <i>Thysanotus sparteus</i> |
| | <i>Verticordia nitens</i> |
| | <i>Xanthorrhoea gracilis</i> |
| | <i>Xanthorrhoea preissii</i> |



Photo 7: *Kunzea recurva* wetland

Vegetation Community 4 – *Kunzea recurva* Wetland

| | |
|--------------------------------------|------------------------------------|
| <i>Kunzea recurva</i> Wetland | * <i>Aira caryophyllea</i> |
| | * <i>Arctotheca calendula</i> |
| | * <i>Avena barbata</i> |
| | * <i>Briza maxima</i> |
| | * <i>Bromus diandrus</i> |
| | * <i>Ehrharta calycina</i> |
| | * <i>Eragrostis curvula</i> |
| | * <i>Gladiolus caryophyllaceus</i> |
| | * <i>Lolium perenne</i> |
| | * <i>Lotus angustissimus</i> |
| | * <i>Medicago polymorpha</i> |
| | * <i>Orobanche</i> sp |
| | * <i>Oxalis pes-caprae</i> |
| | * <i>Pelargonium</i> sp. |
| | * <i>Romulea rosea</i> |
| | * <i>Taraxacum khatoonae</i> |
| | * <i>Ursinia anthemoides</i> |
| | <i>Anigozanthos manglesii</i> |
| | <i>Babingtonia camphorosmae</i> |
| | <i>Banksia nivea</i> |
| | <i>Burchardia multiflora</i> |
| | <i>Cassytha</i> sp. |
| | * <i>Lagurus ovatus</i> |
| | <i>Caustis dioica</i> |
| | <i>Chorizandra</i> sp. |

| | |
|--|-----------------------------------|
| | <i>Conostylis setigera</i> |
| | <i>Pyrorchis nigricans</i> |
| | <i>Haemodorum</i> sp |
| | <i>Hakea varia</i> |
| | <i>Hibbertia subvaginata</i> |
| | <i>Hypocalymma robustum</i> |
| | <i>Hypolaena exsulca</i> |
| | <i>Kunzea recurva</i> |
| | <i>Lechenaultia floribunda</i> |
| | <i>Lepidosperma pubisquamatum</i> |
| | <i>Lepidosperma</i> sp. |
| | <i>Mesomelaena pseudostygia</i> |
| | <i>Mesomelaena tetragona</i> |
| | <i>Moraea flaccida</i> |
| | <i>Neurachne alopecuroidea</i> |
| | <i>Patersonia pygmaea</i> |
| | <i>Rytidosperma</i> sp. |
| | <i>Themeda triandra</i> |
| | <i>Verticordia ? plumosa</i> |
| | <i>Verticordia</i> sp.pink |

3.3.4 Threatened Ecological Communities

The EPBC Act provides for the strong protection of TEC's, which are listed under section 181 of the Act and are described as 'Critically Endangered', 'Endangered' or 'Vulnerable' under section 182. Schedules of protected TEC's maintained pursuant to the EPBC Act are based on the same Floristic Community Type's (FCT's) as adopted by DBCA, however not all TEC's listed by the DBCA are scheduled under the EPBC Act.

A Department of Agriculture, Water and the Environment (DAWE) Protected Matters report indicated there are five known Threatened Ecological Communities (TEC's) likely to occur in the area, which are listed below in **Table 6**.

Table 6: DAWE listed Threatened Ecological Communities

| Name | Status | Type of Presence |
|--|-----------------------|---------------------------------------|
| Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community | Critically Endangered | Community may occur within area |
| Banksia Woodlands of the Swan Coastal Plain ecological community | Endangered | Community likely to occur within area |
| Assemblages of plants and invertebrate animals of tumulus (organic mound) springs of the Swan Coastal Plain | Endangered | Community known to occur within area |
| Clay Pans of the Swan Coastal Plain | Critically Endangered | Community likely to occur within area |
| Shrublands and Woodlands on Muchea Limestone of the Swan Coastal Plain | Endangered | Community known to occur within area |

One TEC, *Banksia Woodlands of the Swan Coastal Plain ecological community* is likely to occur within Barracca Nature Reserve. The community type mapped as *community 3 - Banksia woodland*, contains two of the key species defining this ecological community and fits within the size and condition thresholds describing this community as a TEC.

3.3.5 Vegetation Condition

Many bushland remnants have been historically subject to ongoing degradation and are especially susceptible to disturbances arising as a result of indirect impacts from surrounding developments and human activity. Degradation is caused by a wide range of factors, including isolation and edge effects, weed invasion, plant diseases, changes in fire frequency and behaviour, landscape fragmentation, illegal firewood cutting, rubbish/refuse dumping, off-road motorbikes and 4WD's, increased predation on native fauna by feral animals, decrease in species richness and general modification of ecological function. These issues can affect the biodiversity and ecological viability of areas of remnant vegetation and should be regularly assessed and continually managed.

Barracca Nature Reserve is predominately in Very Good condition and does not appear to be affected by fire or illegal activities. The site may be impacted further in the future by edge effects if weed invasion along these boundaries are not managed. The reserve appears to be impacted by Dieback. Barracca NR has had dieback treatment in 2013 and 2018, as recorded by Chittering Landcare Centre. The vegetation of the recorded banksia woodland community appears to have been significantly impacted by Phytophthora dieback. It is important to maintain treatment and protect the current vegetation.



Photo 8: Banksia tree species potentially impacted by Dieback

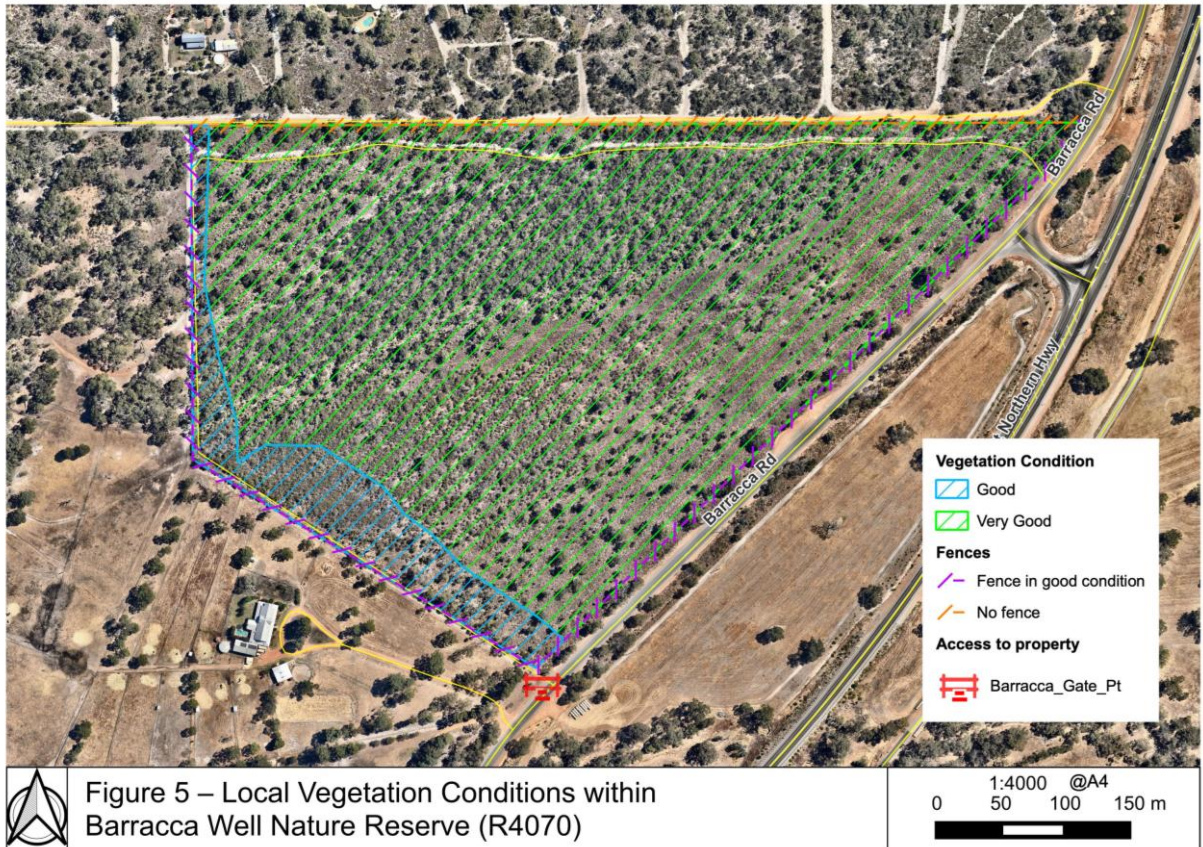
The vegetation condition was rated according to the Vegetation Condition Scale used in the Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (2016). The definitions are described in **Table 7** below.

In general, the vegetation condition ranged from “Good” to “Very Good”. Vegetation condition mapping is provided on **Figure 5**.

Table 7: Vegetation Condition Scale (Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (2016)).

| Vegetation Condition | South West and Interzone Botanical Provinces | Eremaean and Northern Botanical Provinces |
|-----------------------------|--|--|
| Pristine | Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement. | |
| Excellent | Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks. | Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement |
| Very Good | Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing. | 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 | Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing. | 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 | Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing. | 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 | The structure of the vegetation is no longer intact and the area is completely or almost completely without native | Areas that are completely or almost completely without native species in the structure of their vegetation; i.e., areas |

| | | |
|--|---|---|
| | <p>species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees and shrubs.</p> | <p>that are cleared or ‘parkland cleared’ with their flora comprising weed or crop species with isolated native trees or shrubs</p> |
|--|---|---|



4. ACCESS, FIRE BREAKS, SIGNAGE AND ILLEGAL ACTIVITY

4.1 ACCESS AND FIREBREAK CONDITION

Barracca Nature Reserve is accessible from one locked gate off Barracca Rd on the south eastern boundary. The reserve is fenced along the southern, eastern, and western boundary. There is no fencing along the northern boundary. There is a well-defined emergency access track along the northern boundary. There are private properties joining the western, eastern and southern boundaries.

There are fire breaks along the western, eastern and southern boundaries, however all firebreaks currently require maintenance. The firebreak on the northern boundary is well maintained and is outside the reserve boundary. There is an internal access track along the northern boundary reserve running in an east-west direction. There are no other firebreaks through any of the sections of the reserve. Maintenance of the firebreaks will be required to ensure the entire site is accessible.

Apart from the firebreaks, there are no obvious additional tracks. There are no signs of vehicle use or rubbish dumping.



Photo 9: Fire break along the northern boundary of the Reserve

4.2 FENCING

Overall, the boundary fences appear to be in good condition. The fencing along the northern boundary needs to be replaced as most of it is missing or flattened on the ground. The eastern fenceline also requires maintenance. Ongoing maintenance is important to protect the bushland from stock and access, as the reserve is bounded by private properties to the north, south, east, and west.



Photo 10: Fencing along the southern boundary of the Reserve

4.3 SIGNAGE

During the site visit, one nature reserve sign was observed. The sign is located at the entrance of the site on Barracca Rd. The reserve sign location is shown on **Figures 4 & 5**. The sign requires updating to reflect the correct spelling of the reserve name.



Photo 11: Barracca Nature Reserve signage

4.4 ILLEGAL ACTIVITY

No signs of motorbikes or 4WD's access was observed. There appears to be limited activity within this reserve.

5. FIRE

Prior to European settlement, fires occurred through lightning strikes and Indigenous burning of the landscape. Indigenous burning practices had been adopted for up to 60 000 years and likely comprised a mosaic of frequent, small-scale fires. Since European settlement, fires still occur through lightning strikes. However, they now also originate from prescribed burning operations (including escapes from planned fires), arson or accidental ignition due to a range of sources. The nature and impacts of fire are influenced by other threats in the landscape. Fragmentation into small remnants and the surrounding modified land use can affect the intensity and impact of fires across a patch. The type of understorey may promote or suppress fire spread. Frequency of fire is one important consideration in addition to fire intensity and season. Too frequent fires may eliminate sensitive species. For example: obligate seeder species that require fire to stimulate seed germination may die out if recurring fires kill plants before they have a chance to mature and develop new seeds; and fauna may decline due to the loss of food and shelter resources after frequent fires.

It is important to develop appropriate fire management with the use of mosaic burning to maintain the diversity of habitats for flora and fauna.

There are no obvious indicators that show recent fire activity within the reserve. Fire scars on the trees appear to be greater than 5 years and the understorey species and leaf litter appear unmarked from fire. The fire break around the perimeter of the reserve requires maintenance.

6. CONCLUSION AND RECOMMENDATIONS

Barracca Nature Reserve is a nature reserve for the conservation of flora and fauna. The reserve is an important bushland area as it contains remnant vegetation in good condition, which provides valuable habitat for flora and fauna species.

Based on the results of this assessment, Del Botanics proposes the following reserve management recommendations:

- Implement a weed management plan with communication provided to adjacent landholders, to encourage control of priority weeds on adjacent properties and ensure a coordinated approach
- Undertake fire break maintenance;
- Undertaken fenceline maintenance and repairs;
- Undertake a Detailed Flora and Vegetation Survey;
- Undertake a targeted Declared Rare Flora Search for the species listed below in **Table 8**. These species have been selected as a result of a background search of the site; however, the search should not be limited to these species but should also include any Threatened and Priority flora likely to be found within the reserve.
- Undertake a Targeted Fauna Search for the species listed below in **Table 9**. These species have been selected as a result of a background search of the site; however, the search should not be limited to these species but should also include any Threatened and Priority fauna found within the reserve.

Table 8: Targeted Flora Search Species List

| Taxon | Common Name |
|--|---------------------------------------|
| <i>Acacia anomala</i> | Grass Wattle, Chittering Grass Wattle |
| <i>Acacia cummingiana</i> | |
| <i>Acacia drummondii</i> subsp. <i>affinis</i> | |
| <i>Acacia pulchella</i> var. <i>reflexa</i> acuminate bracteole variant (R.J. Cumming 882) | |
| <i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i> | |
| <i>Andersonia gracilis</i> | Slender Andersonia |
| <i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i> | Golden Catspaw |
| <i>Anigozanthos viridis</i> subsp. <i>terraspectans</i> | Dwarf Green Kangaroo Paw |
| <i>Banksia mimica</i> | Summer Honeypot |
| <i>Caleana dixonii</i> | Sandplain Duck Orchid |
| <i>Caustis gigas</i> | Giant Twigrush |
| <i>Chamaescilla gibsonii</i> | |
| <i>Chamelaucium lullfitzii</i> | Gingin Wax |
| <i>Conospermum densiflorum</i> subsp. <i>unicephalatum</i> | One-headed Smokebush |
| <i>Cyathochaeta teretifolia</i> | |
| <i>Darwinia carnea</i> | Mogumber Bell, Narrogin Bell |
| <i>Darwinia foetida</i> | Muchea Bell |
| <i>Diplolaena andrewsii</i> | |
| <i>Diuris drummondii</i> | Tall Donkey Orchid |
| <i>Diuris purdiei</i> | Purdie's Donkey-orchid |
| <i>Drakaea elastica</i> | Glossy-leafed Hammer Orchid |
| <i>Drosera sewelliae</i> | |
| <i>Eleocharis keigheryi</i> | Keighery's Eleocharis |
| <i>Eryngium pinnatifidum</i> subsp. <i>umbraphilum</i> (G.J. Keighery 13967) | |
| <i>Eucalyptus leprophloia</i> | Scaly Butt Mallee, Scaly-butt Mallee |
| <i>Gastrolobium nudum</i> | |
| <i>Goodenia arthrotricha</i> | |
| <i>Grevillea althoferorum</i> subsp. <i>fragilis</i> | |
| <i>Grevillea candolleana</i> | |
| <i>Grevillea corrugata</i> | |
| <i>Grevillea curviloba</i> | |
| <i>Grevillea curviloba</i> subsp. <i>curviloba</i> | Curved-leaf Grevillea |
| <i>Grevillea curviloba</i> subsp. <i>incurva</i> | Narrow curved-leaf Grevillea |
| <i>Grevillea flexuosa</i> | Zig Zag Grevillea |
| <i>Hibbertia glomerata</i> subsp. <i>ginginensis</i> | |
| <i>Hypocalymma sylvestre</i> | Chittering Myrtle |
| <i>Hypolaena robusta</i> | |
| <i>Isotropis cuneifolia</i> subsp. <i>glabra</i> | |
| <i>Macarthuria keigheryi</i> | Keighery's Macarthuria |
| <i>Melaleuca sciotostyla</i> | Wongan Melaleuca |

| | |
|---|-------------------------|
| <i>Millotia tenuifolia</i> var. <i>laevis</i> | |
| <i>Netrostylis</i> sp. Chandala (G.J. Keighery 17055) | |
| <i>Ornduffia submersa</i> | |
| <i>Poranthera moorokatta</i> | |
| <i>Ptychosema pusillum</i> | Dwarf Pea |
| <i>Schoenus griffinianus</i> | |
| <i>Stylidium longitubum</i> | Jumping Jacks |
| <i>Stylidium squamellosum</i> | |
| <i>Stylidium striatum</i> | Fan-leaved Triggerplant |
| <i>Styphelia filifolia</i> | |
| <i>Synaphea grandis</i> | |
| <i>Synaphea panhesya</i> | |
| <i>Synaphea</i> sp. Fairbridge Farm | Selena's Synaphea |
| <i>Thelymitra dedmaniarum</i> | Cinnamon Sun Orchid |
| <i>Thelymitra stellata</i> | Star Sun-orchid |
| <i>Thelymitra variegata</i> | Queen of Sheba |
| <i>Thysanotus</i> sp. Badgingarra (E.A. Griffin 2511) | |
| <i>Verticordia lindleyi</i> subsp. <i>lindleyi</i> | |
| <i>Verticordia rutilastra</i> | |
| <i>Verticordia serrata</i> var. <i>linearis</i> | |

Table 9: Targeted Fauna Search Species List

| Taxon | Common Name |
|--|--|
| <i>Bettongia penicillata ogilbyi</i> | Woylie |
| <i>Botaurus poiciloptilus</i> | Australasian Bittern |
| <i>Calidris ferruginea</i> | Curlew Sandpiper |
| <i>Calyptorhynchus banksii naso</i> | Forest Red-tailed Black-Cockatoo, Karrak |
| <i>Calyptorhynchus latirostris</i> | Carnaby's cockatoo |
| <i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo' | White-tailed black cockatoo |
| <i>Dasyurus geoffroii</i> | Chuditch, Western Quoll |
| <i>Falco peregrinus</i> | Peregrine falcon |
| <i>Galaxiella nigrostriata</i> | Black-stripe minnow, black-striped dwarf galaxias |
| <i>Hesperocolletes douglasi</i> | Douglas' Broad-headed Bee, Rottnest Bee |
| <i>Idiosoma sigillatum</i> | Swan Coastal Plain shield-backed trapdoor spider |
| <i>Isodon fusciventer</i> | Quenda, southwestern brown bandicoot |
| <i>Leipoa ocellata</i> | Malleefowl |
| <i>Neelaps calonotos</i> | Black-striped snake, black-striped burrowing snake |
| <i>Notamacropus irma</i> | Western brush wallaby |
| <i>Numenius madagascariensis</i> | Eastern Curlew, Far Eastern Curlew |
| <i>Petrogale lateralis lateralis</i> | Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby |
| <i>Phascogale tapoatafa wambenger</i> | South-western brush-tailed phascogale, wambenger |
| <i>Rostratula australis</i> | Australian Painted Snipe |

| | |
|----------------------------|---|
| <i>Tringa nebularia</i> | Common greenshank |
| <i>Westralunio carteri</i> | Carter's freshwater mussel |
| <i>Zanda latirostris</i> | Carnaby's Black Cockatoo, Short-billed Black-cockatoo |

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APPENDIX A
FLORA SPECIES RECORDED

Appendix A: Flora species recorded at Barracca Nature Reserve (R4070) November 2022.

| Family | Genus/Species |
|----------------|-----------------------------------|
| Anarthriaceae | <i>Lyginia barbata</i> |
| Asparagaceae | <i>Thysanotus</i> sp. |
| Asparagaceae | <i>Thysanotus sparteus</i> |
| Asteraceae | * <i>Arctotheca calendula</i> |
| | * <i>Taraxacum khatoonae</i> |
| | * <i>Ursinia anthemoides</i> |
| | <i>Hyalosperma cotula</i> |
| | <i>Pterochaeta paniculata</i> |
| | <i>Siloxerus</i> sp |
| | <i>Waitzia nitida</i> |
| | <i>Waitzia suaveolens</i> |
| Casuarinaceae | <i>Allocasuarina humilis</i> |
| Celastraceae | <i>Tripterococcus brunonis</i> |
| Colchicaceae | <i>Burchardia multiflora</i> |
| | <i>Burchardia umbellata</i> |
| Cyperaceae | <i>Caustis dioica</i> |
| | <i>Chorizandra</i> sp. |
| | <i>Ficinia nodosa</i> |
| | <i>Lepidosperma leptostachyum</i> |
| | <i>Lepidosperma pubisquamatum</i> |
| | <i>Lepidosperma</i> sp. |
| | <i>Mesomelaena pseudostygia</i> |
| | <i>Mesomelaena tetragona</i> |
| | <i>Morelotia octandra</i> |
| Dasypogonaceae | <i>Dasypogon bromeliifolius</i> |
| Dilleniaceae | <i>Hibbertia hypericoides</i> |
| | <i>Hibbertia subvaginata</i> |
| Droseraceae | <i>Drosera</i> sp. |
| Ericaceae | <i>Lysinema pentapetalum</i> |
| Fabaceae | * <i>Acacia iteaphylla</i> |
| | * <i>Lotus angustissimus</i> |
| | * <i>Medicago polymorpha</i> |
| | <i>Acacia pulchella</i> |
| | <i>Bossiaea eriocarpa</i> |
| | <i>Daviesia decurrens</i> |
| | <i>Daviesia</i> sp |
| | <i>Gompholobium tomentosum</i> |
| | <i>Jacksonia floribunda</i> |
| | <i>Jacksonia sternbergiana</i> |
| Geraniaceae | * <i>Geranium molle</i> |
| | * <i>Pelargonium</i> sp. |
| Goodeniaceae | <i>Dampiera linearis</i> |
| | <i>Dampiera alata</i> |
| | <i>Lechenaultia floribunda</i> |
| | <i>Lechenaultia biloba</i> |
| Haemodoraceae | <i>Anigozanthos manglesii</i> |
| | <i>Conostylis setigera</i> |
| | <i>Conostylis aurea</i> |

| | |
|-------------------|------------------------------------|
| | <i>Haemodorum</i> sp |
| Hemerocallidaceae | <i>Johnsonia</i> sp. |
| | <i>Tricoryne elatior</i> |
| Iridaceae | * <i>Gladiolus caryophyllaceus</i> |
| | * <i>Moraea flaccida</i> |
| | * <i>Romulea rosea</i> |
| | <i>Patersonia occidentalis</i> |
| | <i>Patersonia pygmaea</i> |
| Lamiaceae | <i>Hemiandra pungens</i> |
| Lauraceae | <i>Cassytha</i> sp |
| Loranthaceae | <i>Nuytsia floribunda</i> |
| Myrtaceae | <i>Babingtonia camphorosmae</i> |
| | <i>Calothamnus sanguineus</i> |
| | <i>Calytrix</i> sp. Yellow |
| | <i>Corymbia calophylla</i> |
| | <i>Eremaea pauciflora</i> |
| | <i>Eucalyptus marginata</i> |
| | <i>Eucalyptus todtiana</i> |
| | <i>Eucalyptus wandoo</i> |
| | <i>Hypocalymma angustifolium</i> |
| | <i>Hypocalymma robustum</i> |
| | <i>Kunzea glabrescens</i> |
| | <i>Kunzea recurva</i> |
| | <i>Leptospermum erubescens</i> |
| | <i>Melaleuca ?radula</i> |
| | <i>Verticordia ? plumosa</i> |
| | <i>Verticordia nitens</i> |
| | <i>Verticordia</i> sp |
| | <i>Verticordia</i> sp. yellow |
| | <i>Verticordia</i> sp.pink |
| orchidiaceae | <i>Pyrorchis nigricans</i> |
| Orobanchaceae | * <i>Orobanche</i> sp |
| Oxalidaceae | * <i>Oxalis glabra</i> |
| | * <i>Oxalis pes-caprae</i> |
| Poaceae | * <i>Aira caryophyllea</i> |
| | * <i>Avena barbata</i> |
| | * <i>Briza maxima</i> |
| | * <i>Bromus diandrus</i> |
| | * <i>Ehrharta calycina</i> |
| | * <i>Eragrostis curvula</i> |
| | * <i>Lagurus ovatus</i> |
| | * <i>Lolium perenne</i> |
| | <i>Amhipogon turbinatus</i> |
| | <i>Austrostipa compressa</i> |
| | <i>Austrostipa elegantissima</i> |
| | <i>Neurachne alopecuroidea</i> |
| | <i>Rytidosperma</i> sp. |
| | <i>Themeda triandra</i> |
| Polygalaceae | <i>Comesperma virgatum</i> |

| | |
|------------------|--|
| Proteaceae | <i>Adenanthos cygnorum</i> <i>Banksia attenuata</i> <i>Banksia grandis</i> <i>Banksia ilicifolia</i> <i>Banksia menzeissii</i> <i>Banksia nivea</i> <i>Banksia menziesii</i> <i>Conospermum stoechadis</i> <i>Hakea ruscifolia</i> <i>Hakea trificata</i> <i>Hakea varia</i> <i>Isopogon dubius</i> <i>Petrophile linearis</i> <i>Stirlingia</i> sp |
| Restionaceae | <i>Desmocladius fasciculatus</i> <i>Desmocladius flexuosus</i> <i>Hypolaena exsulca</i> |
| Stylidiaceae | <i>Levenhookia pusilla</i> <i>Stylidium</i> sp. <i>Stylidium</i> sp. Pink <i>Stylidium</i> sp. White |
| Thymelaeaceae | <i>Pimelea imbricata</i> |
| Xanthorrhoeaceae | <i>Xanthorrhoea gracilis</i> <i>Xanthorrhoea preissii</i> <i>Xanthorrhoea acanthostachya</i> |
| Zamiaceae | <i>Macrozamia riedelii</i> |

APPENDIX B
FAUNA SPECIES RECORDED

Appendix B: Fauna species recorded at Barracca Nature Reserve (R40702) November 2022

| Family | Genus/Species |
|---------------|------------------------------------|
| Cacatuidae | <i>Calyptorhynchus banksii</i> |
| | <i>Calyptorhynchus latirostris</i> |
| | <i>Eolophus roseicapilla</i> |
| | <i>Dromaius novaehollandiae</i> |
| Corvidae | <i>Gymnorhina tibicen</i> |
| | <i>Corvus orru</i> |
| Macropodidae | <i>Macropus fuliginosus</i> |
| Psittaculidae | <i>Barnardius zonarius</i> |
| Rhipiduridae | <i>Rhipidura albiscapa</i> |
| | <i>Rhipidura leucophrys</i> |
| | <i>Rhipidura</i> sp. |