PHOENIX
ENVIRONMENTAL SCIENCES

Flora, vegetation and fauna survey for the Beyondie Sulphate of Potash Project Concentrator Lakes

Prepared for Kalium Lakes Ltd

September 2018

Final Report

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Final Report

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Date: 30 September 2018

Submitted to: G.Edwards and P.Scott (Preston Consulting), B. Hazelden (Kalium Lakes Ltd)

Version history			
Name	**Task**	**Version**	**Date**
R. Ellis & G. Wells	Draft for client comments	0.1	18 April 2018
K. Crews	Final submitted to client	1.0	7 June 2018
G. Wells	Updated in response to ERD	1.1	30 September 2018

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Project code: 1175-BP-KAL-ECO

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List of Abbreviations

Abbreviation	Description
BoM	Bureau of Meteorology
CAR	Conservation and Reserve
DAFWA	Department of Agriculture and Food, Western Australia
DBCA	Department of Biodiversity Conservation and Attractions
DPaW	Department of Biodiversity, Conservation and Attractions
EIA	Environmental Impact Assessment
EP(Act)	Environmental Protection Act
EPA	Environmental Protection Authority
EPBC(Act)	Environmental Protection and Biodiversity Conservation Act
ERD	Environmental Review Document
ESA	Environmentally Sensitive Area
GPS	Global Positioning System
IBRA	Interim Biogeographic Regionalisation of Australia

Abbreviation	Description
IUCN	International Union for the Conservation of Nature
NES	National Environmental Significance
PDA	Personal data assistant
PEC	Priority Ecological Community
TEC	Threatened Ecological Communities
WA	Western Australia
WC(Act)	Wildlife Conservation Act

EXECUTIVE SUMMARY

Kalium Lakes Potash Pty Ltd (Kalium) is seeking to utilise four salt lakes to develop into concentrator lakes for the Beyondie Sulphate of Potash Project (the Project), located approximately 165 km south-southeast of Newman, Western Australia.

In October 2017, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Preston Consulting Pty Ltd (Preston) on behalf of Kalium to conduct a single-season 'detailed' flora and vegetation survey and a Level 1 terrestrial fauna survey to support future planning and environmental approvals for the proposed concentrator lakes. The study area for the survey covered 493.57 ha and encompassed four small salt lakes between Ten Mile Lake and Lake Sunshine.

A desktop study comprising of existing relevant database searches, literature review and spatial data analyses from the initial 2015 desktop review for the Project and subsequent surveys was undertaken prior to the field survey to compile a list of significant flora, fauna and ecological communities that may occur in the study area.

A concurrent flora and vegetation survey and terrestrial fauna survey was undertaken from 12–17 October 2017 and included systematic sampling of flora and vegetation, assessment and mapping of vegetation type and condition, terrestrial fauna habitat assessment and mapping and focused searches for significant flora and terrestrial fauna, including vertebrate, short-range endemic (SRE) invertebrate and salt lake specialist invertebrate fauna. A total of five 50 m x 50 m quadrats, five transects with evenly spaced 3 m x 3 m quadrats and 34 relevés were sampled for flora and vegetation. Twenty-two terrestrial fauna sites were surveyed. The surveys were conducted in accordance with Environmental Protection Authority (EPA) guidelines for the environmental factors 'flora and vegetation' and 'terrestrial fauna'.

Previous records of 45 significant flora species were identified in the desktop review, none of which were from within the study area. One species is listed as Vulnerable under the *Environment Protection and Biodiversity Protection Act 1999* (EPBC Act) or the *Wildlife Conservation Act 1950* (WC Act) and 44 are Priority species listed by the Department of Biodiversity, Conservation and Attractions (DBCA).

The desktop study determined that no Threatened Ecological Communities (TECs) listed under the EPBC Act or the WC Act or Environmentally Sensitive Areas are present within the study area; however, one priority ecological community (PEC) listed by DBCA, the Lee Steere Range Banded Iron Formation (BIF) Prioriy Ecological Ccommunity (PEC), occurs within the 90 km buffer zone.

A total of 110 flora species and subspecies representing 25 families and 64 genera were recorded during the field survey. This included 81 perennial species and 24 annual or short-lived species. No Threatened species listed under the EPBC Act or WC Act were recorded during the field survey. Three Priority Flora species, *Tecticornia* sp. Christmas Creek (P1), *Tecticornia* sp. Little Sandy Desert (P1) and *Tecticornia* sp. Sunshine Lake (P1) were recorded in the study area during the field survey. All three species were also recorded in previous surveys of nearby Beyondie Lakes, Ten Mile Lake and Lake Sunshine for the Project. One introduced flora species, **Sonchus oleraceus*, was recorded in the study area.

A total of 35 vegetation types were defined for the study area. The vegetation comprised two grasslands, six shrublands, one woodland and 26 *Tecticornia* shrublands in Excellent to Very Good condition. Due to the inability to discern boundaries of the defined *Tecticornia* vegetation types both in the field and from aerial photography it is considered that the *Tecticornia* shrublands of the study area should be considered as a single mosaic and not representative of a series of discrete shrublands with restricted distribution.

None of the vegetation was considered regionally significant; however, this finding was constrained by the limited regional information on vegetation. The *Tecticornia* shrublands of the lake playa and beaches are considered locally significant as they represent refuge for significant flora, including the three Priority 1 *Tecticornia* species recorded during the field survey.

Previous records of 25 vertebrate species of conservation significance were identified in the desktop review, none of these were from the study area. This included 12 species listed as Threatened, Specially Protected or Conservation Dependent and six listed as Migratory under the EPBC Act and WC Act. A further eight species are listed as Priority fauna by DBCA. Twenty potential SRE invertebrate species were identified in the desktop study, including five potential salt lake specialist species.

A total of 26 vertebrate species were recorded during the field survey including five reptiles, 17 birds and four mammals. No conservation significant fauna species were recorded.

Three broad fauna habitats were defined within the study area; salt lake; mosaic of shrubland and grassland, and woodland habitat. All three habitats are likely to support significant vertebrate species. Mosaic of shrubland and grassland habitat in particular is likely to provide habitat for several burrowing species, including Greater Bilby and Brush-tailed Mulgara. Five migratory waterbird species may utilise the playa and fringing samphire vegetation on occasion, following substantial rainfall events that trigger sufficient biological productivity. The woodland habitat was considered suitable for fewer significant species due to the absence of desirable habitat attributes, such as burrowing substrate, vegetation cover or nesting opportunities.

Salt lake and mosaic shrubland and grassland habitat are both common and widespread within in the locality, with numerous salt lakes present and shrubland and/or grassland habitat occurring between them. *Casuarina* woodland was isolated to the vicinity of a single lake and appeared to be unique to this lake, with no other *Casuarina* woodland habitat observed during the field survey or recorded during previous surveys for the Project.

No SRE invertebrates were recorded during the field survey; however, suitable habitat that may support SRE species was identified in salt lake and woodland habitats of the study area. Based on the desktop review, it is possible that endemic (to individual lakes or lake system) invertebrates may occur within the study area; however, the high presence of samphire cover on the lakes may not be suitable for species that live exclusively on the playa.

1 INTRODUCTION

In October 2017, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Preston Consulting Pty Ltd (Preston) on behalf of Kalium Lakes Potash Pty Ltd (Kalium) to conduct a single-season 'detailed' flora and vegetation survey and a Level 1 terrestrial fauna survey of four proposed concentrator lakes for the Beyondie Sulphate of Potash Project (the Project).

1.1 SURVEY OBJECTIVE AND SCOPE

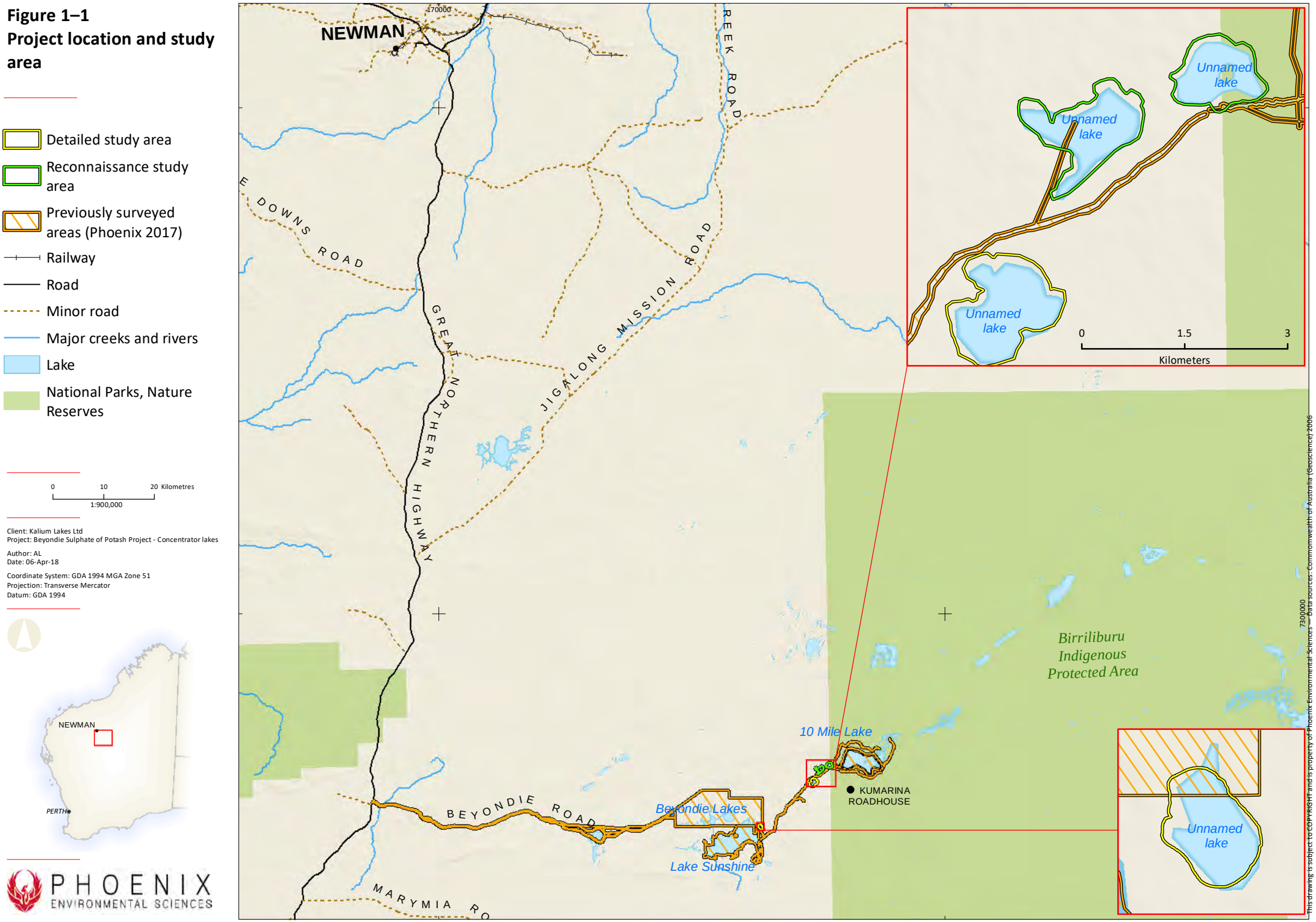
The objective of the survey was to define the flora, vegetation and fauna values of the study area to inform planning and environmental approvals for the Project, with emphasis on determining if any significant flora, vegetation, fauna or communities were present. The scope of works undertaken to achieve this objective was as follows:

- desktop review of all existing flora, vegetation and fauna (vertebrates and short-range endemic invertebrates (SREs)) information to define the key biological values of the study area
- field survey in the study area comprising:
    - detailed single-phase (spring) flora and vegetation survey of two lakes (see Figure 1-1)
    - reconnaissance flora and vegetation survey of two lakes (see Figure 1-1)
    - Level 1 terrestrial fauna survey
- data analyses, sample processing and species identifications for samples collected during the field survey
- preparation of maps showing significant species records, vegetation units and fauna habitats in the study area
- preparation of a technical report documenting survey methods and results.

1.2 STUDY AREA

The study area for the survey consisted of four separate areas between Ten Mile Lake and Lake Sunshine totalling approximately 493.57 ha, each encompassing a salt lake and associated fringing habitat (Figure 1-1).

Figure 1–1
Project location and study area



2 LEGISLATIVE CONTEXT

The protection of flora and fauna in Western Australia (WA) is principally governed by three acts:

- *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Western Australian Wildlife Conservation Act 1950* (WC Act)
- *Western Australian Environmental Protection Act 1986* (EP Act).

The WA *Biodiversity Conservation Act 2016* (BC Act) will eventually replace the WC Act; however, the provisions in the BC Act pertaining to the listing of flora and fauna cannot be brought into effect until the necessary Biodiversity Conservation Regulations have been made.

2.1 COMMONWEALTH

Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance (NES), require approval from the Australian Government Minister for the Environment. The EPBC Act provides for the listing of Threatened native flora and fauna and Threatened Ecological Communities (TECs) as matters of NES.

Conservation categories applicable to Threatened Flora and Threatened Fauna under the EPBC Act are as follows:

- Extinct (EX)[1] – there is no reasonable doubt that the last individual has died
- Extinct in the Wild (EW) – taxa known to survive only in captivity
- Critically Endangered (CR) – taxa facing an extremely high risk of extinction in the wild in the immediate future
- Endangered (EN) – taxa facing a very high risk of extinction in the wild in the near future
- Vulnerable (VU) – taxa facing a high risk of extinction in the wild in the medium-term
- Conservation Dependent[1] – taxa whose survival depends upon ongoing conservation measures; without these measures, a conservation dependent taxon would be classified as Vulnerable or more severely threatened.

Ecological communities are defined as 'naturally occurring biological assemblages that occur in a particular type of habitat' (1997). There are three categories under which ecological communities can be listed as TECs under the EPBC Act: Critically Endangered, Endangered and Vulnerable.

The EPBC Act is also the enabling legislation for protection of Migratory species under a number of international agreements:

- Japan-Australia Migratory Bird Agreement (JAMBA)
- China-Australia Migratory Bird Agreement (CAMBA)
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn)
- Agreement between the Government of Australia and the Government of the Republic of Korea on the Protection of Migratory Birds (ROKAMBA).

[1] Species listed as Extinct and Conservation Dependent are not matters of NES and therefore do not trigger the EPBC Act.

2.2 STATE

2.2.1 Threatened and Priority species

In WA, the WC Act provides for the listing of flora and fauna species which are under identifiable threat of extinction as specially protected (Rare or Threatened Flora and Threatened Fauna; T)[2]. Under current classifications (Western Australian Government 2017a), Threatened Flora are assigned to one of four categories (schedules) (Appendix 1):

- Schedule 1 (S1) – flora that are considered likely to become extinct or rare as Critically Endangered (CR) flora
- Schedule 2 (S2) – flora that are considered likely to become extinct or rare as Endangered (EN) flora
- Schedule 3 (S3) – flora that are considered likely to become extinct or rare as Vulnerable (VU) flora
- Schedule 4 (S4) – flora presumed to be extinct (EX).

Under current classifications, protected fauna are assigned to one of seven categories under the WC Act (Western Australian Government 2017b) (Appendix 1):

- Schedule 1 (S1) – fauna that is rare or is likely to become extinct as Critically Endangered (CR) fauna
- Schedule 2 (S2) – fauna that is rare or is likely to become extinct as Endangered (EN) fauna
- Schedule 3 (S3) – fauna that is rare or is likely to become extinct as Vulnerable (VU) fauna
- Schedule 4 (S4) – fauna presumed to be Extinct (EX)
- Schedule 5 (S5) – Migratory birds protected under an international agreement (Mig.)
- Schedule 6 (S6) – fauna that is of special conservation need as Conservation Dependent fauna (CD)
- Schedule 7 (S7) – other Specially Protected (SP) fauna.

Threatened fauna species are listed under schedules 1–4. Assessments for listing of both flora and fauna are based on the International Union for Conservation of Nature threat categories.

The Department of Biodiversity Conservation and Attractions (DBCA) administers the WC Act and also maintains a non-statutory list of Priority Flora and Priority Fauna species (updated each year). Priority species are still considered to be of conservation significance – that is they may be rare or Threatened – but cannot be considered for listing under the WC Act until there is adequate understanding of threat levels imposed on them. Species on the Priority Flora and Fauna lists are assigned to one of five Priority (P) categories, P1 (highest) – P4 (lowest), based on level of knowledge/concern (refer to Appendix 1).

[2] This function of the WC Act will be replaced by the BC Act when the relevant BC Act regulations come into effect.

2.2.2 Threatened and Priority Ecological Communities

The Minister for Environment may list ecological communities, which are at risk of becoming destroyed as 'Threatened'[3]. DBCA maintains a list of ministerial-endorsed TECs which fall into three categories:

- Critically endangered (CR)
- Endangered (EN)
- Vulnerable (VU).

There is an additional category, Presumed Totally Destroyed, where all records of the ecological community within the last 50 years have been destroyed or presumed to be destroyed.

The DBCA also maintains a non-statutory list of PECs, which may become TECs in the future, however currently that do not meet survey criteria or that are not adequately defined. PECs are assigned to one of five categories depending on their priority for survey or definition, with Priority 1 of highest concern and Priority 5 of lowest concern (refer to Appendix 1).

2.2.3 Significant flora and vegetation

Flora and vegetation may be considered significant for a range of reasons, including, but not limited to the following (EPA 2016c):

- flora
    - being identified as Threatened or Priority species
    - locally endemic or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)
    - new species or anomalous features that indicate a potential new species representative of the range of a species (particularly, at the extremes of range recently discovered range extensions, or isolated outliers of the main range)
    - unusual species, including restricted subspecies, varieties or naturally occurring hybrids
    - relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape
- vegetation
    - being identified as Threatened or Priority Ecological Communities
    - restricted distribution
    - degree of historical impact from threatening processes
    - a role as a refuge
    - providing an important function required to maintain ecological integrity of a significant ecosystem.

2.2.4 Clearing of native vegetation

[3] The BC Act will allow for the listing of TECs when the relevant BC Act regulations come into effect.

The clearing of native vegetation in WA is not generally permitted where the biodiversity values, land conservation and water protection roles of native vegetation would be significantly affected. Any clearing of native vegetation in WA requires a permit under Part V Division 2 of the EP Act, except where an exemption applies under the Act, or is prescribed by the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (the Regulations), and the vegetation is not in an Environmentally Sensitive Area (ESA). Permit applications to clear native vegetation require assessment against the '10 Clearing Principles', as outlined in the regulations.

2.2.5 Environmentally Sensitive Areas

Under section 51B of the EP Act the Minister for Environment may declare by notice either a specified area of the State or a class of areas of the State to be ESAs. ESAs are declared in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, which was gazetted on 8 April 2005 (DMP 2008).

ESAs are areas where the vegetation has high conservation value. Several types of areas are declared ESAs including:

- the area covered by vegetation within 50 m of Threatened Flora, to the extent to which the vegetation is continuous with the vegetation in which the Threatened Flora is located
- the area covered by a TEC
- a defined wetland (Ramsar wetlands, conservation category wetlands and nationally important wetlands) and the area within 50 m of the wetland
- Bush Forever sites.

2.3 INTRODUCED FLORA

Introduced flora pose threats to biodiversity and natural values by successfully out-competing native species for available nutrients, water, space and sunlight; reducing the natural structural and biological diversity by smothering native plants or preventing them from growing back after clearing, fire or other disturbance; replacing the native plants that animals use for shelter, food and nesting; and altering fire regimes, often making fires hotter and more destructive (AWC 2007).

Management of some weed species is required under Commonwealth or State frameworks. Key classifications for significant introduced flora that are relevant to this report are:

- declared pest – the *Biosecurity and Agriculture Management Act 2007* (BAM Act), Section 22 makes provision for a plant taxon to be listed as a declared pest organism in parts of, or the entire State. Under the *Biosecurity and Agriculture Management Regulations 2013* declared pests are assigned to one of three control categories that dictate level of management required (DAFWA 2016).
- Weed of National Significance (WoNS) – high impact, established introduced flora 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) Management is required in accordance with Department of Agriculture and Food guidelines for particular WoNS.

Throughout this report, introduced flora species are indicated with an asterisk (*).

3 EXISTING ENVIRONMENT

3.1 INTERIM BIOGEOGRAPHIC REGIONALISATION OF AUSTRALIA

The study area falls within the Trainor (LSD02) subregion of the Little Sandy Desert bioregion (Figure 3-1) characterised by (Cowan & Kendrick 2001) as:

- red centre desert on Neoproterozoic sedimentary basement (Officer Basin)
- red Quaternary dune fields with abrupt Proterozoic sandstone ranges of Bangemall Basin
- shrub-steppe of acacias, *Aluta maisonneuvei* and grevilleas over *Triodia schinzii* on sandy surfaces
- sparse shrub-steppe over *Triodia basedowii* on stony hills
- eucalypt and coolibah communities and bunch grasses on alluvial deposits and drainage lines associated with ranges
- arid climate with episodic summer rainfall.

Rare features within the subregion include subregion endemic, ecosystem type 545-Hummock grasslands, sparse low tree steppe; mulga over *Triodia basedowii* and numerous areas which act as ecological refugia, including Rudall River and Savory Creek (Cowan & Kendrick 2001).

3.2 LAND SYSTEMS

The Department of Agriculture and Food (DAFWA) has mapped the land systems in the Little Sandy Desert bioregion (DAFWA 2014). The study area intersects two land systems, AB44 and SV5 (Table 3-1; Figure 3-2). The dominant land system of the study area is SV5, which covers approximately 80% (Table 3-1; Figure 3-2).

Table 3-1 Land systems of the study area

Land system	Description	Total area (ha)	% of study area
AB44	Plains with a variable, but usually high, proportion of longitudinal sand dunes, and with some clay pans; scattered sandstone hills and laterite residuals are fairly common	95.71	19.4%
SV5	Saline soils associated with salt lakes; sand and kopi gypsum dunes, and intervening plains	397.86	80.6%
TOTAL		493.57	100.0%

Figure 3–1
IBRA region and subregion of the study area

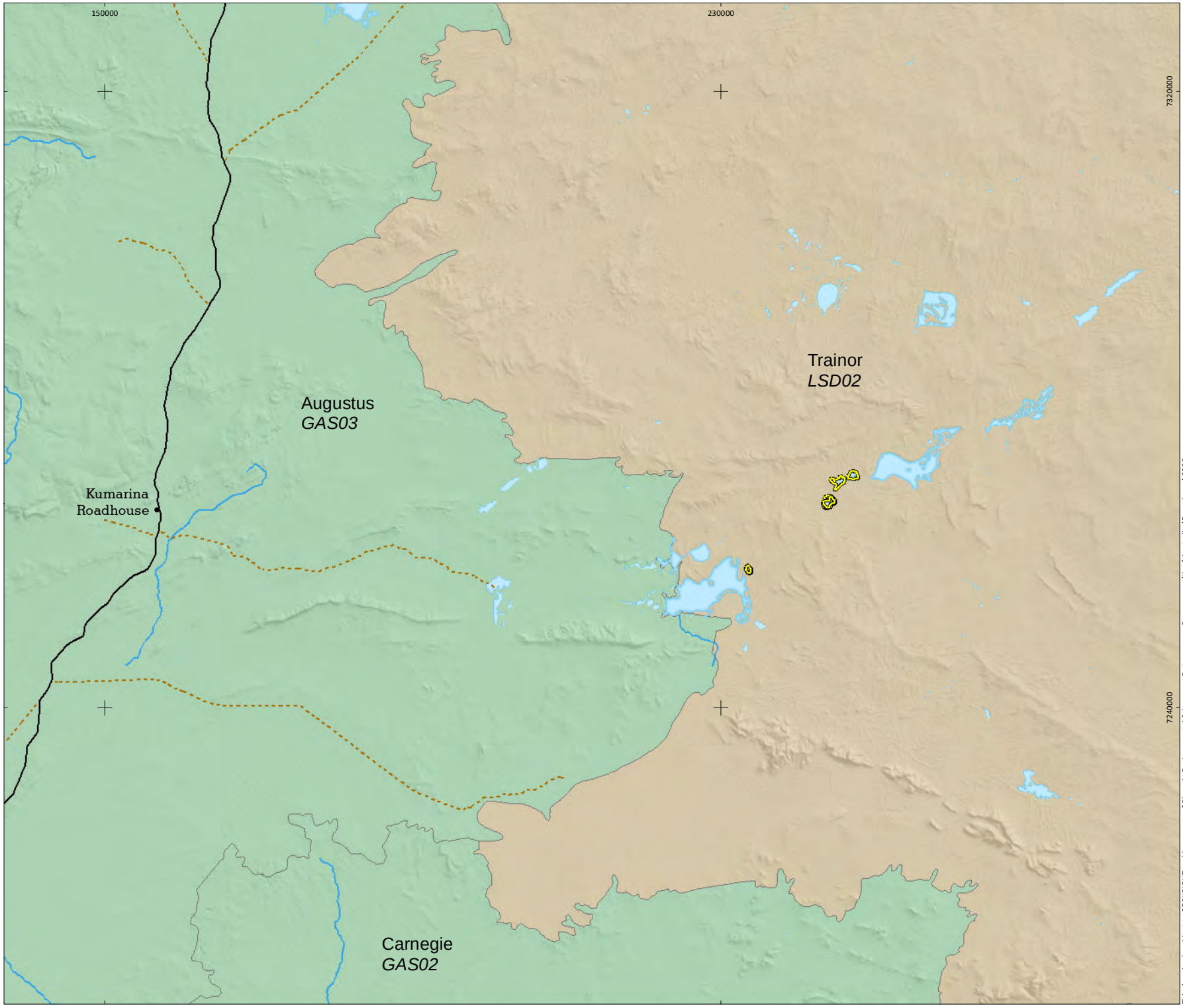


Figure 3–2
Land systems of the study area

3.3 NATIVE VEGETATION EXTENT AND STATUS

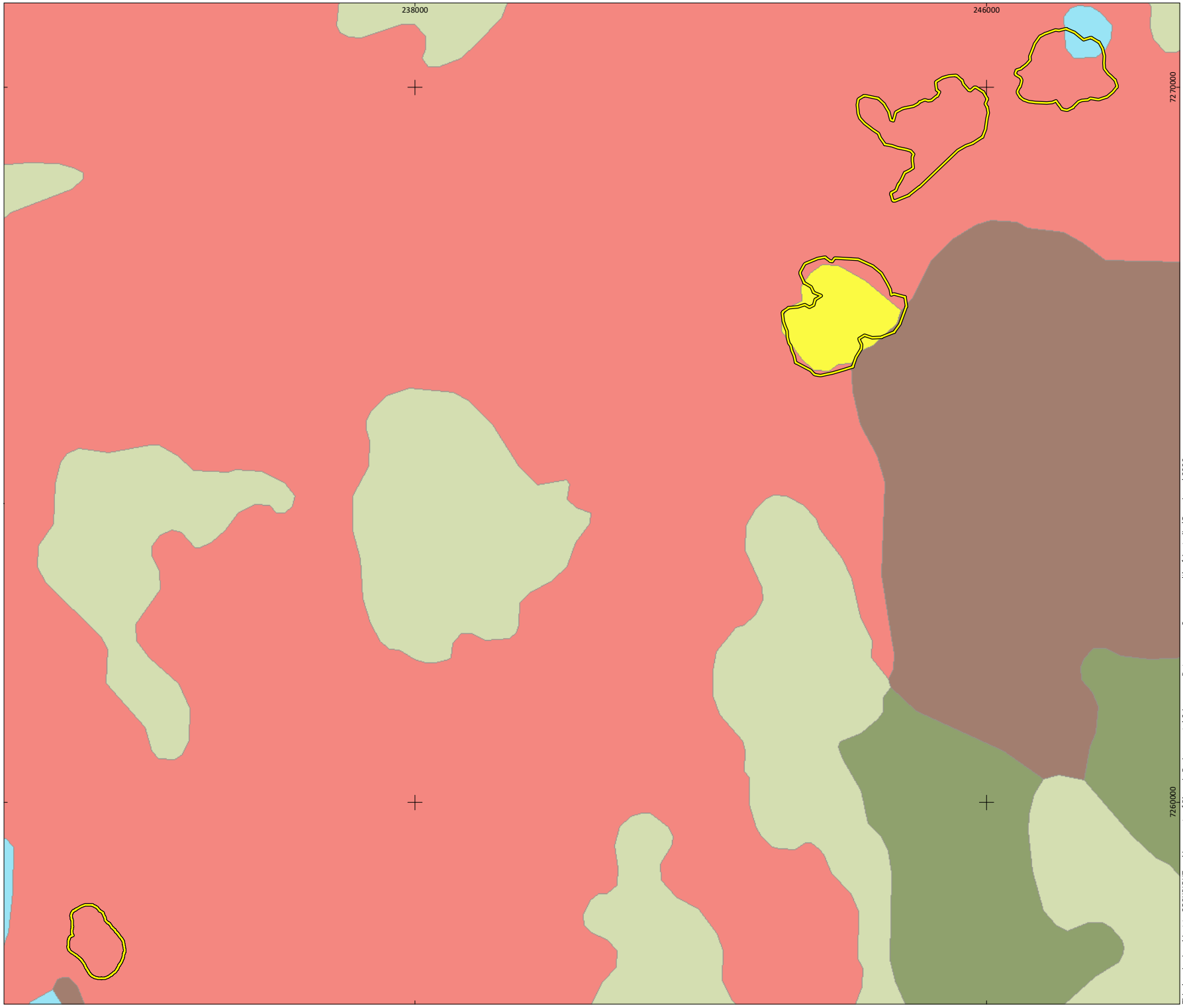
Regional scale vegetation mapping by Shepherd *et al.* (2002) defined four vegetation associations in the study area (Table 3-2; Figure 3-3). The current extent of all four vegetation associations represented in the study area is in excess of 90% of pre-European extent, with their status considered to be Least Concern.

Table 3-2 Regional vegetation associations, extent and status

Code	Vegetation association description	Area in study area (ha)	Pre-European extent (ha)	Current extent (ha)	% remaining	% in reserve[1]
18	Low woodland; mulga (*Acacia aneura*)	3.55	19,892,305	19,843,727	99.8	2.1
125	Bare areas; salt lakes	14.26	3,485,787	3,146,496	90.3	6.0
134	Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex (on) sandhills / Hummock grasslands, shrub-steppe; mixed shrubs over spinifex between sandhills	327.76	26,026,865	26,022,995	99.99	3.3
676	Succulent steppe; samphire	148.00	2,063,413	1,963,859	95.18	3.6

[1]Percentage in pre-European extent in IUCN class I-IV reserves.

Figure 3–3
***Shepherd et al*. (2002) vegetation associations of the study area**



Study area

Vegetation association

- 18: Low woodland; mulga (*Acacia aneura*)
- 96: Hummock grasslands, shrub steppe; *Acacia* sp. (*grevillea*) over *Triodia basedowii* often between sand ridges
- 125: Bare areas; salt lakes
- 134: Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex (on) sandhills
- 178: Hummock grasslands, grass steppe; hard spinifex *Triodia basedowii*
- 676: Succulent steppe; samphire

0 1 2 Kilometres
1:70,000

Client: Kalium Lakes Potash Pty Ltd
Project: Beyondie Potash Project - Concentrator lakes

Author: AL
Date: 06-Apr-18

Coordinate System: GDA 1994 MGA Zone 51
Projection: Transverse Mercator
Datum: GDA 1994

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3.4 CLIMATE AND WEATHER

The climate of the Little Sandy Desert bioregion is arid with summer-dominant rainfall. Spatially averaged median (1890–2005) rainfall is 178 mm (DEWHA 2008b). The climate of south-western Little Sandy Desert has also been described as desert tropical with predominant summer rainfall (van Leeuwen 2002).

The nearest Bureau of Meteorology (BoM) weather station with consistent long-term data averages is Newman Airport (No. 7176, Latitude: 23.42°S Longitude: 119.80°E), approximately 160 km northwest of the study area. Newman records the highest maximum mean monthly temperature (39.1°C) in December and the lowest maximum mean annual temperature (22.9°C) in July. The lowest mean minimum temperature is recorded in July (6.4°C) and the highest in January (24.9°C). Average annual rainfall is 327.7 mm with January and February recording the highest monthly averages (67.5 and 71.7 mm respectively) (Figure 3-4).

Newman experienced slightly higher than average temperatures in the three months prior to the survey (July–August; Figure 3-4). Variable amounts of rainfall were received in the 12 months preceding the survey compared with the long-term annual average. Well above average rainfall was recorded for the months of January, March and April 2017 as a result cyclonic activity in the northwest of WA during which a combined total of 409.6 mm of rain was recorded in comparison to the long-term annual average for the three months of 133.7 mm (Figure 3-4). The remaining months recorded below or well below annual averages, including the four months prior to the field survey.

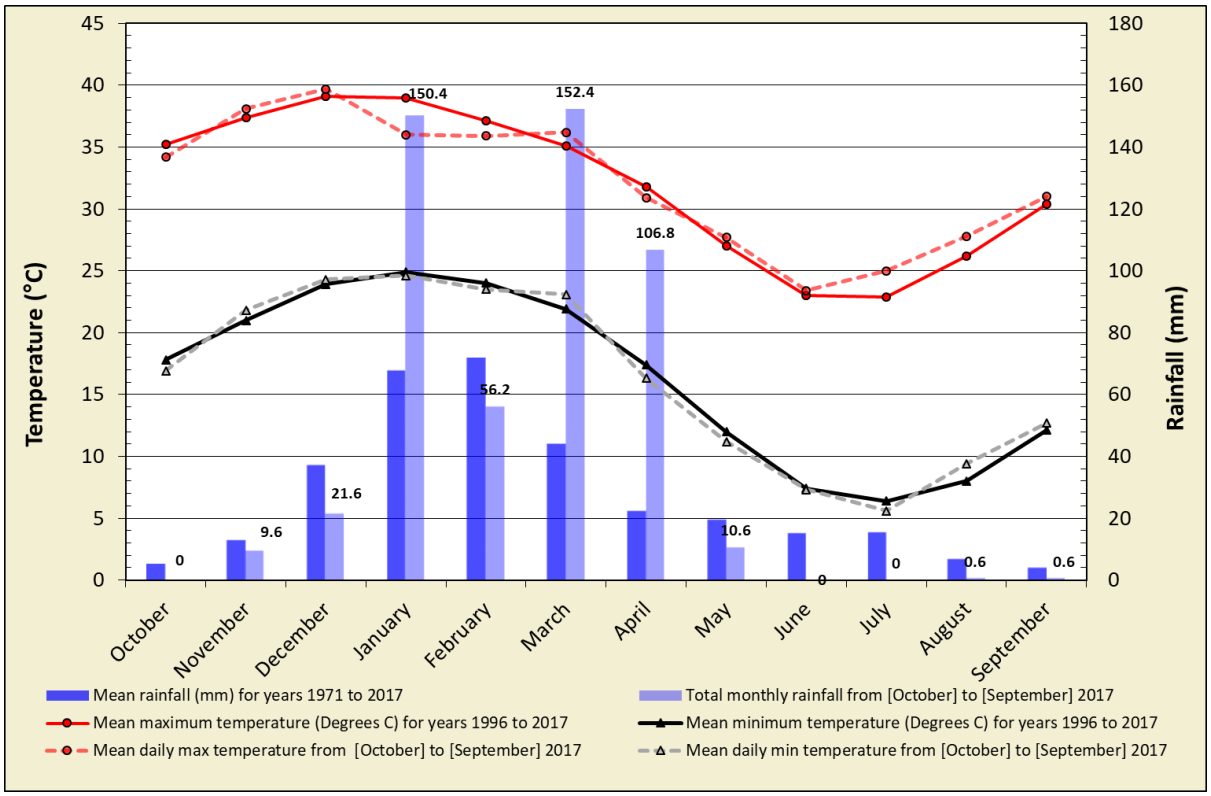


Figure 3-4 **Annual climate and weather data for Newman Airport (no. 7176) (BoM 2017) and mean monthly data for the 12 months preceding the field survey**

3.5 LAND USE

Overall, only 2% of the Little Sandy Desert bioregion is grazed (DEWHA 2008b). In contrast, approximately 80% of the Gascoyne bioregion was grazed between 1992 and 2001 (DEWHA 2008a); however, the study area only partly falls into the western-most part of the latter bioregion and which is therefore much less representative for the Beyondie and Ten Mile Lakes.

At a more local scale, little information is available in relation to land use near the study area. It was covered by a biological study of the south-western Little Sandy Desert (van Leeuwen 2002). This area was principally Unallocated Crown Land with one unvested Crown Reserve (No. 1 Vermin Proof Fence). Three pastoral leases abut the south-western Little Sandy Desert, of which the north-eastern part of Marymia intersects the study area (van Leeuwen 2002). Apart from camel harvesting operations and little four-wheel-drive tourism, the area has been described as 'economically inconsequential' (van Leeuwen 2002).

3.6 THREATENING PROCESSES

Several threatening processes affect the flora and fauna of the Little Sandy Desert bioregion (Cowan & Kendrick 2001):

- wildfire and alteration of fire regimes
- habitat alteration from grazing pressure
- spread of introduced fauna
- spread of weeds
- habitat destruction through mining and associated developments
- climate change.

3.7 RESERVES

Collier Range National Park 60 km to the west was established in 1978. The park is little managed with annual wild dog baiting, but otherwise only occasional visits by Karratha staff (Desmond *et al.* 2001). The most easterly of the four proposed concentrator lakes partially overlaps with the Birriliburu Indigenous Protected Area.

4 METHODS

The survey was conducted in accordance with relevant Environmental Protection Authority (EPA) guidance, including:

- EPA *Environmental Factor Guideline: Flora and vegetation* (EPA 2016a)
- EPA *Technical Guidance: Flora and vegetation surveys for Environmental Impact Assessment* (EPA 2016c)
- EPA *Environmental Factor Guideline: Terrestrial fauna* (EPA 2016b)
- EPA *Technical Guidance: Terrestrial fauna surveys* (EPA 2016f)
- EPA *Technical Guidance: Sampling methods for terrestrial vertebrate fauna* (EPA 2016d)
- EPA *Technical Guidance: Sampling of short range endemic invertebrate fauna* (EPA 2016e).

4.1 DESKTOP REVIEW

Desktop reviews were undertaken in March 2015 as part of the initial baseline biological surveys for the Project (Phoenix 2018a, d). The search area for these desktop reviews encompassed the four lakes that comprise the current study area and they were therefore used for the current survey. The previous desktop results (Phoenix 2018a, d) were reviewed to identify the significant flora, vegetation and fauna that may occur within the study area. Where applicable, the conservation status of species was updated.

In the initial desktop reviews, the following database searches were undertaken for a quadrat of approximately 100 km in length and width with the diagonal coordinates of -24.3122°S, 119.7844°E (NW point) and -25.2347°S, 120.780°E (SE point):

- EPBC Act Protected Matters Search Tool (Department of the Environment 2015)
- Department of Parks and Wildlife (DPaW, now DBCA)/WA Museum NatureMap (DPaW 2015a)
- DPaW (now DBCA) Threatened Flora, Fauna and Ecological Communities database (DPaW 2015b)
- Birdlife Australia Birdata database (Birdlife Australia 2005–2007)
- Department of Agriculture and Food, Western Australia Organism List search for Declared Plants under the *Biosecurity and Agriculture Management Act 2007* (DPIRD 2018)
- Department of Environment weeds database (DoEE 2018).

In addition, the WA Museum Arachnology/Myriapodology, Crustacea and Mollusca databases and Phoenix' Isopoda database were undertaken for a quadrat approximately 200 km in length, consistent with the nominal range of SRE invertebrates (EPA 2016e), with the diagonal coordinates of -23.86°S, 119.30°E (NW point) and -25.67°S, 121.27°E (SE point).

A literature search was conducted for accessible reports of flora and vegetation, vertebrate fauna and SRE invertebrate fauna surveys conducted within the vicinity of the study area to build on the potential species lists developed from the database searches (Table 4-1). Previous surveys conducted for the Project (Phoenix 2017, 2018a, d) were included as part of the desktop review for the current survey.

Some terrestrial fauna surveys that have been conducted near the study area, within the desktop review search area or the wider Little Sandy Desert bioregion, were accessed for the desktop review (Table 4-1).

Table 4-1 Survey reports examined as part of the desktop review

Report author	Survey type	Project	Client
Van Leeuwen (2002)	Terrestrial flora and fauna survey	Little Sandy Desert Biodiversity Survey	DPaW (now DBCA)
Start *et al.* (2012)	Vertebrate fauna survey	Little Sandy Desert Biodiversity Survey	DPaW (now DBCA)
Phoenix (2010)	Vertebrate fauna survey	FerrAus Pilbara Project	FerrAus Ltd
Phoenix (2011)	Vertebrate fauna survey	FerrAus Eastern Pilbara Rail	FerrAus Ltd
Enviroworks (2010a)	Terrestrial flora and fauna survey	Beyondie Magnetite Project	Emergent Resources Ltd
Enviroworks (2010b)	Terrestrial flora and fauna survey	Beyondie Magnetite Project	Emergent Resources Ltd
Phoenix (2012)	Terrestrial fauna survey	Butcherbird Manganese Project	Montezuma Mining Company Ltd
Phoenix (2014)	SRE survey	Lake Disappointment Potash Project	Reward Minerals Ltd
Phoenix (2017)	Waterbird and aquatic invertebrate survey for the Beyondie Sulphate of Potash Project	Beyondie Sulphate of Potash Project	Kalium Lakes Ltd
Phoenix (2018a)	Flora and vegetation survey	Beoyndie Sulphate of Potash Project	Kalium Lakes Ltd
Phoenix (2018d)	Terrestrial fauna survey	Beyondie Sulphate of Potash Project	Kalium Lakes Ltd
Phoenix (2018c)	Targeted Night Parrot survey	Beyondie Sulphate of Potash Project	Kalium Lakes Ltd

4.2 FIELD SURVEY

The field survey was undertaken over six consecutive days from 12–17 October 2017.

4.2.1 Flora and vegetation

Field methods for the flora and vegetation survey included:

- surveying of quadrats, relevés and transects (see 4.2.1.1)
- focused flora searches (see 4.2.1.2)
- vegetation type mapping (see 4.2.1.3)
- vegetation condition mapping (see 4.2.1.4).

Prior to the commencement of the field surveys, initial characterisation of vegetation and fauna habitats, and preliminary site selection was undertaken using various remote geographical tools, including aerial photography (incl. Google Earth™), land system maps and topographic maps. Data including satellite imagery, estimated survey boundary, and pre-selected survey sites were loaded onto tablets using the application GIS Pro version 3.18 (Garafa 2016).

4.2.1.1 Quadrats, relevés and transects

Quadrat locations were selected to ensure that an accurate representation of the major vegetation types within the study area were sampled adequately. Preliminary quadrat locations were pre-selected using high-quality aerial photography; with selection based on apparent changes in the vegetation visible in the aerial imagery. The preliminary quadrat locations were re-assessed during the site visit, while ground-truthing the study area on foot. Some preliminary quadrats were moved to locations which better represented vegetation types and some quadrats were changed to relevés, where only dominant vegetation was recorded for the purposes of accurate vegetation mapping. In total, five quadrats, five transects and 34 relevés were surveyed across the study area (Figure 4-1).

In accordance with (EPA 2016c) transect surveys utilising 3 x 3 m (9 m^2) quadrats spaced evenly along linear transects were used to sample the riparian vegetation across the two lakes subject to detailed survey (detailed study area in Figure 1-1). The entire lake playa was vegetated and subsequently transects were installed that crossed from one side of the lake to the other.

At the remaining two lakes (reconnaissance study area in Figure 1-1) a reconnaissance survey was conducted with relevé surveys (encompassing an approximate 9 m^2 area) conducted while traversing the lakes.

The following information was recorded for each quadrat[4] and relevé (Appendix 2):

- location – the geographic coordinates of all four corners of each quadrat and single point for relevé in WGS84 projection
- description of vegetation – a broad description utilising the structural formation and height classes based on National Vegetation Information System (ESCAVI 2003) and in accordance with EPA (2016c) (Appendix 3)
- habitat – a brief description of landform and habitat

[4] For both 50 x 50 m quadrats and 3 x 3 m quadrats along transects

- 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 – the condition of the vegetation was recorded utilising the appropriate condition scale in EPA (2016c) (Table 4-2)
- height and percentage foliage cover (PFC) – a visual estimate of the canopy cover of each species present within the quadrat or relevé was recorded as a percentage, as was the total vegetation cover, cover of shrubs and trees >2 m tall, cover of shrubs <2 m, total grass cover and total herb cover
- photograph – a colour photograph of the vegetation within each quadrat in a south-easterly direction from the north-west corner of the quadrat, photographs of relevé survey locations were taken in the direction that best identified the vegetation type
- flora species list a list including the name of every flora species present within the quadrat; to ensure accurate taxonomic identification of flora species present within the study area, collections were made of each specimen at least once and each collection was pressed and documented for identification using the WA Herbarium resources.

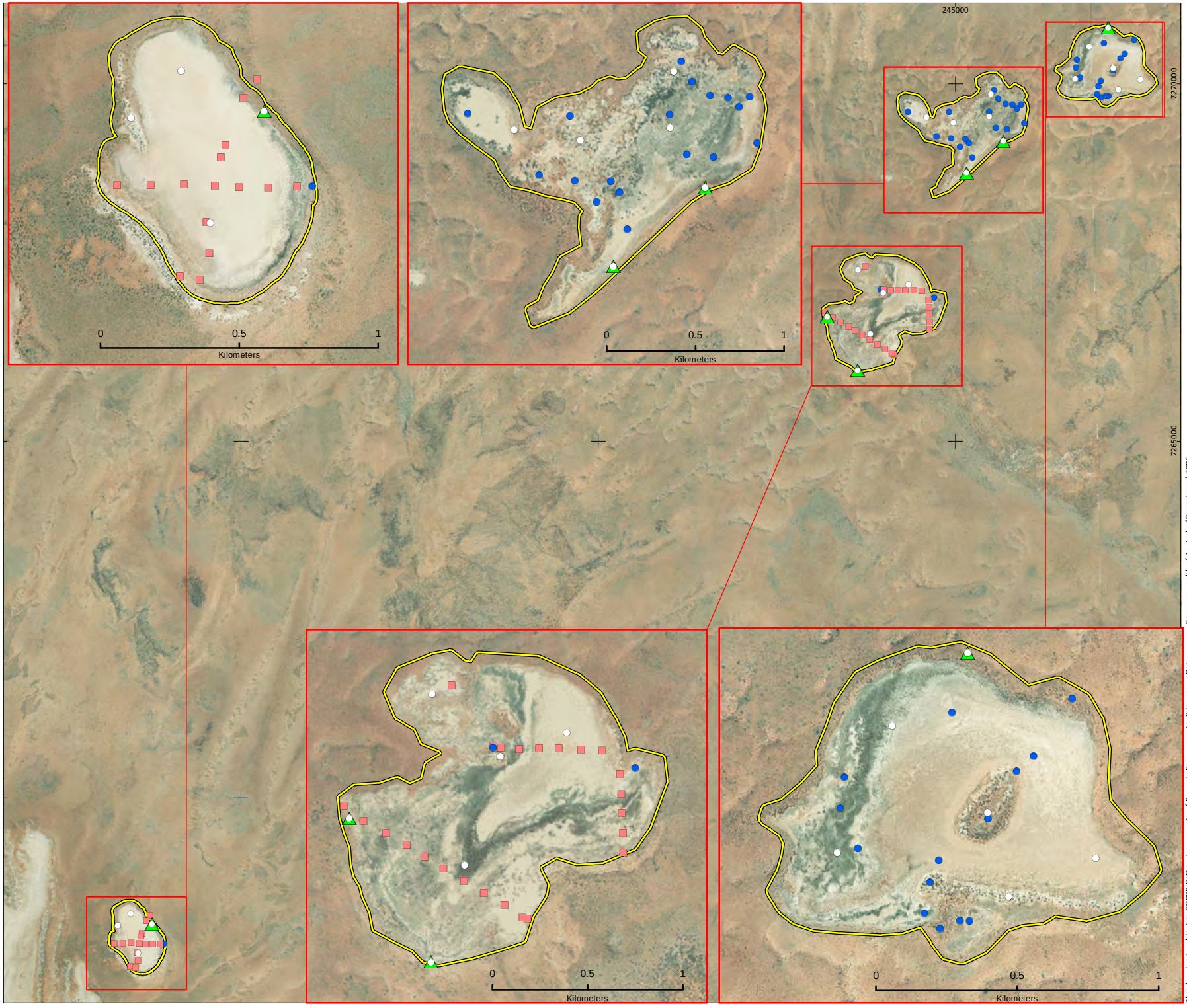
4.2.1.2 Focused flora searches

Focused flora searches were undertaken for significant species identified in the desktop review. The searches focused on habitats considered likely to support significant flora, in addition to previously recorded locations of significant plants or populations in close proximity to the study area.

If a flora species was considered to potentially be a conservation significant species (i.e. similar floristic characteristics and occurring within suitable habitat) the following information was collected:

- GPS coordinates, including population boundary where applicable
- description of the habitat and floristic community in which the potential conservation significant species was located
- population size estimate (i.e. estimated number of individual plants) where applicable
- specimen collection for taxonomic identification and lodgement at the WA Herbarium
- photograph of live plant in situ and description of important details, such as flower colour, height of individual or average height of population.

Figure 4–1
Survey sites



Client: Kalium Lakes Potash Pty Ltd
Project: Beyondie Potash Project - Concentrator lakes

Author: AL
Date: 09-Apr-18

Coordinate System: GDA 1994 MGA Zone 51
Projection: Transverse Mercator
Datum: GDA 1994

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4.2.1.3 Vegetation mapping

The vegetation descriptions from quadrats and relevés from the survey were grouped according to similarity of community structure (i.e. canopy levels), species composition and combination of species and the prevalent community structure (i.e. woodland, shrubland, etc.). The vegetation boundaries were mapped utilising high-quality colour aerial photography and from vegetation boundaries recorded on GPS during the field survey.

To support delineation of vegetation types, a cluster analysis was conducted based on species cover in each quadrat. The fusion strategy for the site classification was flexible UPGMA with a beta value of -0.1 and Bray Curtis association measure in the software package PATN (Belbin 2003). A dendrogram was produced to illustrate the similarities between the vegetation units identified. Statistically distinct vegetation units (the floristic group) classified the vegetation at a local scale. Local scale vegetation units were described at NVIS Level V – Association (ESCAVI 2003). The term 'vegetation type' was used for local scale vegetation units in accordance with EPA (2016c).

Where possible, vegetation types from the current survey were matched to those mapped in the previous surveys for the Project (Phoenix 2018a).

4.2.1.4 Condition mapping

The condition of vegetation was mapped across the study area based on the appropriate condition rating scale for the Eremaean Province where the Trainor subregion is located (EPA 2016c). The vegetation condition ratings relate to vegetation structure, the level of disturbance and weed cover at each structural layer and the ability of the vegetation unit to regenerate. Vegetation condition ranges from Excellent being the highest rating to Completely Degraded as the lowest (Table 4-2).

Table 4-2 Vegetation condition rating scale (EPA 2016c)

Vegetation condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European 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.

4.2.2 Fauna and fauna habitat

4.2.2.1 Vertebrate fauna

Twenty-two Level 1 terrestrial fauna sites were surveyed during the field survey. These covered all broad fauna habitats in the study area (Figure 4-1). Habitat descriptions and characteristics were recorded at all sites (Appendix 4). Survey work was undertaken over six consecutive days and comprised:

- active searches (for details see section 4.2.2.1.1)
- avifauna surveys (see 4.2.2.1.2)
- opportunistic records (see 4.2.2.1.3).
- targeted Bilby searches (see 4.2.2.1.4).

No targeted survey methods for Night Parrot were implemented during the field survey as a targeted survey for this species was underway at the time across a broader area for the Project (refer to Phoenix 2018c).

4.2.2.1.1 **Active searches**

Active searches were undertaken at each of the Level 1 fauna sites (Figure 4-1) and primarily targeted diurnal herpetofauna and mammals from direct sightings and secondary evidence. Searches were undertaken in any observable microhabitats considered likely to support mammals, reptiles and amphibians. Techniques included: raking leaf and bark litter, overturning logs, searching beneath the bark of trees, investigating dead trees, logs and burrows, and identifying any secondary evidence including tracks, diggings, scats, fur or sloughs (shed skins), predation or feeding sites, and fauna constructed structures such as nests. A minimum of one-person hour was spent active searching concurrently for vertebrate and SRE invertebrate fauna at each site for a total of 22 hours over the duration of the field survey.

4.2.2.1.2 **Avifauna surveys**

Fourty-minute avifauna surveys were undertaken at each of the Level 1 fauna sites (Figure 4-1). Avifauna surveys were confined to the habitat type (up to 2 ha) of the site to collect assemblage data for each habitat. Avifauna surveys were undertaken throughout the day with a focus on periods of higher activity around sunrise and sunset. Surveys consisted of bird recordings from visual sightings and call recognition. A total of approximately 14.5-person hours of avifauna census was undertaken during the field survey.

4.2.2.1.3 **Opportunistic records**

Any opportunistic observations of vertebrate species were recorded during the survey, particularly conservation significant species. Opportunistic sampling involved recording all sightings of vertebrate fauna species while working and travelling within the study area, including species recorded during targeted Bilby plot searches.

4.2.2.1.4 **Targeted Bilby searches**

Targeted Bilby plot surveys were undertaken at all Level 1 fauna sites (Figure 4-1) adjacent to salt lakes where suitable habitat was present to search for evidence of occurrence of the species in the study area. Plots were surveyed using standardised 2 ha (~142 m x 142 m) plots adopted from Southgate *et*

al. (2005) and Southgate and Moseby (2008). Due to the size of the study area the distance between placements of plots was reduced for a greater survey effort within the study area. Some plots extended outside the study area where habitat within it was limited. Each plot was surveyed for 0.5 person hour (1 observer = 30 min) during which searches were be undertaken for any evidence of the species including tracks, scats, foraging diggings and/or burrows.

4.2.2.2 Short-range endemic invertebrates

Active searches were undertaken at all Level 1 fauna sites on and near the salt lakes within the study area as the most prospective habitat for SREs (Figure 4-1). Collecting methods consisted of active searches (foraging) consistent with EPA (2016e). A minimum of one-person hour of survey was undertaken at each site concurrently with active vertebrate fauna searches, with a total 22 person hours of combined active searches completed during the survey.

Active searches on the salt lake surfaces targeted known arid zone salt lake species including wolf spiders in the genus *Tetralycosa* and *Lycosa*, crickets in the genus *Apterogryllus* and tiger beetles in the genera *Pseudotetracha*, *Rivacindela* and *Cicindela*. Additional searches were also undertaken while traversing salt lakes between other Level 1 fauna sites.

4.2.1 Taxonomy and nomenclature

Plant species were identified using local and regional flora keys, and comparisons with named species held at the WA Herbarium. Nomenclature for flora and vegetation used in this report follows that used by FloraBase (DBCA 2018) and the WA Herbarium. The conservation status of all recorded flora was compared against the current lists available on FloraBase (DBCA 2018) and the EPBC Act Threatened species database provided by the DoEE (2017a). The taxonomy and nomenclature of terrestrial vertebrate fauna follows several taxon-specific references (Table 4-3). No invertebrates were collected during the survey.

Table 4-3 Nomenclatural references

Taxonomic group	Taxonomic reference for described species and higher taxa
Mammals	Van Dyck *et al.* (2013)
Birds	Menkhorst *et al.* (2017); Christidis and Boles (2008)
Reptiles	Wilson and Swan (2017)
Amphibians	Tyler and Doughty (2009)

4.3 SURVEY PERSONNEL

The personnel involved in the survey are presented in Table 4-4.

Table 4-4 Project team

Name	Qualifications	Role/s
Dr Grant Wells	PhD (Botany)	Project manager, field survey, flora taxonomy, data analyses and reporting review
Mr Ryan Ellis	Dip. (Cons. Land Mgmt.) BESc. (Wildlife & Cons. Biol.)	Field survey, fauna taxonomy (vertebrates) and reporting
Dr Grace Wells	PhD (Plant Conservation)	GIS and vegetation mapping, report review
Ms Alice Watt	BSc. Hons (Cons Bio. and Botany)	Reporting
Mrs Karen Crews	BSc. (Env. Biol.) (Hons)	Report review
Ms Anna Leung	BSc. (Env. Sci.) (Hons)	GIS

5 RESULTS

5.1 DESKTOP REVIEW

5.1.1 Flora and vegetation

The initial 2015 flora and vegetation desktop review for the Project (Phoenix 2018a) identified records of 643 flora species for the desktop review area, including 639 native species and four introduced species (Appendix 5). Phoenix (2018a) recorded a further 207 species not previously identified in the desktop review for the Project (also listed in Appendix 5).

5.1.1.1 Significant flora

A total of 45 significant flora species were identified in the initial 2015 desktop review and subsequent surveys for the Project (Table 5-1). The initial 2015 desktop review identified 43 significant species, including one Threatened Flora; *Thryptomene wittweri* (EPBC – VU, WA Act VU) (Table 5-1).

Previous surveys for the Project recorded four significant species, including two not identified in the initial 2015 desktop review, *Tecticornia globulifera* (P1) and *Tecticornia willisii* (P1) (Table 5-1; Figure 5-1).

There are no previous records of significant flora within the study area; however, a record of *Tecticornia bibenda* (P1) is located less than 40 m from the study area boundary of the southernmost of the three northern lakes (Figure 5-2). One species of Threatened Flora, *Thryptomene wittweri* (VU) was recorded approximately 27.6 km south-east of the southern lake.

Table 5-1 Significant flora species identified from the desktop review

Family and species	Conservation status[1]			Desktop review (Phoenix 2018a)	Phoenix (2018a)	Habitat
	EPBC Act	WC Act	DPaW list			
Aizoaceae						
Gunniopsis sp. Lake Kerrylyn (N. Gibson *et al.* NG 7028)			P1	●		On edge of salt lake in red loam or brown clayey sand with *Tecticornia* spp. sparse shrubland (DBCA 2017a).
Amaranthaceae						
Ptilotus chrysocomus			P1	●		Brown sand clays at base of breakaways or rocky scree slopes in very open shrubland over scattered grasses (DBCA 2017a).
Ptilotus daphne			P1	●		In *Tecticornia* low open shrubland over scattered grasses on small quartzite ridge below breakaway (DBCA 2017a).
Ptilotus tetrandrus			P1	●		Dense low heath over low scrub over open hummock grass of *Triodia schinzii* in red sand on extensive swale between parallel dunes on flat terrain and low in landscape (DBCA 2017a).
Asparagaceae						
Thysanotus sp. Desert East of Newman (R.P. Hart 964)			P2	●		On red-brown loamy sand on sand plain, pisolitic buckshot plain in Spinifex grassland (DBCA 2017a).

Family and species	Conservation status[1]			Desktop review (Phoenix 2018a)	Phoenix (2018a)	Habitat
	EPBC Act	WC Act	DPaW list			
Asteraceae						
Minuria sp. Little Sandy Desert (SVL 4919)			P1	●		Dense low heath of *Scaevola collaris* over scattered shrubs over dense *Goodenia* sp. herbland on small saline clay playa in damp red yellow-brown soil (DBCA 2017a).
Celastraceae						
Stackhousia clementii			P3	●		Low *Eucalyptus*, *Corymbia* or *Hakea* woodland over open scrub of *Acacia* spp. over tussock grassland in skeletal soils on sandstone hills or red clay loam plains, between calcrete plains (DBCA 2017a).
Chenopodiaceae						
Maireana prosthecochaeta			P3	●		Open Mulga scrub over mixed open dwarf scrub on laterite hills, stony plain in saline areas in sandy soil or Ironstone scree with brown-red stony sandy clay loamy soil with ironstone pebbles (DBCA 2017a).
Tecticornia bibenda			P1	●		In low shrubland over grassland on red-brown saline sand with some clay over calcrete and gypsum near the edges of gypsiferous playas and salt lakes on flat terrain (DBCA 2017a).
Tecticornia globulifera			P1		●	Samphire flats on lake bed with sandy clay loam soil (DBCA 2017a).
Tecticornia mellarium			P1	●		Low open heath on edge of salt lake in brown sandy clay (DBCA 2017a).
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer *et al.* KS 1063)			P1	●	●	*Melaleuca* high shrubland over *Tecticornia* spp. open heath over open tussock grassland in middle of saline flat with sandy clay loam soil (DBCA 2017a).
Tecticornia willisii			P1		●	In samphire shrubland on shoreline of salt flats with red-brown sandy clay over sandstone (DBCA 2017a).
Tecticornia sp. Sunshine Lake (K.A. Shepherd *et al.* KS 867)			P1	●	●	In *Tecticornia* spp. shrubland on edge of salt lake on dry red-white sandy loam clay (DBCA 2017a).
Cyperaceae						
Fimbristylis sieberiana			P3	●		In woodland over mixed open sedgeland or grassland in mud, skeletal red-brown sand soil pockets on ironstone on pool edges and sandstone cliffs (DBCA 2017a).
Elaeocarpaceae						
Tetratheca chapmanii			P1	●		In crevices of vertical cliffs of sandstone massif (DBCA 2017a).
Euphorbiaceae						
Euphorbia sarcostemmoides			P1	●		Open mulga scrub over open *Eremophila* dwarf shrubland in red stony sandy clay loam on sandstone ridges or granite boulders on quartzite hills (DBCA 2017a).

Family and species	Conservation status[1]			Desktop review (Phoenix 2018a)	Phoenix (2018a)	Habitat
	EPBC Act	WC Act	DPaW list			
Euphorbia stevenii			P3	●		Grassland over herbland in clay sandy soils over bedrock (DBCA 2017a).
Fabaceae						
Daviesia arthropoda			P3	●		Grassland In yellow-brown sandy soil on dunes (DBCA 2017a).
Frankeniaceae						
Frankenia glomerata			P4	●		Low shrubland in grey-brown sandy loam or white sand (DBCA 2017a).
Goodeniaceae						
Dampiera atriplicina			P3	●		*Triodia* hummock grassland with low open shrubs in red sand on sand ridges or lateritic hills (DBCA 2017a).
Goodenia modesta			P3	●		Open *Eucalyptus* woodland over low shrubland over *Triodia* grassland in red loam sand on plains between clay pans (DBCA 2017a).
Goodenia sp. Beyondie (L.W. Sage & S. van Leeuwen LWS 2518)			P1	●		Chenopod low open heath in dry bare grey clayey sand near salt lake (DBCA 2017a).
Haloragaceae						
Gonocarpus pycnostachyus			P3	●		Low shrubland in sand or clay soils in wet depressions on granite rocks near salt lake (DBCA 2017a).
Lamiaceae						
Hemigenia tysonii			P3	●		Isolated tall *Acacia* shrubs over sparse heathland or grassland in red sand, sandy clay, lateritic sand on flats, sand dunes and hills (DBCA 2017a).
Malvaceae						
Hibiscus sp. Carnarvon (S. van Leeuwen 5110)			P1	●		Isolated *Eucalyptus* sp. over *Acacia* shrubland over *Triodia* hummock grassland in rocky creekline at mouth of gorge in deep loamy sand on sandstone outcrop (DBCA 2017a).
Meliaceae						
Owenia acidula			P3	●		Low woodland over tall *Acacia* shrubland over *Triodia* open hummock grassland on black of drainage line in red-brown sandy clay or silty loam (DBCA 2017a).
Myrtaceae						
Thryptomene wittweri	VU	S3		●		Low open woodland over open mallee shrub over open *Triodia* hummock grass in skeletal red stony soils on breakaways in stony creek beds (DBCA 2017a).
Eucalyptus semota			P1	●		Open woodland over dense shrubland in clay on quartz outcrops or sandstone breakaway or orange loamy clay in drainage channel (DBCA 2017a).

Family and species	Conservation status[1]			Desktop review (Phoenix 2018a)	Phoenix (2018a)	Habitat
	EPBC Act	WC Act	DPaW list			
Micromyrtus mucronulata			P1	●		In low heath or low woodland with low scrub on granite hill slopes in rocky brown loam (DBCA 2017a).
Calytrix praecipua			P3	●		*Acacia* spp. woodland or shrubland in skeletal sandy soils over granite or laterite on breakaways, outcrops or creeklines (DBCA 2017a).
Poaceae						
Aristida jerichoensis var. *subspinulifera*			P3	●		Mulga woodland in orange sandy clay or loamy clay on lemma groove muricate. Hardpan plains near creek (DBCA 2017a).
Triodia birriliburu			P3	●		Spinifex grassland, *Acacia* shrubland or low heathland on red sandplain or saline clay playa (DBCA 2017a).
Polygalaceae						
Comesperma pallidum			P3	●		Low shrubland over open *Triodia* hummock grassland in red sand on sandplains and dunes over red sandy laterite over sandstone (DBCA 2017a).
Comesperma viscidulum			P4	●		Sparse *Eucalyptus* mallee trees over sparse shrubland over *Triodia* hummock grassland in red sand loam or yellow sand on sandplain (DBCA 2017a).
Primulaceae						
Samolus sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)			P1	●		Low chenopod shrubland over open tussock grassland in red-brown, deep, heavy clay soils on calcrete salt pan or flood plain (DBCA 2017a).
Scrophulariaceae						
Eremophila anomala			P1	●		In open mulga woodland in stony red-brown clay loams on basalt outcrop (DBCA 2017a).
Eremophila appressa			P1	●		*Acacia* scrub over ver open low grassland in red ironstone gravel on ridge slopes (DBCA 2017a).
Eremophila arachnoides subsp. *arachnoides*			P3	●		*Eucalyptus* woodland or open shrubland in shallow brown loam over limestone or calcrete (DBCA 2017a).
Eremophila fasciata			P3	●		Tall *Acacia* shrubland in brown-red ironstone gravel on flats and sides of breakways (DBCA 2017a).
Eremophila laccata			P1	●		*Acacia aneura* over mixed grasses in brown-red loam on plain (DBCA 2017a).
Eremophila lanata			P3	●		In open scrub in stony red clayey sand (DBCA 2017a).
Eremophila rigida			P3	●		Open *Acacia* shrubland in red sand alluvium or clay on hardpan plains, stony clay depressions (DBCA 2017a).
Eremophila sp. Katjarra South (N. Gibson *et al.* NG 7149)			P1	●		*Eucalyptus camaldulensis* open woodland over open shrubland over *Triodia* hummock grassland in gravelly red sandy loam in creekline (DBCA 2017a)

Family and species	Conservation status[1]			Desktop review (Phoenix 2018a)	Phoenix (2018a)	Habitat
	EPBC Act	WC Act	DPaW list			
Eremophila sp. Ostrina (M. Officer 164)			P1	●		In rock gully on top of range (DBCA 2017a).

[1] VU – Vulnerable; S3 – Schedule 3; P1–P4 – Priority 1–4.

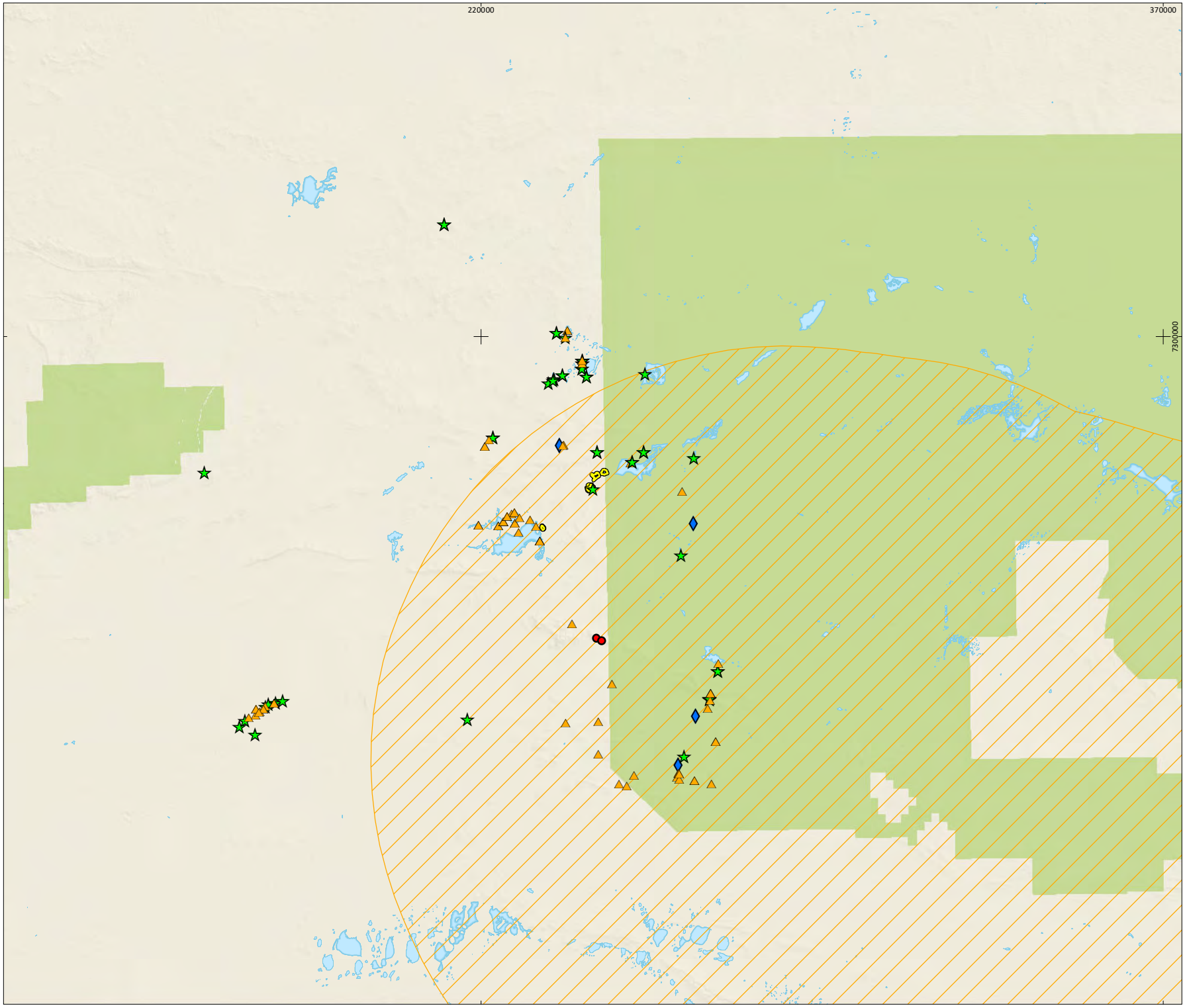
5.1.1.2 Introduced flora

A total of ten introduced flora species were identified in the initial 2015 desktop review and previous surveys for the Project (Table 5-2). The initial 2015 desktop review identified records of four species and previous surveys recorded nine species, including six not identified in the initial review (Phoenix 2018a). None of these are declared pests and/or a WoNS.

Table 5-2 Weed species recorded by the desktop assessment near the study area

Family	Species	Reference
Amaranthaceae	**Aerva javanica*	Van Leeuwen (2002)
Asteraceae	**Bidens bipinnata*	Van Leeuwen (2002); Phoenix (2018a)
Asteraceae	**Sigesbeckia orientalis*	Phoenix (2018a)
Cucurbitaceae	**Citrullus colocynthis*	Phoenix (2018a)
Cucurbitaceae	**Citrullus lanatus*	Phoenix (2018a)
Malvaceae	**Malvastrum americanum*	EnviroWorks (2010b); Phoenix (2018a)
Poaceae	**Cenchrus ciliaris*	Phoenix (2018a)
Poaceae	**Chloris virgata*	Phoenix (2018a)
Poaceae	**Digitaria ciliaris*	Phoenix (2018a)
Poaceae	**Setaria verticillata*	Van Leeuwen (2002); Phoenix (2018a)

Figure 5–1
Desktop records of significant flora and ecological communities



5.1.1.3 Threatened and Priority Ecological Communities

A single State listed PEC (Priority 1) was identified in the desktop review, Lee Steere Range vegetation complexes (banded ironstone formation). The 90 km buffer zone of this PEC intersects the study area (Figure 5-1); however, no banded ironstone formations occur within the study area. No TECs or were located within close proximity to the study area. Previous flora surveys reviewed for the desktop study did not define any vegetation units described as locally or regionally significant, or aligning with any TECs or PECs.

5.1.2 Fauna and fauna habitat

5.1.2.1 Vertebrate fauna

Desktop records of 321 vertebrate fauna species were identified between the initial 2015 desktop review and subsequent surveys for the Project (Phoenix 2017, 2018d) (Appendix 6). This comprised of 12 frogs, 108 reptiles, 149 birds and 52 mammals (42 native and ten introduced).

A total of 25 species of conservation significance were identified in the desktop review including 12 listed as Threatened or Specially Protected and one as extinct under the EPBC Act and/or the WC Act (Table 5-3). A further eight species listed as Priority (DBCA list) and six species of birds listed as 'Migratory' under the EPBC Act and WC Act (Table 5-3). Species for which coordinates were available are shown in Figure 5-2.

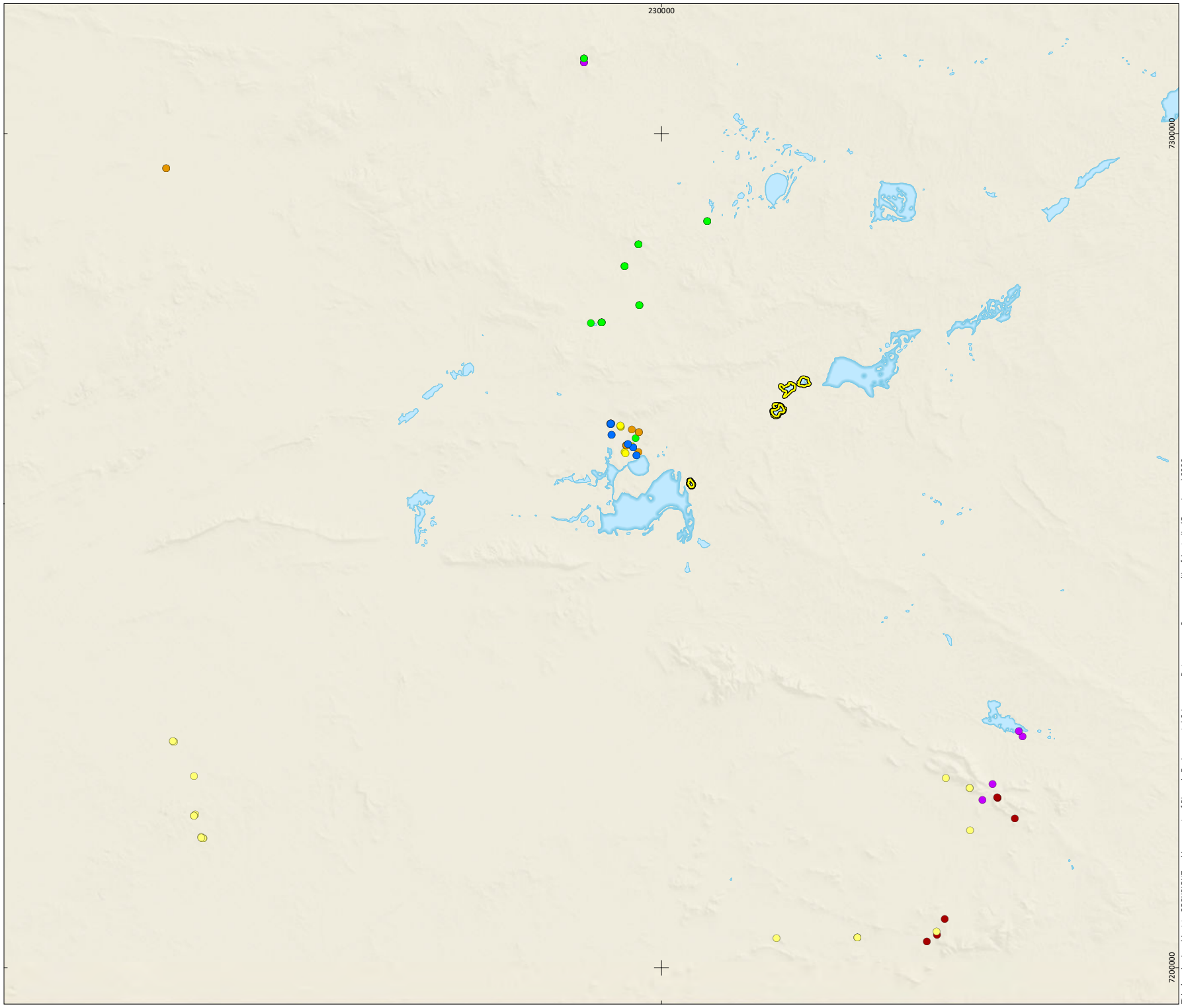
A number of these species were considered unlikely to be present within the study area due to a lack of suitable habitat or specific habitat qualities. Some desktop records are historic and some species are no longer considered likely to occur in the area of the desktop review due to range contractions, for example Malleefowl and Western Quoll.

Table 5-3 Significant vertebrate fauna identified through the desktop review

Scientific name	Common name	Conservation listing[1]		
		EPBC Act	WC Act	DBCA Priority list
Reptiles				
Lerista macropisthopus remota	Unpatterned Robust Slider			P2
Liopholis kintorei	Great Desert Skink	VU	VU	
Birds				
Leipoa ocellata	Malleefowl	VU	VU	
Anas querquedula	Garganey	Mig	Mig	
Apus pacificus	Fork-tailed Swift	Mig	Mig	
Falco hypoleucos	Grey Falcon		VU	
Falco peregrinus	Peregrine Falcon		SP	
Charadrius veredus	Oriental Plover	Mig	Mig	
Actitis hypoleucos	Common Sandpiper	Mig	Mig	
Tringa nebularia	Common Greenshank	Mig	Mig	
Tringa glareola	Wood Sandpiper	Mig	Mig	
Pezoporus occidentalis	Night Parrot	EN	CR	
Polytelis alexandrae	Princess Parrot	VU		P4
Amytornis striatus striatus	Striated Grasswren			P4
Mammals				
Dasycercus blythi	Brush-tailed Mulgara			P4
Dasycercus cristicauda	Crest-tailed Mulgara	VU		P4
Dasyurus geoffroii	Western Quoll	VU	VU	
Dasyurus hallucatus	Northern Quoll	EN	EN	
Sminthopsis longicaudata	Long-tailed Dunnart			P4
Macrotis lagotis	Greater Bilby	VU	VU	
Notoryctes caurinus	Northern Marsupial Mole			P4
Petrogale lateralis lateralis	Black-flanked Rock-wallaby	EN	EN	
Macroderma gigas	Ghost Bat	VU	VU	
Leporillus apicalis	Lesser Stick-nest Rat	EX	EX	
Pseudomys chapmani	Western Pebble-mound Mouse			P4

[1] CR – Critically Endangered; EN – Endangered; VU – Vulnerable; SP – Specially Protected; EX – Extinct; [3] P2 – Priority 2; P4 – Priority 4; Mig – Migratory.

Figure 5–2
Desktop records of significant vertebrate fauna



5.1.2.2 Short-range endemic invertebrates

The initial 2015 database search of the Western Australian Museum (WAM) Arachnology/Myriapodology database returned 398 records, of which five (four spiders and one pseudoscorpion) represented potential SREs (Table 5-4; Figure 5-3). The WAM Mollusca database revealed two records of unidentified Camaenidae from the desktop review area, both considered potential SREs (Table 5-4; Figure 5-3). The WAM Crustacea database returned 24 records; however, all of these represented subterranean species which are not of relevance for this assessment.

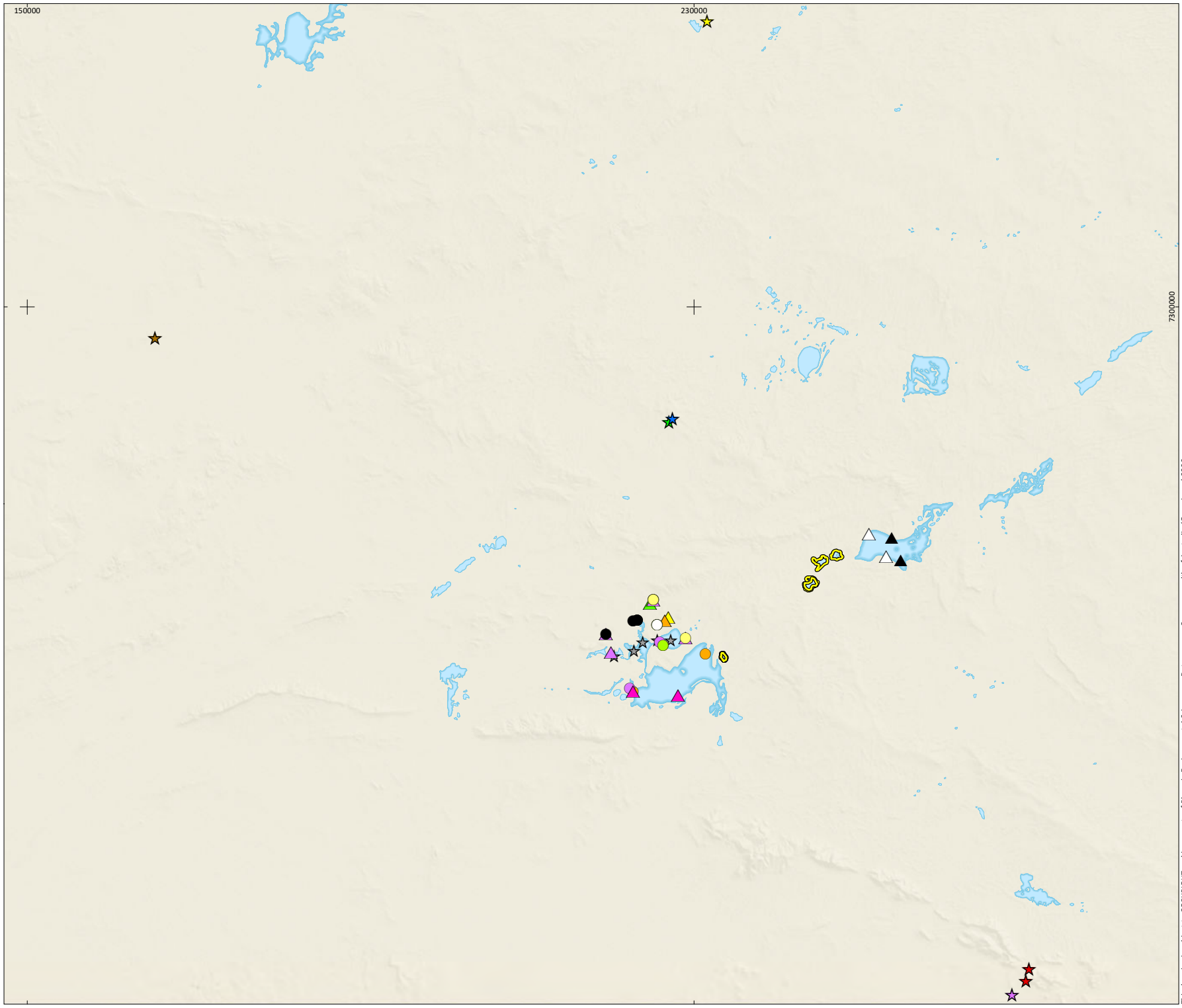
None the SREs identified from the initial 2015 desktop review represented salt lake specialists; however, subsequent surveys for the Project identified a number of potential SRE species considered salt lake specialists, in addition to some taxa identified as potential SRE species (Table 5-4; Figure 5-3) (Phoenix 2017, 2018d). Initial searches of the DPaW (now DBCA) Threatened and Priority Fauna database and the Protected Matters database undertaken in 2015 did not return any conservation significant invertebrate species.

Table 5-4 Short-range endemic invertebrates identified through the desktop review

Family	Genus and species	WAM reg. no.	SRE rating	Salt lake specialist	Desktop review (Phoenix 2018d)	Phoenix (2017, 2018d)
Araneae (spiders)						
Idiopidae	*Idiosoma* (as *Aganippe*) 'beyondie 1'		Potential	No		●
	Idiosoma (as *Aganippe*) 'beyondie 2'		Potential	No		●
	Idiosoma (as *Anidiops*) sp. indet.	T127920	Potential	No	●	
	Idiopidae sp. indet.	T110053	Potential	No	●	
Lycosidae	Genus indet. 'PES297'		Potential	Yes		●
	Genus indet. 'PES299'		Potential	Yes		●
Nemesiidae	*Aname* 'MYG195'	T101846	Potential	No	●	
	Aname 'MYG267'	T101845	Potential	No	●	
Nemesiidae	*Aname* sp. indet.		Potential	No		●
Pseudoscorpiones (pseudoscorpions)						
Garypidae	*Synsphyronus* sp. indet.	T123306	Potential	No	●	
Scorpiones (scorpions)						
Buthidae	*Lychas* 'beyondie 1'	T139860 –64,	Potential	No		●
	Lychas 'beyondie 2'	T139865 –68	Potential	No		●
Urodacidae	*Urodacus* 'beyondie'	T139870-72	Potential	No		●
	Urodacus '*yaschenkoi* group'		Potential	No		●
Oniscoidea (slaters)						
Armadillidae	*Buddelundia* '10lk'		Potential	No		●
Coleoptera (beetles)						

Family	Genus and species	WAM reg. no.	SRE rating	Salt lake specialist	Desktop review (Phoenix 2018d)	Phoenix (2017, 2018d)
Carabidae	*Pseudotetracha murchisona*		Potential	Yes		●
	Pseudotetracha oleadorsa		Potential	Yes		●
Eupulmonata (land and freshwater snails)						
Camaenidae	Camaenidae sp. indet.	S81938	Potential	No	●	
	Camaenidae sp. indet.	S66330	Potential	No	●	
Bithyniidae	*Gabbia* 'beyondie'		Potential	Possible		●

Figure 5–3
Desktop records of SRE invertebrates



Study area
Lake

SRE invertebrates

- *Aganippe* 'beyondie 1'
- *Aganippe* 'beyondie 2'
- *Aname* sp. indet.
- *Buddelundia* '10lk'
- *Gabbia* 'beyondie'
- Lycosidae 'PES0299'
- Lycosidae 'PES0297'
- *Lychas* 'beyondie 1'
- *Lychas* 'beyondie 2'
- *Pseudotetracha murchisona*
- *Pseudotetracha oleadorsa*
- *Urodacus* 'beyondie'
- *Urodacus* 'yaschenkoi group'
- *Aname* 'MYG195'
- *Aname* 'MYG267'
- *Anidiops* sp. indet.
- Camaenidae sp. indet.
- Idiopidae sp. indet.
- *Synsphyronus* sp. indet.
- *Gabbia* 'beyondie'

0 10 20 Kilometres

1:600,000

Client: Kalium Lakes Potash Pty Ltd
Project: Beyondie Potash Project - Concentrator lakes

Author: AL
Date: 06-Apr-18

Coordinate System: GDA 1994 MGA Zone 51
Projection: Transverse Mercator
Datum: GDA 1994

PHOENIX ENVIRONMENTAL SCIENCES

5.2 FIELD SURVEY

5.2.1 Flora and vegetation

A total of 110 flora species and subspecies representing 25 families and 64 genera were recorded during the field survey (Appendix 7). Species richness ranged from 2–20 species between sites (Appendix 2). The assemblage included 81 perennial species and 24 annual or short-lived species. The most prominent families recorded were Chenopodiaceae (28 species), Poaceae (16), Fabaceae (11) and Asteraceae (9). One introduced flora species, **Sonchus oleraceus* was recorded; this species is not a declared pest or WoNS.

5.2.1.1 Conservation significant flora

No Commonwealth or State listed Threatened Flora were recorded during the survey. Three Priority Flora were recorded during the survey (Figure 5-4):

- *Tecticornia* sp. Christmas Creek (P1)
- *Tecticornia willisii* (P1)
- *Tecticornia* sp. Sunshine Lake (P1).

The area within the vicinity of a record for *Tecticornia bibenda* (P1) from the desktop assessment that was located in close proximity to the study area was thoroughly searched (Figure 5-4) but no plants could be located. Unlike the majority of the *Tecticornia* spp., *T. bibenda* is highly conspicuous with very large articles and is known to the botanists who conducted the search.

Based on habitats present in the study area and survey effort, an assessment of the likelihood of the remaining 42 significant flora identified in the desktop assessment occurring in the study area identified that it was possible that six P1, one P2, six P3 and two P4 species may be present as suitable habitat for these species was present (Table 5-5).

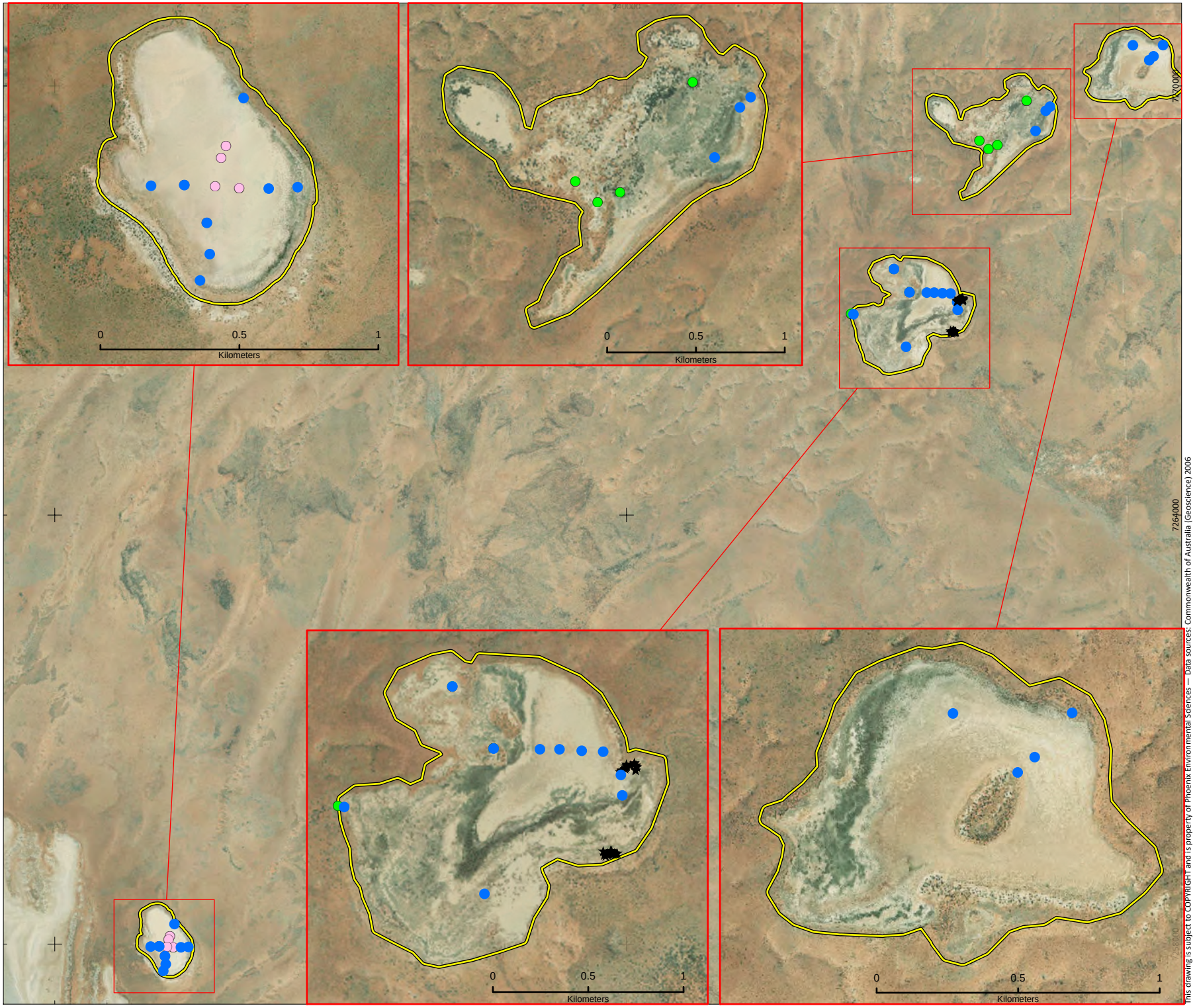
Of the remaining 27 species, for 25 the likelihood was determined to be negligible due to a lack of suitable habitat. Negligible likelihood was also determined for two *Tecticornia* species; suitable habitat was present for these species, but both are highly conspicuous and known to the survey botanists and it was considered that the study area was satisfactorily searched to detect these species.

Table 5-5 Likelihood of occurrence for significant flora

Species	Conservation status	Likelihood of occurrence
Gunniopsis sp. Lake Kerrylyn (N. Gibson *et al.* NG 7028)	P1	Possible, suitable habitat in study area
Ptilotus chrysocomus	P1	Negligible, lack of suitable habitat in study area
Ptilotus daphne	P1	Negligible, lack of suitable habitat in study area
Ptilotus tetrandrus	P1	Possible, suitable habitat in study area
Thysanotus sp. Desert East of Newman (R.P. Hart 964)	P2	Possible, suitable habitat in study area
Minuria sp. Little Sandy Desert (SVL 4919)	P1	Possible, suitable habitat in study area
Stackhousia clementii	P3	Negligible, lack of suitable habitat in study area
Maireana prosthecochaeta	P3	Negligible, lack of suitable habitat in study area
Tecticornia bibenda	P1	Negligible, this species is highly conspicuous, and it is considered that the study area was satisfactorily searched including a prior record of the species that occurred in the study area
Tecticornia globulifera	P1	Possible, suitable habitat in study area
Tecticornia mellarium	P1	Negligible, this species is highly conspicuous, and it is considered that the study area was satisfactorily searched
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer *et al.* KS 1063)	P1	Populations of the species located in the study area
Tecticornia willisii (K.A. Shepherd & C. Wilkins KS 830)	P1	Populations of the species located in the study area
Tecticornia sp. Sunshine Lake (K.A. Shepherd *et al.* KS 867)	P1	Populations of the species located in the study area
Fimbristylis sieberiana	P3	Negligible, lack of suitable habitat in study area
Tetratheca chapmanii	P1	Negligible, lack of suitable habitat in study area
Euphorbia sarcostemmoides	P1	Negligible, lack of suitable habitat in study area
Euphorbia stevenii	P3	Negligible, lack of suitable habitat in study area
Daviesia arthropoda	P3	Negligible, lack of suitable soil type in study area
Frankenia glomerata	P4	Possible, suitable habitat in study area
Dampiera atriplicina	P3	Possible, suitable habitat in study area
Goodenia modesta	P3	Possible, suitable habitat in study area
Goodenia sp. Beyondie (L.W. Sage & S. van Leeuwen LWS 2518)	P1	Possible, suitable habitat in study area
Gonocarpus pycnostachyus	P3	Negligible, lack of suitable habitat (granite rocks) in study area
Hemigenia tysonii	P3	Possible, suitable habitat in study area
Hibiscus sp. Carnarvon (S. van Leeuwen 5110)	P1	Possible, suitable habitat in study area

Species	Conservation status	Likelihood of occurrence
Owenia acidula	P3	Possible, suitable habitat in study area
Thryptomene wittweri	VU	Negligible, lack of suitable habitat in study area
Eucalyptus semota	P1	Negligible, lack of suitable habitat in study area
Micromyrtus mucronulata	P1	Negligible, lack of suitable habitat in study area
Calytrix praecipua	P3	Negligible, lack of suitable habitat in study area
Aristida jerichoensis var. *subspinulifera*	P3	Negligible, lack of suitable habitat in study area
Triodia birriliburu	P3	Possible, suitable habitat in study area
Comesperma pallidum	P3	Possible, suitable habitat in study area
Comesperma viscidulum	P4	Possible, suitable habitat in study area
Samolus sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	P1	Negligible, lack of suitable habitat in study area
Eremophila anomala	P1	Negligible, lack of suitable habitat in study area
Eremophila appressa	P1	Negligible, lack of suitable habitat in study area
Eremophila arachnoides subsp. *arachnoides*	P3	Negligible, lack of suitable habitat in study area
Eremophila fasciata	P3	Negligible, lack of suitable habitat in study area
Eremophila laccata	P1	Negligible, lack of suitable habitat in study area
Eremophila lanata	P3	Negligible, lack of suitable habitat in study area
Eremophila rigida	P3	Negligible, lack of suitable habitat in study area
Eremophila sp. Katjarra South (N. Gibson *et al.* NG 7149)	P1	Negligible, lack of suitable habitat in study area
Eremophila sp. Ostrina (M. Officer 164)	P1	Negligible, lack of suitable habitat in study area

Figure 5–9
Significant flora records from the survey



5.2.1.1.1 *Tecticornia* sp. Christmas Creek

Status: Priority 1

Description: Low spreading shrub to 1.1 m (Figure 5-5). Articles varying from dull green to purple red Flowers in July (Figure 5-5).

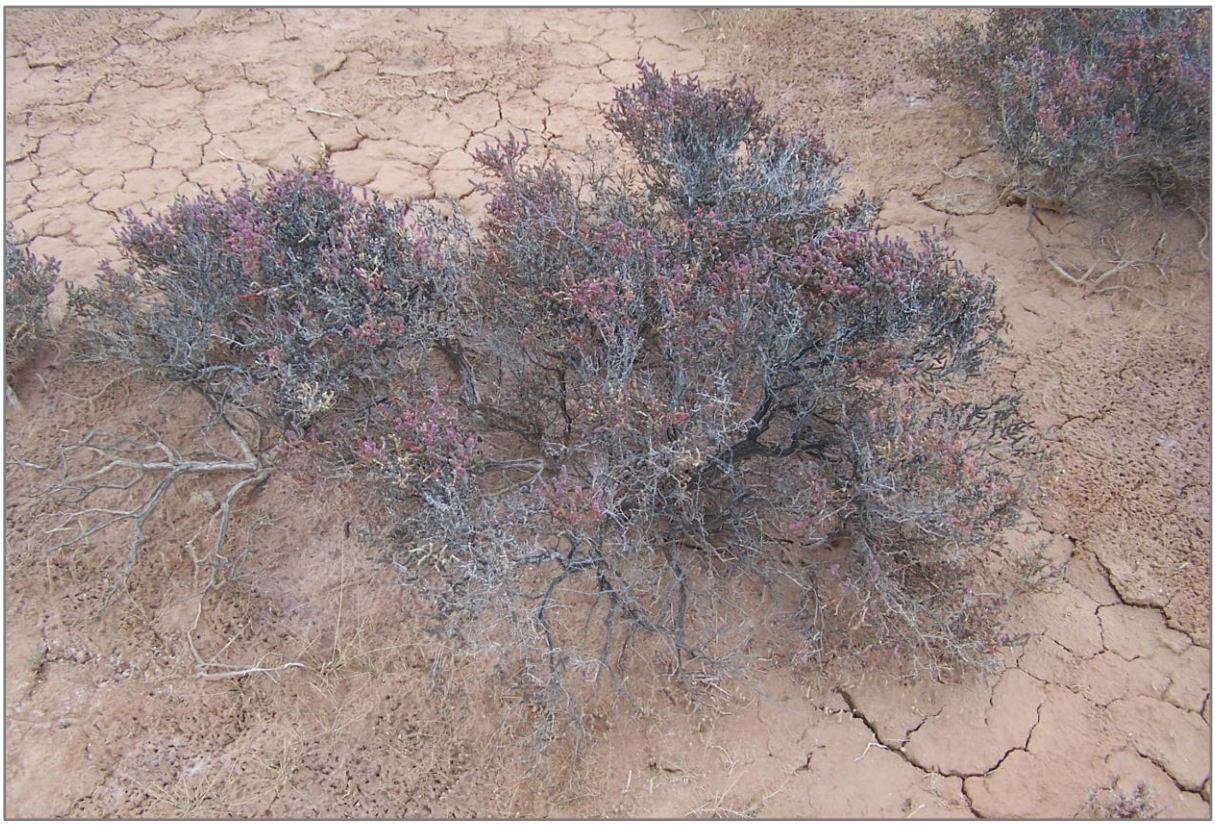


Figure 5-5 *Tecticornia* sp. Christmas Creek from survey

Distribution and ecology: Occurs in the Little Sandy Desert and Pilbara bioregions.

NatureMap (DBCA 2018) lists 23 locations for the species with habitat descriptions including:

- dry brown loam on hill in *Melaleuca glomerata* tall shrubland over *Tecticornia indica* subsp. *bidens* and *T.* sp. Christmas Creek open heath over *Samolus repens* var. *floribundus* low scattered shrubs over *Paraneurachne muelleri* very open tussock grassland with *Nicotiana heterantha* and *Swainsona kingie* open forbland
- *Melaleuca glomerata* low open forest over *Tecticornia indica* subsp. *bidens* and *T*. sp. Christmas Creek low open shrubland over *Chloris pectinata*, *Cenchrus ciliaris* very open tussock grassland with *Nicotiana heterantha* and *Sonchus oleraceus* open herbs
- *Vachellia farnesiana*, *Acacia synchronicia*, *Melaleuca glomerata* and *Acacia aptaneura* tall open shrubland over *Eremophila spongiocarpa* open shrubland over *Tecticornia* sp. Christmas Creek low shrubland over *Sporobolus virginicus*, *Eragrostis pergracilis* and *Echinochloa colona* closed tussock grassland
- low open heath of *Tecticornia* spp., *Frankenia* sp. and *Eremophila spongiocarpa* over Closed Bunch Grassland of *Eragrostis pergracilis* over Open Sedges of *Cyperus bulbosus* over Very Open Herbs of *Nicotiana* sp. and *Flaveria trinervia*
- open and seasonally inundated depression with moist brown/grey clay

- flat floodplain with red sandy clay.

Phoenix (2018b) recorded the species at six locations in an earlier survey for the Beyondie Sulphate of Potash Project.

Records and distribution in study area: There were seven records across the study area on two of the northern lakes (Figure 5-4). Field limitations precluded population counts, although the high cover values of the species, as well as an estimate of 100 plants at one site, indicates the potential of hundreds of individuals. Records occurred on the lake playa as well as on sandy rises within the playa.

The seven locations in the current study area bring the total number of records for the species to 36 and represent 19.4% of all records. A total of 13 records of the species have been recorded at the Beyondie Sulphate of Potash Project representing 36.1% of all known records.

It is not possible to determine what proportion of total indiivduals of the species occur at the Beyondie Sulphate of Potash Project as population numbers were not recorded during the surveys and are not provided for all records from the desktop review.

5.2.1.1.2 *Tecticornia willisii*

Status: Priority 1

Description: Erect, multiple stemmed shrub 0.7 x 1 m wide, flowers in August (Figure 5-6).

Distribution and ecology: according to DPaW (2017b), the species is confined to the Trainor subregion and is known from three records with habitat including:

- edge of bare salt flats with red-brown sandy clay over sandstone
- low heath of *Tecticornia* spp. with scattered emergent *Melaleuca* sp. over *Lawrencia* sp. and *Sclerolaena* sp. over very open low grassland of *Eragrostis* sp. on claypan with moist gypsiferous light brown-grey soil.

Phoenix (2018b) recorded the species at six locations in an earlier survey for the Beyondie Sulphate of Potash Project.

Records and distribution in study area: *Tecticornia willisii* was collected from 24 locations and occurred on all four lakes surveyed (Figure 5-4). Field limitations precluded population counts, although the high cover values of the species and the prevalence of the records indicates potentially thousands of individuals. Records occurred on the lake playa as well as on sandy rises within the lake playa.

The 24 locations in the current study area bring the total number of records for the species to 34 and represent 70.6% of all records. A total of 30 records of the species have been recorded at the Beyondie Sulphate of Potash Project representing 88.2% of all known records.

It is not possible to determine what proportion of total indiivduals of the species occur at the Beyondie Sulphate of Potash Project as population numbers were not recorded during the surveys and are not provided for all records from the desktop review.

5.2.1.1.1 *Tecticornia* **sp. Sunshine Lake**

Status: Priority 1

Description: Dwarf shrub 0.5 m high x 0.5 m wide with small white flowers in May and August.
Distribution and ecology: according to Florabase(DBCA 2018), it occurs in the Great Sandy Desert, the Little Sandy Desert and the Murchison bioregions. The species is known from 12 records (DBCA 2018) with habitat including:

- low *Tecticornia* spp. Shrubland and isolated *Dysphania simulans* forbs. Associated species: Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552), T. calyptrata, T. auriculata, Scaevola collaris, Frankenia cinerea and Maireana luehmannii in closed depression with dry red/white sandy clay loam on salt lake playa
- dry red sand with Low open *Tecticornia* spp. shrubland, low isolated *Dysphania kalpari* forbs and low isolated *Eragrostis kennedyae* and *Enneapogon caerulescens* grasses. Associated species: *Tecticornia indica* subsp. *bidens*, *Swainsona laciniata*, *Maireana amoena* and *M. luehmannii*
- red-brown clay loam soil
- brown clay
- grey loamy clay sand.

Phoenix (2018b) recorded the species at two locations in an earlier survey for the Beyondie Sulphate of Potash Project.

Records and distribution in study area: *Tecticornia* sp. Sunshine Lake was recorded from six locations in the study area confined to the southern lake (Figure 5-4). Field limitations precluded population counts, although the high cover values of the species and the prevalence of the records indicates potentially thousands of individuals. All records for the species occurred in a central area of the lake playa.

The six locations in the current study area bring the total number of records for the species to 21 and represent 28.6% of all records. A total of eight records of the species have been recorded at the Beyondie Sulphate of Potash Project representing 38.1% of all known records.

It is not possible to determine what proportion of total indiivduals of the species occur at the Beyondie Sulphate of Potash Project as population numbers were not recorded during the surveys and are not provided for all records from the desktop review.

Figure 5-6 ***Tecticornia willisii*** **from survey**

Figure 5-7 *Tecticornia* sp. Sunshine Lake from survey

5.2.1.2 Range extensions

Based on available distribution data, survey records for *Cephalipterum drummondii* represent a range extension of approximately 150 km northeast of the mapped distribution of the species (DBCA 2017b). This species was also recorded in previous surveys for the Project (Phoenix 2018a).

5.2.1.3 Unidentified flora

Six taxa collected could not be identified definitively to species level due to a lack of reproductive structures comprised of all *Tecticornia* spp. The remaining taxa (94.6% of all collected) were identified to species level.

5.2.1.4 Vegetation types

In total, 35 vegetation types were mapped for the study area comprised of two grasslands, six shrublands, one woodland and 26 *Tecticornia* samphire shrublands (Table 5-6). The vegetation types were defined from statistical analysis of the current survey quadrat and relevé data and also from extrapolation of vegetation types mapped previously (Phoenix 2018a) that adjoin the current study area. Where possible, vegetation types defined for the current survey data were assigned to vegetation types defined by Phoenix (2018a) based on dominant species in the upper, mid and lower canopies.

Multivariate analyses split the survey sites into three 'super groups' comprised of two groups of shrubland communites dominated by *Tecticortnia* spp. that occurred on the lake playas and a third group comprised of shrublands and grasslands that occurred on the sand dunes on the lake edge and one *Tecticornia* shrubland (Figure 5-8). It was not possible to delineate vegetation type boundaries between the *Tecticornia* shrublands from aerial imagery or in the field and subsequently these vegetation types were mapped as a single mosaic. Labelling of the survey location with the vegetation type defined identifies the mosaic of *Tecticornia* shrublands that cover each of the lakes (Figure 5-8).

The survey sites of the solitary woodland community defined for the study area were dispersed between the super groups of the dendrogram (Figure 5-9) due to the composition of the *Tecticornia* spp. understorey. These sites were grouped according to the *Casuarina obesa* overstorey and the close proximity of the woodland patches to one another (Figure 5-8).

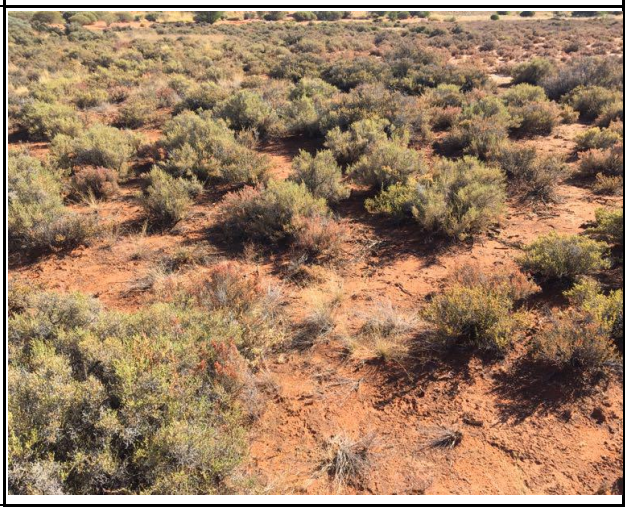
The high number of *Tecticornia* shrublands defined by the multivariate analysis is likely due to the survey methodology where the small 9 m^2 quadrats and relevé surveys were frequently dominated by a single species or small group of species and overall only a small number of species are recorded. A total of 34 9 m^2 quadrat surveys were conducted along transects with species richness ranging from 1–8 taxa with 27 quadrats (79.4%) containing four or less species. Subsequently, there is high variability in the species recorded resulting in a high number of shrublands delineated.

Collectively, the *Tecticornia* shrublands comprised 71.5% (353.1 ha) of the study area (Table 5-7). Shrubland 4, mid to tall *Melaleuca interioris* shrubland over isolated low mixed shrubs over isolated mixed grasses to sparse low mixed grassland and isolated low mixed forbs, was the next most dominant occupying 15.9% (78.5 ha) of the study area, with the remainder of vegetation types representing less than 5% each (Table 5-7).

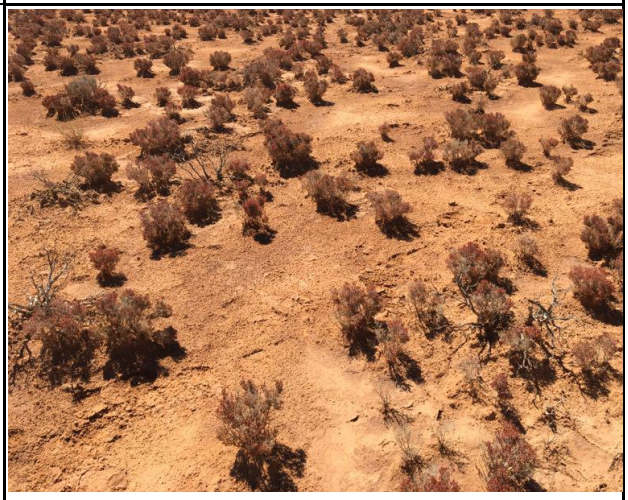
Of the vegetation types mapped in the study area, only six were matched with those defined in previous surveys for the Project (Phoenix 2018a), comprised of two grasslands and four shrublands (delineated in bold in Table 5-6). None of the 26 *Tecticornia* shrublands of the current survey aligned with those defined previously; however, all of the *Tecticornia* communities defined were comprised of species recorded in the previous surveys. Woodland 9 and shrublands 17 and 18 defined for the current survey were also not previously recorded (Phoenix 2018a).

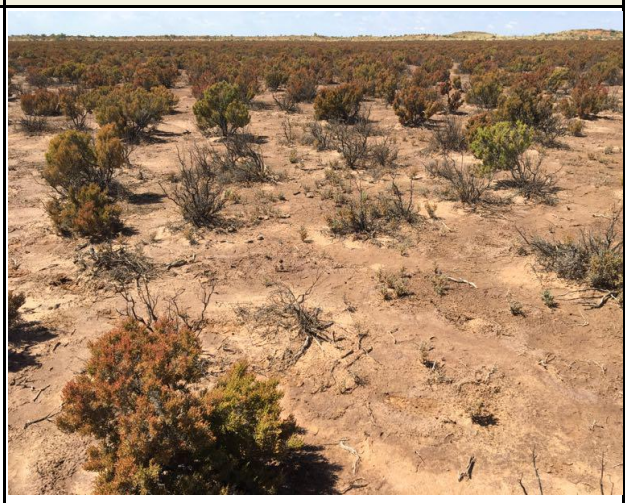
Table 5-6 Vegetation types recorded in the study area

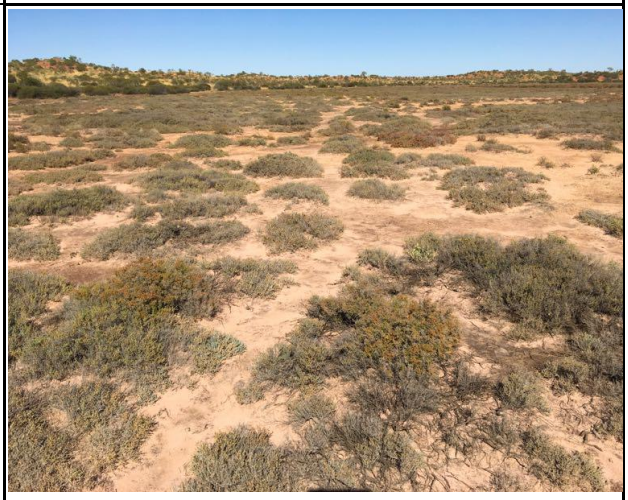
Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 1	LSC02R001, LSC02R002, LSCT02Q05, LSCT03Q10, LSC03R008, TMCT01Q04	Low *Tecticornia indica* subsp. *bidens*, *T. willisii* and *T.* sp. Dennys Crossing chenopod shrubland over isolated low grasses to low open grassland of *Aristida* and *Eragrostis* spp. over isolated low mixed forbs.	
Tecticornia shrubland 2	LSC02R006	Isolated tall *Acacia burkittii* shrubs over low open *Tecticornia pruinosa*, *T. indica* subsp. *bidens* and *Neobassia astrocarpa* chenopod shrubland over low *Eragrostis falcata* and *E. pergracilis* grassland.	
Tecticornia shrubland 3	LSC02R014, LSC02R015	Low *Tecticornia indica* subsp. *bidens* and *T.* sp. Christmas Creek chenopod shrubland over low open *Eragrostis* spp. grassland over low sparse *Angianthus tomentosus*, *Dysphania kalpari* and *Zygophyllum compressum* forbland.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 4	LSC02R018	Isolated low *Casuarina obesa* trees over low open *Tecticornia indica* subsp. *leiostachya* chenopod shrubland over isolated low *Eragrostis falcata* and *E. pergracilis* grasses.	
Tecticornia shrubland 5	LSCQ02	Low *Tecticornia indica* subsp. *bidens*, *T.* sp, Christmas Creek and *T. willisii* chenopod shrubland over low open *Eragrostis dielsii*, *E. kennedeyae* and *E. pergracilis* grassland and low isolated **Sonchus oleraceus*, *Wahlenbergia tumidifructa* and *Angianthus tomentosus* forbs.	
Tecticornia shrubland 6	LSC03R002	Low *Tecticornia indica* subsp. *bidens*, *T. pterygosperma* subsp. *denticulata* and *T.* sp. Dennys Crossing chenopod shrubland over low sparse *Eragrostis falcata* grassland and low sparse *Podolepis capillaris*, *Mimulus gracilis* and *Sclerolaena fimbriolata* forbland.	

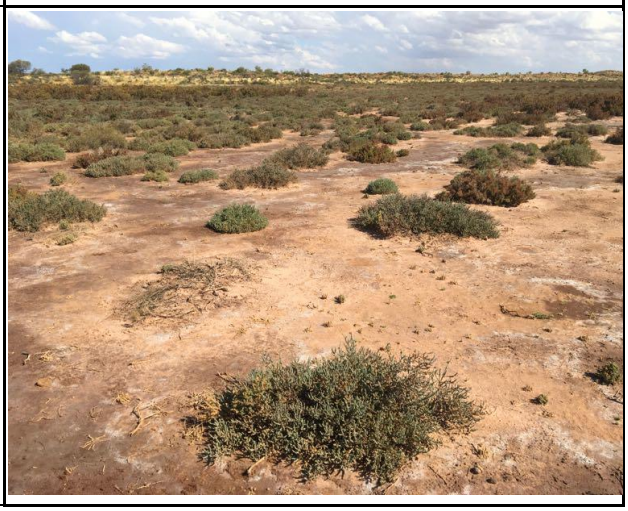
Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 7	LSCT02Q01	Low open *Tecticornia indica* subsp. *leiostachya*, *T*. sp. (sterile 2) and *Frankenia cinerea* shrubland over low open *Eragrostis kennedeyae* grassland over isolated low *Podolepis capillaris* and *Velleia glabrata* forbs.	
Tecticornia shrubland 8	LSC03R006	Low *Tecticornia pterygosperma* subsp. *denticulata* and *Scaevola collaris* shrubland over isolated clumps of low *Podolepis capillaris* and *Eremophea spinosa* forbs.	
Tecticornia shrubland 9	TMCT02Q01	Low *Tecticornia* sp Dennys Crossing chenopod shrubland over isolated clumps of low *Eragrostis leptocarpa* grasses and *Eremophea spinosa* and *Sclerolaena fimbriolata* forbs.	

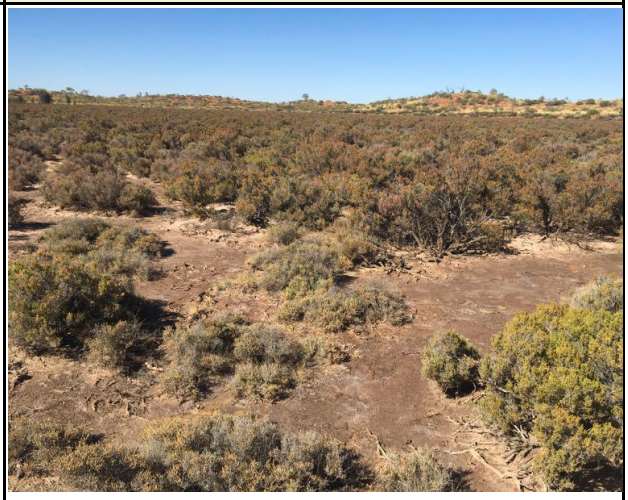
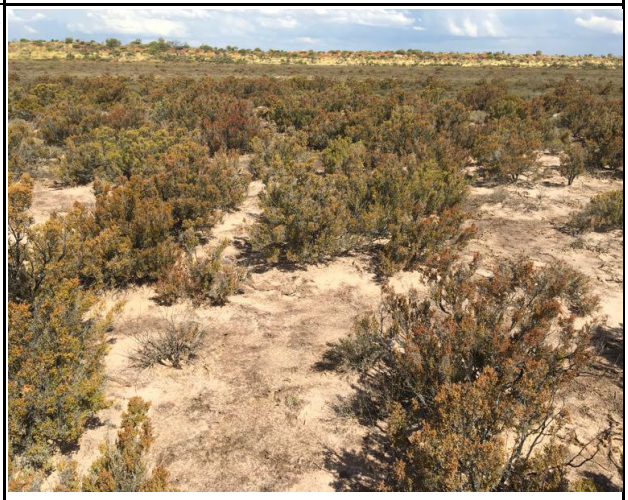
Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 10	LSC03R011	Low open *Tecticornia willisii* chenopod shrubland over isolated low *Eragrostis pergracilis* grasses and *Dysphania kalpari* and *Sclerolaena fimbriolata* forbs.	
Tecticornia shrubland 11	TMCT02Q01A	Low *Tecticornia pruinosa*, *T. calyptrata* and *T. willisii* chenopod shrubland.	
Tecticornia shrubland 12	TMCT01Q03, TMCT02Q02, TMCT02Q03	Low open *Tecticornia pruinosa*, *T. willisii* and *T.* sp. Sunshine Lake chenopod shrubland over isolated clumps of low *Lawrencia densiflora* and *Maireana amoena* forbs and *Eragrostis pergracilis* grasses.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 13	LSCT01Q03, LSCT01Q06	Low to mid open *Tecticornia willisii* and *Eremophea spinosa* chenopod shrubland.	
Tecticornia shrubland 14	LSCT01Q04, LSCT01Q05	Low open *Tecticornia willisii*, *T. pruinosa* and *Eremophea spinosa* chenopod shrubland over isolated clumps of low *Eragrostis dielsii* grasses.	
Tecticornia shrubland 15	TMCT01Q01, TMCT01Q03A, TMCT02Q02A	Low *Tecticornia willisii* chenopod shrubland.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 16	TMCT01Q01A, TMCT01Q02, TMCT02Q04, TMCT02Q03A	Low open *Tecticornia* sp. Sunshine Lake chenopod shrubland.	
Tecticornia shrubland 17	LSC02R003, LSC03R004, LSC03R013 LSC03R014, LSCT01Q02, LSCT01Q01, LSCT03Q04, LSCT03Q05	Low open *Tecticornia laevigata* and *T.* sp. Dennys Crossing shrubland, frequently with *Frankenia cinerea* over isolated low forbs.	
Tecticornia shrubland 18	LSCT03Q01, LSCT03Q02	Low open *Tecticornia laevigata*, *T. calyptrata* and *Frankenia cinerea* shrubland over isolated clumps of low *Velleia glabrata* forbs.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 19	LSCT03Q08, LSCT03Q09	Low *Tecticornia laevigata* and *Frankenia cinerea* shrubland over isolated clumps of low forbs.	
Tecticornia shrubland 20	LSC02R004, LSC02R011	Low open *Tecticornia calyptrata, T. laevigata* and *Scaevola collaris* shrubland over isolated low *Velleia glabrata* forbs.	
Tecticornia shrubland 21	LSC02R007, LSC02R008	Low *Tecticornia laevigata*, *Lawrencia glomerata* and *Scaevola collaris* shrubland over isolated low forbs.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 22	LSC03R001	Low *Tecticornia* sp. sterile 4, *T. calyptrata* and *T. laevigata* chenopod shrubland over isolated clumps of low *Eragrostis dielsii* grasses and isolated clumps of low *Lawrencia gomerata* and *Sclerolaena fimbriolata* forbs.	
Tecticornia shrubland 23	LSCT02Q02, LSCT02Q03	Low *Tecticornia laevigata*, *Frankenia cinerea* and *Scaevola collaris* shrubland over isolated *Lawrencia densiflora* and *Velleia glabrata* forbs.	
Tecticornia shrubland 24	LSCR02	Low *Tecticornia indica* subsp. *bidens*, *T. indica* subsp. *leiostachya* and *T. laevigata* chenopod shrubland over islated low *Dysphania kalpari* and *Swainsona laciniata* forbs.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Tecticornia shrubland 25	LSC02R009	Mid *Tecticornia pruinosa* chenopod shrubland over low *Tecticornia laevigata* and *T. willisii* chenopod shrubland over isolated low *Eragrostis pergracilis* grasses and isolated clumps of low *Mimulus gracilis* forbs.	
Tecticornia shrubland 26	LSCR01, LSCT03Q03, LSCT02Q04	Mid open *Tecticornia willisii* chenopod shrubland over low *T. laevigata* chenopod shrubland.	
Grassland 2	Extrapolation from (Phoenix 2018a) mapping	Isolated trees and shrubs over mid *Triodia basedowii* and *T. shinzii* hummock/tussock grassland.	**No photo available**
Grassland 5	Extrapolation from Phoenix (2018a) mapping	Isolated mixed shrubs to open shrubland over low *Triodia schinzii*, *Aristida holathera* and *Eragrostis* spp. tussock grassland.	**No photo available**

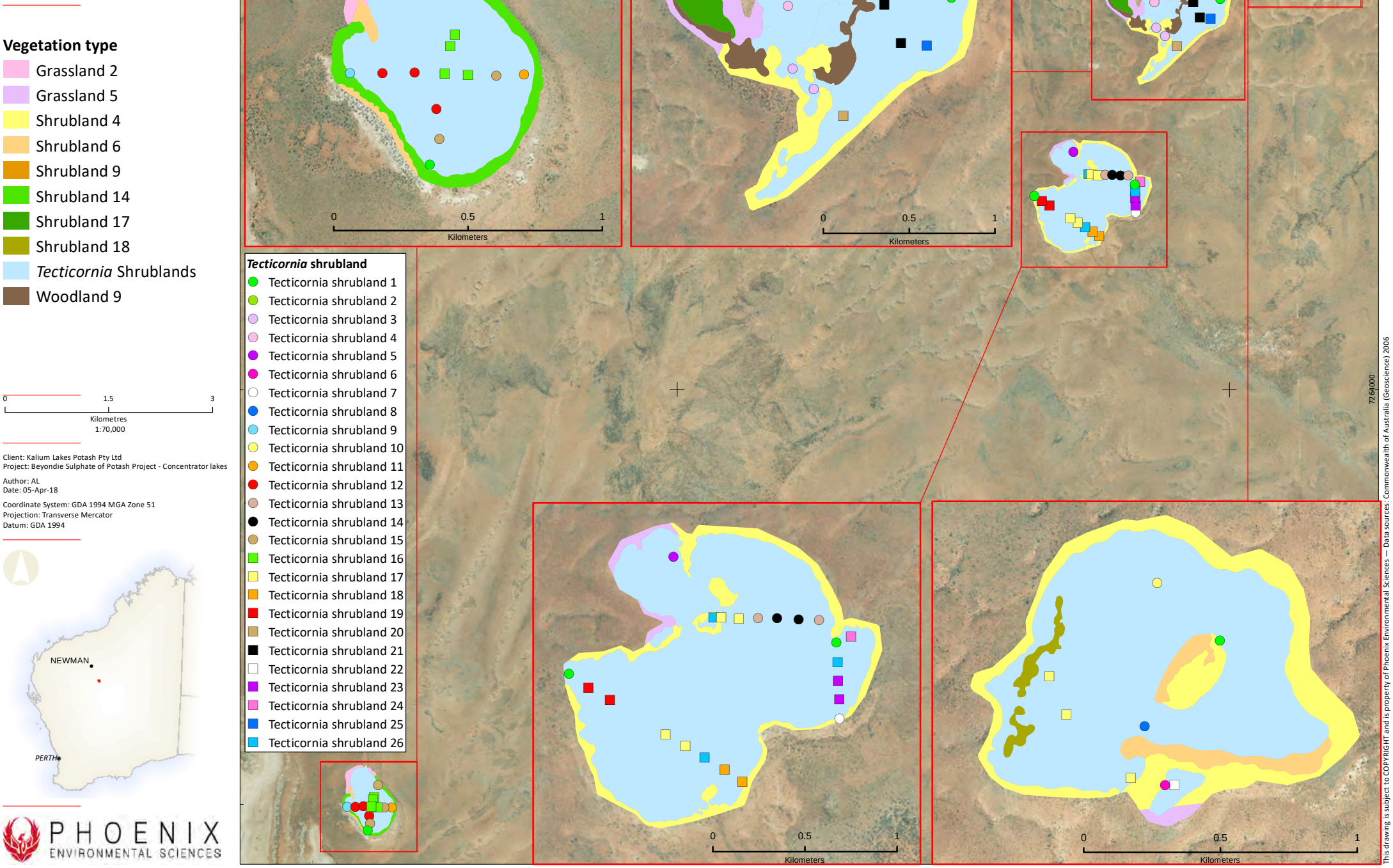
Vegetation type[1]	Site/s	Vegetation description	Photograph
Shrubland 4	LSC02R010, LSC03R003, LSC03R010, LSCQ03, LSC02R013, LSCQ01	Mid to tall *Melaleuca interioris* shrubland over isolated low mixed shrubs over isolated mixed grasses to sparse low mixed grassland and isolated low mixed forbs.	
Shrubland 6	TMCQ02	Sparse tall to tall *Acacia burkittii* shrubland over sparse mid *Acacia tetragonophylla* and *Senna artemisioides* subsp. *petiolaris* shrubland over isolated low *Eragrostis* spp. and *Enneapogon caerulescens* tussock grasses and isolated low mixed forbs.	
Shrubland 9	Extrapolation from Phoenix (2018a) mapping	Isolated low trees to low open *Corymbia chippendalei* and *Eucalyptus gamophylla* woodland over low mixed shrubland over isolated low grasses to low open *Triodia schinzii* and *Aristida* spp. tussock grassland.	No photo available

Vegetation type[1]	Site/s	Vegetation description	Photograph
Shrubland 14	TMCQ01, TMCR01	Isolated low *Eucalyptus* spp. mallee over mid open *Acacia ligulata* shrubland over low *Triodia basedowii* hummock grassland.	
Shrubland 17	LSC02R017	Low open *Scaevola collaris* and *Lawrencia glomerata* shrubland over isolated clumps of low *Neobassis astrocarpa* forbs.	
Shrubland 18	LSC03R012	Isolated low *Solanum cleistogamum* shrubs over isolated low *Aristida contorta* grasses in a low *Podolepis capillaris* forbland.	

Vegetation type[1]	Site/s	Vegetation description	Photograph
Woodland 9	LSC02R016, LSC02R012, LSC02R005	Low *Casurina obesa* woodland over low open *Tecticornia* spp. shrubland.	

[1]Vegetation types in **bold** were also recorded in previous surveys for the Project (Phoenix 2018a).

Figure 5-8
Vegetation types in the study area



Client: Kalium Lakes Potash Pty Ltd
Project: Beyondie Sulphate of Potash Project - Concentrator lakes

Author: AL
Date: 05-Apr-18

Coordinate System: GDA 1994 MGA Zone 51
Projection: Transverse Mercator
Datum: GDA 1994

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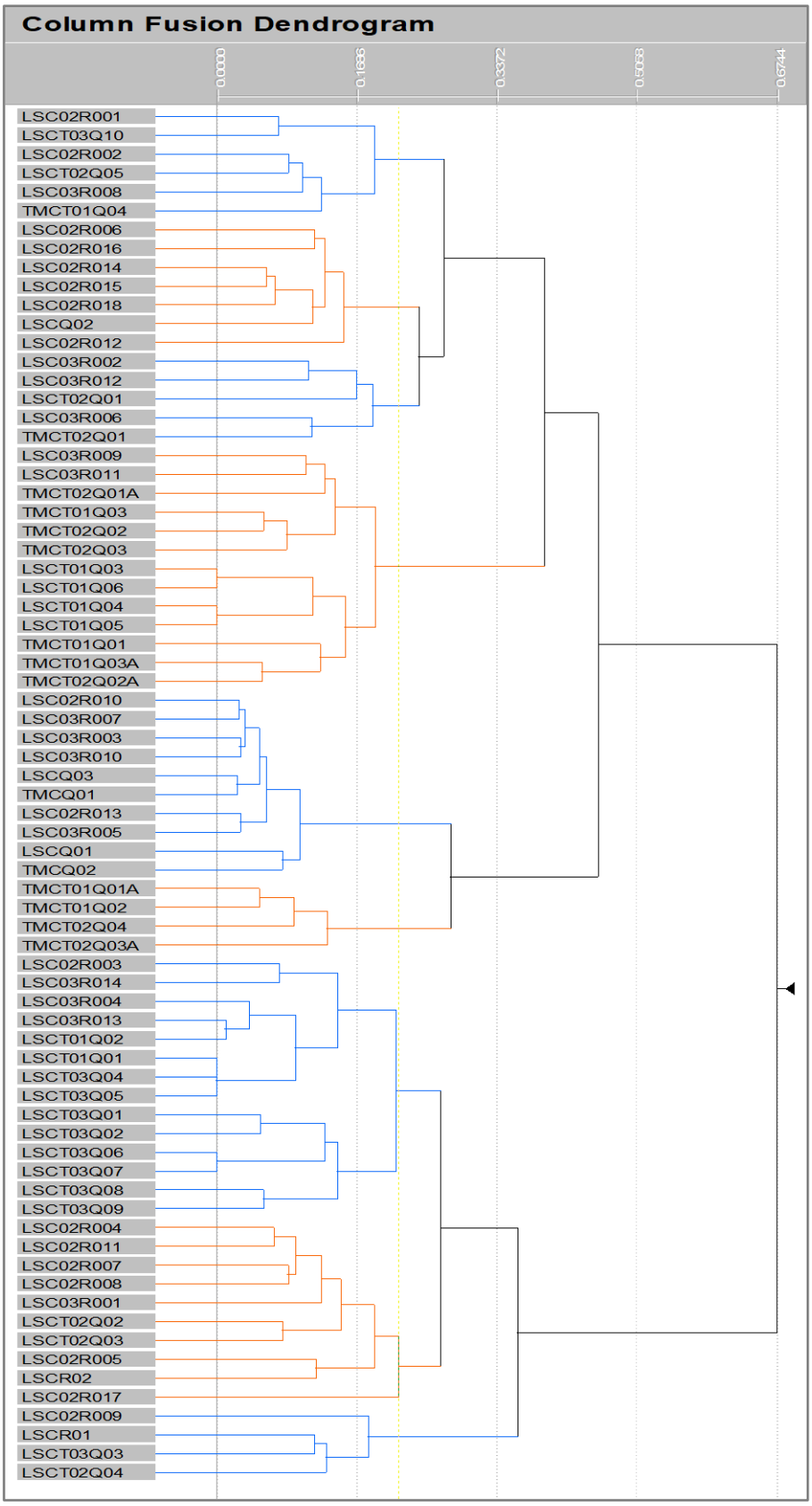


Figure 5-9 Hierarchical clustering (UPGMA) of the flora quadrats of the study area

Table 5-7 Extent of vegetation types in the study area

Vegetation type	Area (ha)	Percentage of vegetated areas
Tecticornia shrublands	353.1	71.54%
Grassland 2	3.6	0.72%
Grassland 5	13.6	2.76%
Shrubland 4	78.50	15.90%
Shrubland 6	7.50	1.52%
Shrubland 9	0.10	0.02%
Shrubland 14	7.13	1.45%
Shrubland 17	6.34	1.28%
Shrubland 18	2.27	0.46%
Woodland 9	21.42	4.34%
Total	**493.6**	**100.0**%

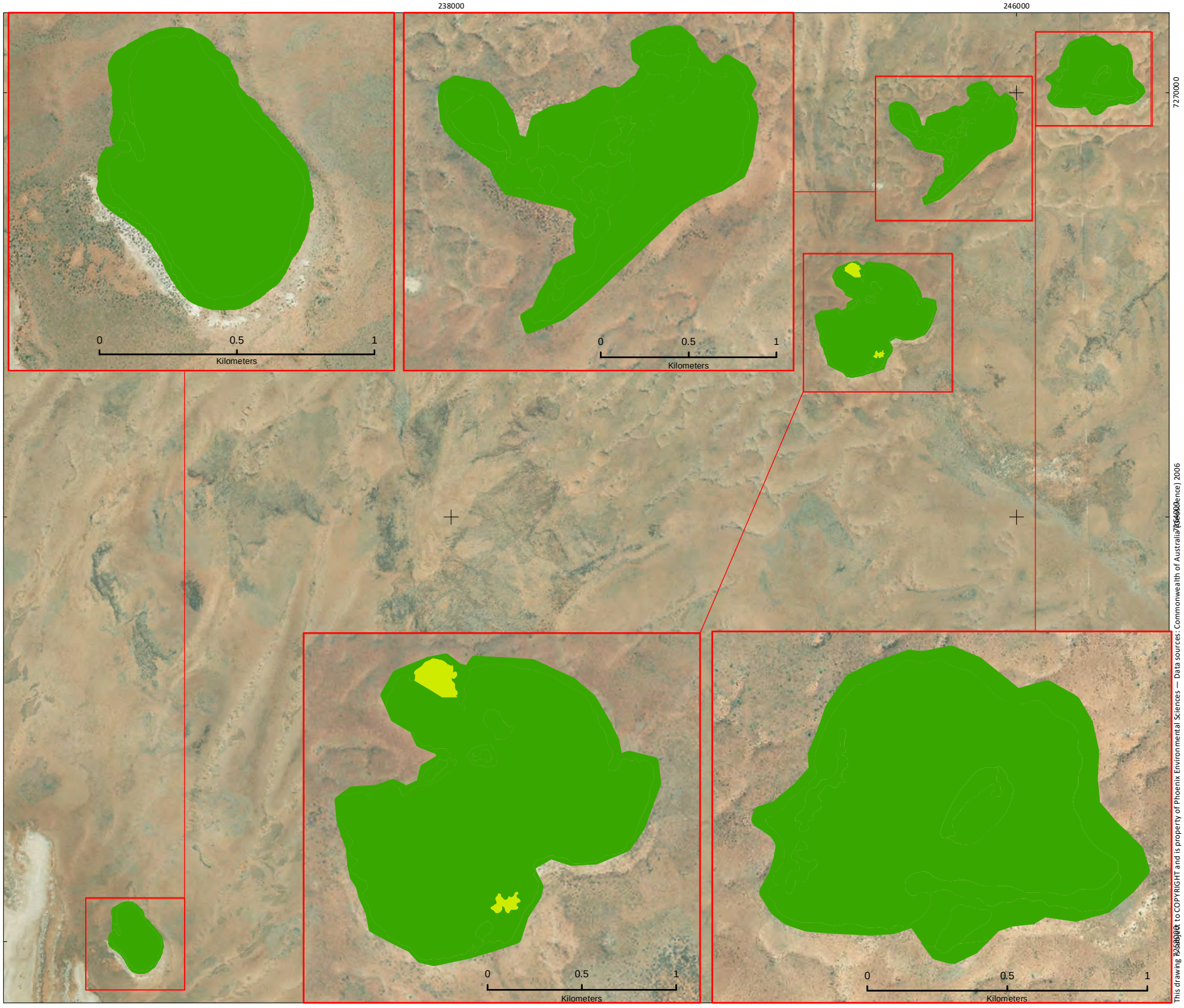
5.2.1.5 Vegetation condition

The condition of vegetation across the study area ranged from Excellent to Very Good according to the applied condition scale (Figure 5-10). Nearly all of the vegetation was mapped as Excellent (Table 5-8). Two patches of *Tecticornia* shrublands covering less than 1% of the study area had some disturbance and contained weeds and were therefore rated as Very Good.

Table 5-8 Vegetation condition – extent of each condition rating in study area

Condition	Area (ha)	Percentage
Excellent	489.36374	99.1%
Very Good	4.206998	0.9%
Total	**493.6**	**100.0%**

Figure 5-10
Vegetation condition in the study area



5.2.1.6 Threatened and Priority Ecological Communities

No vegetation types in the study area were classified as either a Federal or State listed TEC or DBCA listed PEC.

5.2.1.7 Local and regional significance of vegetation

The paucity of regional botanical information, and therefore also limited discussion on the regional significance of vegetation in the previous flora surveys reviewed for this assessment (EnviroWorks 2010a, b; Phoenix 2018a; Shepherd *et al.* 2002), precludes detailed assessment of the regional significance of the vegetation types defined for the current survey.

The *Tecticornia* shrublands of the lake playa and beaches are considered locally significant as they represent refuge for significant flora, the Priority 1 species *Tecticornia* sp. Christmas Creek, *Tecticornia* sp. Lake Sunshine and *Tecticornia willisii*.

Three vegetation types (Grassland 2, Shrubland 9 and Shrubland 18) had restricted distribution (<1%) within the study area. Both, Grassland 2 and Shrubland 9 had wide distribution in nearby Beyondie Lakes and are not considered locally significant. Shrubland 18 was confined to the current study area and may be considered locally unique. In addition, Woodland 9 was restricted to one of the lakes in the current survey and was a newly derived vegetation type. Subsequently it may be considered locally significant due to restricted distribution.

5.2.2 Fauna and fauna habitats

5.2.2.1 Fauna habitats

Three broad fauna habitats were mapped within the study area (Table 5-9; Figure 5-11):

- **Salt lake**. Salt lake habitat and associated samphire vegetation encompassed approximately 71.7% of the study area. The habitat varied between the four lakes surveyed; however, all were largely vegetated, almost across their entirety, with few open areas of sparse or no vegetation. Salt lake vegetation comprised almost entirely of samphire vegetation on clay loam substrate ranging in height and density. No water was observed in any of the four lakes during the field survey; however, the lake beds in some lower lying areas were waterlogged as a result of recent rainfall.

  Salt lakes provide potential habitat for a range of waterbird and shorebird species which forage on the lakes surface when the water level is low and may roost in fringing vegetation where suitable cover is present. They also provide suitable habitat for specialist salt lake endemic species, particularly invertebrates. Endemic invertebrate fauna are known to occur at other WA salt lakes (e.g. Ten Mile Lake, Lake Disappointment, Lake Lefroy), including two lycosid species currently only known from Ten Mile Lake south of the study area.

- **Mosaic of shrubland and grassland**. The lake perimeters were mainly comprised of a mosaic of shrubland and grassland vegetation on sandplain and/or sand dune habitat where the boundaries of each could not be clearly defined. This habitat covered 24% of the study area. Vegetation comprised of mixed species primarily dominated by *Acacia* shrubs up to 3 m and *Triodia* grasses up to 0.75 m on loose sandy substrates.

  The shrublands and grasslands provide suitable habitat for a number of burrowing or fossorial significant species including Greater Bilby, Northern Marsupial Mole, Mulgara, Great Desert Skink and Unpatterned Robust Slider.

- **Woodland**. A small portion of the study area (4.3%) comprised of woodland habitat at one of the lakes within the study area. Woodland habitat comprised of tall *Casuarina* to 6 m over a low open understory of *Tecticornia* species with scattered sparsely vegetated patches containing exposed clay loam substrate. The woodland occurred in the centre of the lake and along its edges.

  This habitat may provide suitable foraging habitat for Mulgara, Rainbow Bee-eater and possibly some SRE invertebrate species.

The *Casuarina* woodland habitat was not recorded in the previous surveys conducted for the Project (Phoenix 2018d).

Table 5-9 Fauna habitats of the study area

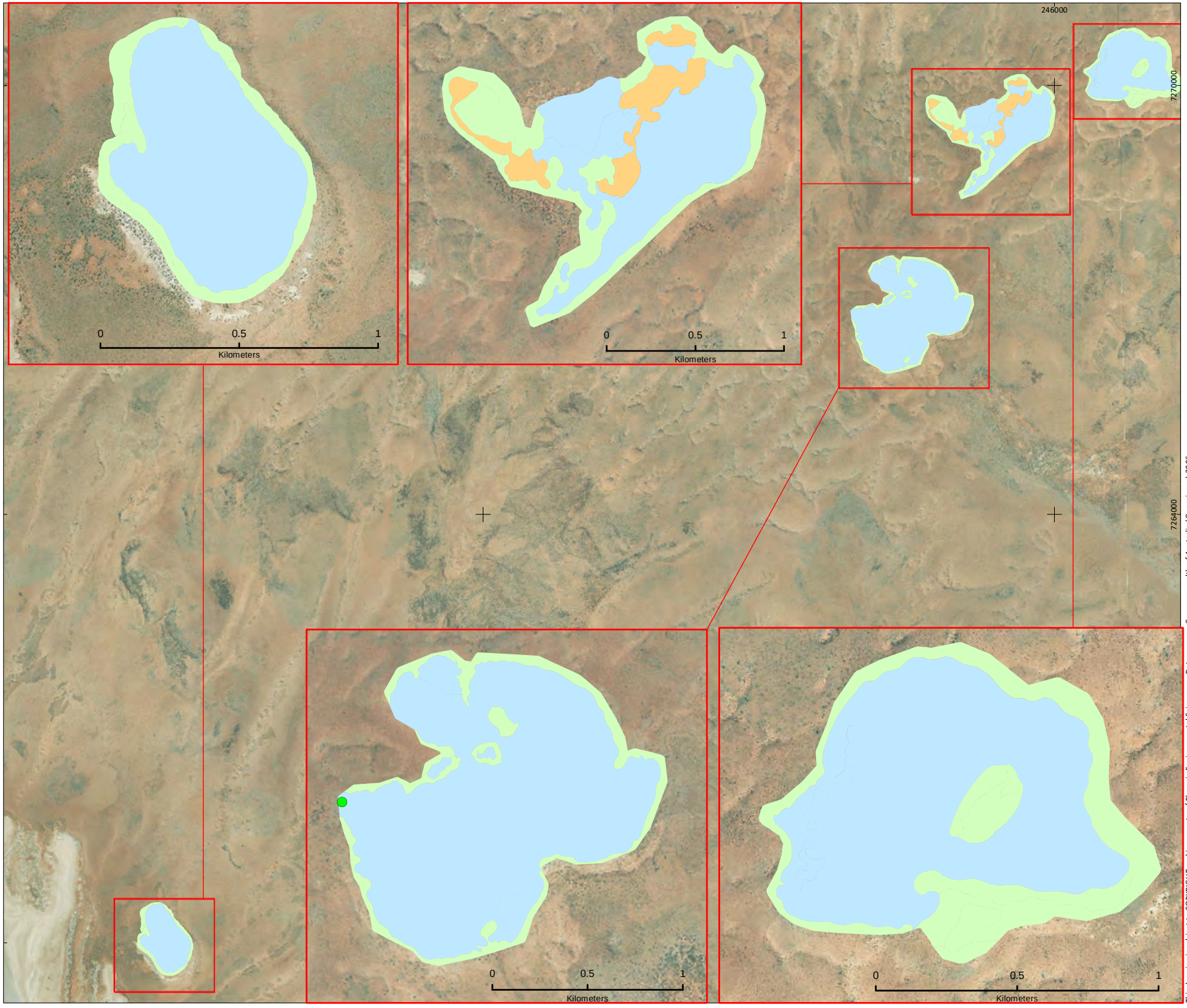
Habitat	Area (ha)	Percentage
Salt lake	353.66	71.7%
Mosac of shrubland and grassland	118.49	24.0%
Woodland	21.42	4.3%
Total	493.57	100%

5.2.2.2 Vertebrate fauna

A total of 26 vertebrate species were recorded during the field survey representing approximately 8% of the species identified from the desktop review (Appendix 6). No conservation significant species were recorded.

Five species were recorded in the survey that were not recorded in previous surveys for the Project (Phoenix 2018d): Thorny Devil, Diamond Dove, Little Crow, Rufous-crowned Emu-wren and Spinifex Bird (Appendix 6).

Figure 5–12
Fauna habitats in the study area



5.2.2.3 Significant vertebrate species recorded and potentially occurring

Fifteen of the 25 significant vertebrate species identified in the desktop review (Table 5-3) were considered likely to, or to possibly occur in the study area. The likelihood of occurrence assessment took into account presence of suitable habitat, proximity of previous records and current known distributions of the species.

5.2.2.3.1 **Unpatterned Robust Slider (*Lerista macropisthopus remota*)**

Status: Priority 2 (DBCA)

Distribution and ecology: The unpatterned Robust Slider is a large species of fossorial *Lerista* endemic to WA. The subspecies *L. m. remota* occurs in the arid central interior of WA in *Acacia* shrublands and woodlands (Wilson & Swan 2013).The subspecies is often recorded from loose soil below leaf litter at the base of shrubs (Storr *et al.* 1999; Wilson & Swan 2013). Little is known of the species' ecology; however, it is considered to be comparable to other arid adapted *Lerista* species (Cogger 2014; Wilson & Swan 2013). Threats to this species are not well known. It is listed as Priority due to its restricted distribution and current limited knowledge of its ecological requirements.

Records and likely distribution in the study area: Suitable habitat was identified in shrubland and grassland habitats, particularly where sandy substrates and loose leaf litter were present. The species was previously recorded once during previous surveys for the Project approximately 9 km northeast of the southern lake of the study area (Phoenix 2018d). Considered likely to occur.

5.2.2.3.2 **Great Desert Skink (*Liopholis kintorei*)**

Status: Vulnerable (EPBC Act, WC Act)

Distribution and ecology: The Great Desert Skink is a large species with a rich reddish-brown colouration that prefers arid sand-flats and clay-based or loamy soils vegetated with spinifex. It excavates large multi-entranced burrow systems which may be used by communal groups (Storr *et al.* 1999). It is found in the central deserts of WA. The Desert skink is an omnivorous species that gives birth to live young (Wilson & Swan 2013). The primary threat to the species is predation by introduced species such as foxes, cats and dogs.

Records and likely distribution in the study area: Suitable shrubland and grassland habitat for the species is present in the study area. The nearest record of the species is located approximately 300 km south (DBCA 2017b); however, the limited number of records of this cryptic species within the Little Sandy Desert may be attributed to the sparse regional survey effort. Considered to possibly occur.

5.2.2.3.3 **Garganey (*Anas querquedula*)**

Status: Migratory (EPBC Act and WC Act)

Distribution and ecology: The Garganey is a small and lightly built duck species that breeds in the northern hemisphere over the summer months and migrates to southern Asia and occasionally Australia over winter periods (Southern Hemisphere summer) (Menkhorst *et al.* 2017). In Australia, the species is known only from few records of individuals or small groups in the northwest where it is a rare visitor (Johnstone & Storr 1998; Menkhorst *et al.* 2017). The species has been recorded from a variety of habitats in Australia, including freshwater swamps and lagoons, large open wetlands and sewerage treatment plants (Johnstone & Storr 1998; Menkhorst *et al.* 2017).

Records and likely distribution in the study area: The nearest record of the species is located approximately 65 km west of the study area (DBCA 2017b). Though the species occurrence in Australia is rare, it may occur in salt lake habitat, particularly following large rainfall events over the summer

period resulting in water with the lakes of the study area. Considered to possibly occur, although any occurrence would be considered very rare and sporadic.

5.2.2.3.4 Fork-tailed Swift (*Apus pacificus*)

Status: Migratory (EPBC Act and WC Act)

Distribution and ecology: The Fork-tailed Swift is a widespread migratory species that overwinters in Australia. It can be found across most of WA and is uncommon to moderately common in the north-west. The species occurs in a wide range of dry or open habitats, including riparian woodlands, tea-tree swamps, low scrub, heathland, saltmarsh, grassland and spinifex sandplains, open farmland and inland and coastal sand dunes. Fork-tailed Swifts are often found in areas that experience updraughts around cliffs and normally forage several hundred metres above ground level (DoEE 2017b).

Records and likely distribution in the study area: The species can occur within a wide range of habitats, including those found in the study area where it is likely to forage; however, unlikely to land or nest. The nearest record of the species is located approximately 75 m west of the study area (DBCA 2017b). Considered likely to occur occasionally within the study area.

5.2.2.3.5 Grey Falcon (*Falco hypoleucos*)

Status: Vulnerable (WC Act)

Distribution and ecology: The Grey Falcon is a widespread but rare species inhabiting much of the semi-arid interior of Australia. Its distribution is centred along inland drainage systems. It has a large foraging range extending from timbered plains, such as *Acacia* shrublands, into open grasslands. Prey includes mainly birds (Sutton 2010), but also invertebrates and mammals. The species often utilises old nests of other species, particularly other raptors, in the tallest trees along watercourses and sometimes in telecommunication towers (Sutton 2010).

There are no confirmed threats to the Grey Falcon but it is thought that clearing of the semi-arid zone for marginal farming has reduced habitat availability and overgrazing of arid zone rangelands may affect prey abundance (Garnett *et al.* 2011).

Records and likely distribution in the study area: The Grey Falcon may occasionally occur in the study area due to its large foraging range, particularly within areas where very dense vegetation isn't present allowing the species to forage for ground dwelling prey. Nesting within the study area is unlikely due to the absence of any large suitable nesting structures or trees. The nearest record of the species is located approximately 56 km southeast of the study area (DBCA 2017b).

5.2.2.3.6 Peregrine Falcon (*Falco peregrinus*)

Status: Specially Protected (WC Act)

Distribution and ecology: The Peregrine Falcon is a widespread bird of prey with a large foraging range found across Australia. In WA, it can be rare or scarce to moderately common. The Peregrine Falcon's preferred habitat includes cliffs and wooded watercourses. Nesting occurs mainly on cliff ledges, granite outcrops, quarries and in trees with old raven or Wedge-tailed Eagle nests (Johnstone & Storr 1998).

Birds constitute a very large proportion of the diet, if not the exclusive part (Johnstone & Storr 1998; Ratcliffe 1980). Historically, the widespread use of DDT caused worldwide global decline of the Peregrine Falcon. The main current threat to the species in Australia is habitat loss, particularly woodland trees for nesting (DoEE 2017b).

Records and likely distribution in the study area: The Peregrine Falcon may occasionally occur within the study area to forage. It is unlikely to nest in the study area due to the lack of suitable nesting habitat. The species has previously been recorded approximately 54 km southeast of the study area (DBCA 2017b).

5.2.2.3.7 **Oriental Plover (*Charadrius veredus*)**

Status: Migratory (EPBC Act, WC Act)

Distribution and ecology: The Oriental Plover is a non-breeding visitor to Australia. It has a widespread distribution but most records are along the north-western coast between Exmouth Gulf and Derby (DoEE 2017b). Inland habitats occupied by the species include sparsely vegetated plains or recently burnt open areas.

Records and likely distribution in the study area: The lakes of the study area provide suitable habitat for the Oriental Plover. The species was previously recorded during waterbird surveys undertaken for the Project at Beyondie Lakes within 15 km of the southern lake of the study area (Phoenix 2017). It may occasionally occur within the study area in salt lake habitat, particularly following rainfall events when water may be present within lakes.

5.2.2.3.8 **Common Sandpiper (*Actitis hypoleucos*)**

Status: Migratory (EPBC Act, WC Act)

Distribution and ecology: Found across all Australian states, the Common Sandpiper often occurs in small flocks. The Common Sandpiper breeds in temperate Eurasia during the northern hemisphere summer. A small population winters in Australia (approximately 3,000 individuals) (Geering *et al.* 2007).

In WA the species is mostly found in coastal habitats but it will also occur inland (Geering *et al.* 2007). They are found across a wide range of wetlands: small ponds, large inlets, mudflats where they forage on the shore usually close to the vegetation.

Records and likely distribution in the study area: The nearest record of this species is approximately 116 km northwest of the study area (DBCA 2017b). The Common Sandpiper may occur in salt lake habitat, particularly after rainfall events when water may be present.

5.2.2.3.9 **Common Greenshank (*Tringa nebularia*)**

Status: Migratory (EPBC Act, WC Act)

Distribution and ecology: The species is present in summer across all Australian states, mostly along the coast but sometimes inland. The overall population appears stable (Delany & Scott 2006). The species is not gregarious. Small groups can sometimes be seen when roosting at high tide (Geering *et al.* 2007). They prefer coastal open mudflats.

Records and likely distribution in the study area: The lakes of the study area provide suitable habitat for the Common Greenshank. The species was previously recorded during waterbird surveys undertaken for the Project at Beyondie Lakes within 15 km of the southern lake of the study area (Phoenix 2017). The species may occasionally occur within the study area in salt lake habitat, particularly following rainfall events when water may be present within lakes.

5.2.2.3.10 **Wood Sandpiper (*Tringa glareola*)**

Status: Migratory (EPBC Act, WC Act)

Distribution and ecology: This graceful, active wader prefers shallows of wooded lakes or swamps with trees. It also inhabits freshwater swamps, lakes, flooded pastures and occasionally, mangroves. The Wood Sandpiper occurs solitary or in large flocks of mixed waders and is an uncommon migrant (Morcombe 2004).

Records and likely distribution in the study area: The nearest record of the Wood Sandpiper is located approximately 160 km north of the study area (DBCA 2017b).The species may occur in salt lake habitat, particularly after rainfall events when water may be present.

5.2.2.3.11 **Night Parrot (*Pezoporus occidentalis*)**

Status: Endangered (EPBC Act); Critically Endangered (WC Act)

Distribution and ecology: The Night Parrot is considered one of the rarest bird in Australia. The species was thought to be extinct until a road killed specimen was collected in Queensland in October 1990 (Boles *et al.* 1994). Since then, additional specimens have been recorded in Queensland (McDougall *et al.* 2009; Murphy *et al.* 2017) and in the Pilbara and Murchison regions of WA (Davis & Metcalf 2008; Hamilton *et al.* 2017; Jackett *et al.* 2017).

The broad habitat requirements of the species include areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs, and may or may not contain shrubs or low trees (DPaW 2017c). Roosting and nesting sites are in clumps of dense vegetation, primarily patches of old and large spinifex (often >50 years unburnt), especially ring-forming hummocks. These may be in expanses or isolated patches, and may be associated with other vegetation types, such as dense chenopod shrubs (DPaW 2017c). These habitats are often naturally fragmented and therefore well-protected from fire. Collapsed spinifex hummocks (<40-50 cm high) are not likely to provide adequate shelter (DPaW 2017c).

Foraging habitat preferences are not well understood. Favoured sites are likely to vary across the range of the species, and by season. Based on observations in Queensland, areas rich in herbs including forbs, grasses and grass-like plants, are believed to be important in WA (DPaW 2017c).

Records and likely distribution in the study area:

The Night Parrot was considered to possibly occur in the study area due to presence of suitable habitat. This species is covered in more detail in Phoenix (2018c).

5.2.2.3.12 **Princess Parrot (*Polytelis alexandrae*)**

Status: Vulnerable (EPBC Act); Priority 4 (DPaW)

Distribution and ecology: The Princess Parrot is one of the most elusive Australian parrots. They are only found in the arid inland desert of central Australia with most of their range extending between the Great Victorian Desert and the Great Sandy Desert in WA.

Princess Parrots inhabit sandy deserts where they feed on seeds and flowers (Garnett & Crowley 2000). The species is highly irruptive and after important rainfall, can occur in numbers in areas previously unoccupied. They nest in large tree hollows and can produce three to six chicks per clutch. Threats to the species are not clearly identified and even the population trend is not clear given the irruptive fluctuating pattern of the populations. Changes in fire regimes and introduction of grazing mammals are listed as the main threats to the Princess Parrot (Garnett & Crowley 2000).

Records and likely distribution in the study area: Records of the Princess Parrot are sparse but the nearest record is located approximately 110 km west-southwest of the study area (DBCA 2017b). The species occurrence and abundance are dependent on rainfall events. It is considered possible that the Princess Parrot will occur in the study area occasionally when conditions are favourable, particularly following rainfall.

5.2.2.3.13 **Brush-tailed Mulgara (*Dasycercus blythi*)**

Status: Priority 4 (DBCA)

Distribution and ecology: The Brush-tailed Mulgara is a medium-sized carnivorous marsupial. It feeds on a range of invertebrate and small vertebrate prey items. Little is known about the species' reproductive ecology in the wild, although females with up to six pouch young have been recorded around September. In captivity mating has been observed between mid-May to mid-June (Van Dyck & Strahan 2008).

The Brush-tailed Mulgara is often recorded in sandplains and gibber plain habitats, with or without spinifex hummocks and other vegetative cover (Pavey *et al.* 2011). Brush-tailed Mulgara have home ranges from 1 ha up to 25.5 ha, with notable differences occurring between sexes and seasons. They have a sedentary lifestyle and may occupy burrows in one location for many years (Körtner *et al.* 2007; Masters 2003). The species may construct multiple burrow systems within its home range (Van Dyck & Strahan 2008).

Records and likely distribution in the study area: Suitable habitat was identified for Brush-tailed Mulgara in the woodland and shrubland and grassland habitats. The species was recorded during previous fauna surveys conducted for the Project approximately 9 km northwest of the southernmost lake of the study area (Phoenix 2018d). Considered likely to occur within the non salt lake habitats of the study area; however, it may also occasionally occur in salt lake habitat to forage.

5.2.2.3.14 **Greater Bilby (*Macrotis lagotis*)**

Status: Vulnerable (EPBC Act and WC Act)

Distribution and ecology: The Greater Bilby or Dalgyte is a rabbit-sized marsupial that originally occupied over 70% of the Australian mainland. It now occurs in less than 20% of its original range, with remaining WA populations predominantly in the Great Sandy and Gibson Deserts.

Habitat preferences of the Greater Bilby include hummock grassland in plains and alluvial areas, open tussock grassland on uplands and hills, and mulga woodland/shrubland on ridges and rises (DoEE 2017b). The species is highly mobile and can have large foraging ranges. Home ranges in sandy deserts are usually temporary and may shift in response to changes in food availability (Van Dyck & Strahan 2008). The species can be identified through secondary evidence, such as scats, tracks and its typical burrow systems.

The massive decline in Greater Bilby distribution is thought to be due to effects on food availability from changing fire regimes, drought, grazing by rabbits and livestock, and predation by the Red Fox and feral Cat (Van Dyck & Strahan 2008).

Records and likely distribution in the study area: Suitable habitat was identified for Greater Bilby in the shrubland and grassland habitats. The species was recorded during previous surveys for the Project from foraging diggings approximately 9 km northwest of the southernmost lake of the study area (Phoenix 2018d).

No evidence of Greater Bilby presence was recorded during the current survey. The Greater Bilby is considered to possibly occur within the study area due to the presence of suitable foraging habitat

and areas comprising of suitable substrates that would allow burrow construction by the species. Suitable habitat for the species is also widespread in areas adjacent to the study area.

5.2.2.3.15 Northern Marsupial Mole (*Notoryctes caurinus*)

Status: Priority 4 (DBCA)

Distribution and ecology: The Northern Marsupial Mole is a blind marsupial adapted to living underground. It is associated with the sand dune desert systems of inland Australia (DSEWPaC 2011b; Van Dyck & Strahan 2008), with dunes appearing to be their primary habitat. They have also been recorded in some sandplains and sandy river flats, especially where Aeolian dunes occur (Benshemesh 2005).

There are very few formal records for the species and its ecology and distribution are not well understood. In WA, specimens have been collected from the Great Sandy, Little Sandy and Gibson Deserts. Dispersal by marsupial moles is thought to occur underground and requires suitable sandy habitat for tunnelling (Benshemesh 2004).

A key threat to the Northern Marsupial Mole is predation by Red Foxes, Cats and Dingoes (Benshemesh 2004). Other potential threats to the species are not well understood but may include habitat modification by cattle and camel populations and barriers to dispersal from larger roads, railways and pipeline trenches (Benshemesh 2004).

Records and likely distribution in the study area: Suitable habitat was identified for Northern Marsupial Mole in the shrubland and grassland habitat where suitable sandy substrates permitting burrowing are present, particularly areas in the sand dune areas. The species was recorded during previous surveys undertaken for the Project approximately 9 km northwest of the southernmost lake of the study area (Phoenix 2018d). Considered likely to occur in the study area.

5.2.2.4 Short-range endemic invertebrates

No SRE invertebrates were collected during the field survey.

5.3 SURVEY LIMITATIONS

Limitations of the flora and vegetation survey and terrestrial fauna survey have been considered in accordance with relevant EPA Technical Guidance (EPA 2016c, d) (Table 5-10). No major limitations were identified for the survey.

Table 5-10 Survey limitations for flora and vegetation and terrestrial fauna survey from EPA Technical Guidance (EPA 2016c, f)

Limitations	Limitation for this survey?	Comments
Competency/experience of survey personnel, including taxonomy	No	The field team and report authors have extensive experience in terrestrial fauna and flora and vegetation surveys within the Pilbara region and across WA.
Scope and completeness - were all target groups sampled, were all planned survey methods implemented successfully, was the study area fully surveyed	No	Suitable survey methods were used based on EPA technical guidance (EPA 2016c) to sample the target groups, as appropriate to the two different survey levels. The minimal replicate of three sites per vegetation type defined was not maintained for all vegetation types due to the limited extent and distribution of some of the vegetation types encountered. Faunal groups and fauna habitats were sufficiently sampled for a Level 1 survey.
Intensity - in retrospect, was the intensity adequate	Partial	The survey intensity was appropriate for the areas that were surveyed and conservation significant species targeted, taking into account the previous survey work that has been completed for the Project (Phoenix 2017, 2018a, d) and the Night Parrot targeted survey currently underway. However, only a single-season survey was conducted and subsequently several *Tecticornia* secimens could not be identified to species level due to a lack of reproductive characters.
Proportion of flora and fauna identified, recorded and/or collected	Slight	The focus of the flora survey was to document the floristic values of the vegetation of the salt lake playas, i.e. the *Tecticornia* shrublands. Six specimens could not be identified to species level due to a lack of reproductive structures. As the fauna survey was at Level 1 effort, the aim was not to document the full fauna assemblage.
Availability of adequate contextual information	Slight	The previous surveys conducted for the Project provided good contextual information.
Timing, weather, rainfall, season	No	Despite below average rainfall in the four months prior to the survey 94.6% of plant species were idnetifed to species level including 24 annual taxa .
Disturbances which affected the results of the survey	No	No disturbances occurred during the field survey which are considered to have impacted the results.
Access within the study area	No	The whole of the study area was accessible by vehicle or foot.

6 DISCUSSION

In assessing development proposals, the EPA has the objective of protecting flora and vegetation, and terrestrial fauna so that biological diversity and ecological integrity are maintained (EPA 2016a, b). Considerations for flora, vegetation and terrestrial fauna in Environmental Impact Assessment (EIA) at the State level include significance of values present, current state of knowledge of those values, potential impacts and the scale at which the impacts are assessed (EPA 2016a, b). At the Federal level, the Commonwealth publishes guidelines on assessing on significance of impacts to matters of NES (Department of the Environment 2013).

The potential biological values of the study area are discussed below to inform an EIA for the Project.

6.1 FLORA

The number of plant taxa recorded per unit area from the study area is substantially higher than other studies conducted in the region (Table 6-1) reflecting the intensity of the survey effort within a considerably smaller study area. The vegetation of the salt lake playas was the focus of the current survey and subsequently the family composition recorded in the study area differed to most of the previous surveys (Table 6-2) with higher numbers of Chenopodiaceae reflecting increased survey effort in the *Tecticornia* shrublands.

Table 6-1 Comparison of floristic data from the current survey with other flora surveys in the vicinity/region

Survey	Area (km^2)	No. vegetation types	No. of identified species	No. of families	No. of genera	No. of weeds
EnviroWorks (2010a)	-[1]	7	67	25	41	0
EnviroWorks (2010b)	-[1]	6	79	26	48	1
Van Leeuwen (2002)	9,119	18	522	67	206	3
Phoenix (2018a)	295.9	53	487	57	181	9
This survey	4.94	35	110	25	64	1

[1] Information not supplied in document.

Table 6-2 Species numbers of the most dominant plant families recorded in the study area in comparison with other flora surveys in the vicinity/region

Family	This study	Phoenix (2018a)	EnviroWorks (2010b)	EnviroWorks (2010a)	Van Leeuwen (2002)
Chenopodiaceae	28	71	3	2	34
Poaceae	16	60	9	7	52
Fabaceae	11	73	15	15	86
Asteraceae	9	29	2	1	46
Malvaceae	6	36	3	2	25
Goodeniaceae	6	21	2	0	35
Scrophulariaceae	3	16	6	4	21
Amaranthaceae	3	21	3	3	22
% species of all species recorded	74.5	67.1	51.9	56.7	61.5

A total of seven species from the current survey were not recorded in previous flora and vegetation surveys (Phoenix 2018a) for the Project:

- **Sonchus oleraceus*
- *Acacia oswaldii*
- *Adriana tomentosa*
- *Casuarina obesa*
- *Eremophila decipiens*
- *Neobassia astrocarpa*
- *Velleia glabrata.*

Acacia oswaldii, *Adriana tomentosa* and *Velleia glabrata* were identified as potentially present in the study area by desktop assessment (Phoenix 2018a). Notably, the current study area lies within the recorded distribution of each of the seven species. Combining the results of (Phoenix 2018a) and the current survey, 494 flora species and subspecies comprised of 484 native and ten introduced flora representing 57 families and 184 genera have been recorded in surveys conducted for the Project .

The study area represents a large range extension for *Cephalipterum drummondii* which may subsequently be considered a locally significant species. The species was previously recorded in the region by Phoenix (2018a).

The survey recorded three conservation significant species all of which are Priority 1 species:

- *Tecticornia* sp. Christmas Creek
- *Tecticornia willisii*
- *Tecticornia* sp. Lake Sunshine.

Difficulties in identifying these flora in the field due to their cryptic habits and similarity to other species made ascertaining population numbers problematic. This difficulty is underlined by the requirement by EPA Services for all *Tecticornia* identifications to be conducted by Dr Kelly Shepherd at the WA Herbarium.

Tecticornia willsii was recorded at each of the four lakes of the current survey and all three lakes surveyed for the Beyondie Sulphate of Potash Project (Phoenix 2018b). The prevalence of the species indicatesd a high probability that it may be found on other salt lakes in the area. *Tecticornia* sp. Christmas creek was also prevalent, recorded at four of seven lakes in the combined surveys as was *Tecticornia* sp. Sunshine Lake recorded on three lakes. It is also likely that these species may occur on other lakes in the area.

The study area contains suitable habitat for a further 15 Priority Flora that may occur. No Threatened Flora are considered likely to occur in the study area.

6.2 VEGETATION

All vegetation types defined for the study area are representative of the broad vegetation associations mapped at regional scale by Shepherd *et al.* (2002). The vegetation in the study area represents a regionally widespread association with excess of 90% of pre-European extent remaining and is considered to have low regional significance.

The majority of the *Tecticornia* shrubland vegetation in the study area was considered locally significant due to the presence of significant flora. Unlike lakes in the previous survey (Phoenix 2018a) the entire lake playa was vegetated across all four lakes in the current study area and no apparent zonation was present. The fact that *Tecticornia* shrublands could not be matched to those of the previous surveys reflects the mosaic pattern of the *Tecticornia* communities encountered around the salt lakes in both surveys. Due to the inability to discern boundaries of the defined vegetation types both in the field and from aerial photography it is considered that the *Tecticornia* shrublands of the study area should be considered as a single mosaic and not representative of a series of discrete shrublands with restricted distribution.

Vegetation type (Shrubland 18) may represent locally significant vegetation due to restricted distribution as it covered less than 1% of the study area and was not recorded in previous surveys (Phoenix 2018a). However, Shrubland 18 is dominated by widespread common *Tecticornia* (*T. calyptrata* and *T. laevigata*) and *Frankenia* (*F. cinerea*) species with isolated clumps of *Velleia glabrata* forbs. *Tecticornia calyptrata* is known from 13 locations throughout WA (between Murchison and Great Sandy Desert bioregions) and South Australia. *Tecticornia laevigata* occurs commonly between Coolgardie and Gascoyne bioregions with 21 known records. *Frankenia cinerea* is known from 89 records widely spread from south-west to Pilbara bioregion. *Velleia glabrata* occurs in WA, NT and SA (DBCA 2018).

Woodland 9 was restricted to one of the lakes in the current survey and was not recorded in previous surveys (Phoenix 2018a) and may be considered locally significant due to restricted distribution.

Vegetation types Shrubland 9 and Grassland 2 also covered less than 1% of the current study area but were recorded over substantially greater areas by the previous survey (Phoenix 2018a).

6.3 TERRESTRIAL FAUNA

6.3.1 Fauna habitat

The study area lakes are part of a lake system of complex hydrology (semi-permanent freshwater marshes in the vicinity of ephemeral salt and clay pans of different hydrological characters, within an ancient palaeodrainage system) and geology (mixed Quaternary Eolian and colluvial deposits and surrounding Cainozoid calcretes). Infrequent rainfall and the ephemeral presence of surface water (fresh to hypersaline) will temporarily influence the local fauna near the lakes.

Two of the three fauna habitats recorded in the study area, salt lake and mosaic of shrubland, grassland on sandplain and dune, are both common and widespread in the broader vicinity of the study area. Numerous salt lakes and lake systems are present in the locality (including several within the Beyondie Sulphate of Potash Project area) with shrublands and/or grasslands the main habitat between these lakes.

The vegetation present on salt lakes within and outside the study area however, varies considerably, which is likely to influence their use and value for fauna. The lakes within the study area have a fairly consistent cover of samphire vegetation while at other lakes in the vicinity (i.e. Ten Mile Lake and Lake Sunshine), samphire vegetation is typically restricted to the lake edges with large areas in the centre devoid of vegetation.

The third habitat type recorded in the study area, woodland, was isolated to a single lake and appeared to be unique to this lake in the locality. No other *Casuarina* dominated woodland habitat was recorded during previous fauna surveys for the Project (Phoenix 2018d).

With the exception of salt lake habitat which may support SRE invertebrates, it is considered unlikely that any of the broad fauna habitats present within the study area are locally or regionally significant for any significant fauna species.

6.3.2 Vertebrate fauna

With consideration to the field survey results (i.e. habitat assessment), desktop review findings (i.e. currency of species records) and known habitat preferences or dispersal/migration patterns, 15 of the 25 conservation significant species identified in the desktop review were considered to have the potential to occur in the study area (Table 6-3).

The two reptiles and three mammal species (Table 6-3) are most likely to occur in the mosaic of shrubland and grassland habitat which contains suitable substrates for burrowing species. The presence of four of these in the locality, Unpatterned Robust Slider, Greater Bilby, Northern Marsupial Mole and Brush-tailed Mulgara was confirmed in previous fauna surveys for the Project in similar sandplain and sand dune habitats to those of the study area (Phoenix 2018d).

The five Migratory waterbird species (Table 6-3) are most likely to utilise the salt playa and/or associated samphire vegetation occurring on or fringing the lakes. The presence of two of these in the locality, Oriental Plover and Common Greenshank, was confirmed in a previous aquatic biota survey of the nearby Beyondie Lakes and Ten Mile Lake (Phoenix 2017). The previous survey determined that waterbird diversity and abundance correlated with the increase in invertebrate richness and potentially biomass, although the latter was not evaluated during the survey (Phoenix 2017). Several studies (Roshier *et al.* 2002; Timms 1997) suggested that large numbers of waterbirds are attracted to ephemeral wetlands several months after filling due to the time required for macrophytes and invertebrate abundance to increase to levels that are able to support them. Therefore, waterbirds may occur in the study area, for several months following substantial rainfall events that trigger biological productivity in the lakes.

The lakes are considered too small to support any EPBC Act listed Migratory bird species in nationally or international significant numbers as defined by the guidelines for determining important habitat (Commonwealth of Australia 2015). The Oriental Plover and Common Greenshank were recorded in very low numbers in the previous aquatic biota survey (Phoenix 2017).

Woodland habitat was considered suitable for fewer significant species due to the absence of desirable habitat attributes, such as suitable burrowing substrate, dense vegetation cover or nesting opportunities for some bird species, although significant bird species with broader habitat preferences such as Grey Falcon and Peregrine Falcon, may occur in all three habitats (Table 6-3).

6.3.3 Short-range endemic invertebrates

No SRE or salt lake specialist invertebrates were recorded during the field survey; however, all four lakes within the study area may potentially support species endemic to individual lakes or the broader lake system they form part of. The lack of any SRE invertebrate species records from the field survey likely reflects an overall low regional collecting effort and limited targeted sampling undertaken during the field survey.

Based on the desktop review, it is possible that endemic (to individual lakes or lake system) invertebrates may occur within the study area, specifically lycosid spiders and tiger beetles (Table 5-4). Previous surveys for the Project around nearby Ten Mile Lake have identified likely salt lake specialists and potential SRE species (Phoenix 2018d). However, the difference in vegetation cover between lakes in the study area and Ten Mile Lake may influence the presence of some SRE invertebrate taxa, particularly taxa that are known to live exclusively on salt lake playa, for example spiders in the genus *Tetralycosa* and *Lycosa* (Framenau & Hudson 2017; Hudson 2000; McKay 1976). The high cover of vegetation on the study area lakes in some areas may deter some playa-specialist taxa.

Endemism of the salt lake dwelling specialists such as spiders and tiger beetles can only be assessed through further regional surveys, incorporating molecular identifications, as morphological identification have been shown unreliable (López-López *et al.* 2012, 2016).

The isolated patch of woodland habitat recorded within the study area may also harbor SRE invertebrate species, although it was largely void of suitable microhabitats, including dense leave litter and/or rocks.

Table 6-3 Summary of conservation significant vertebrate fauna species with likelihood of occurrence for the study area

Scientific name	Common name	Conservation status[1]			Likelihood of occurrence	Fauna habitats			Summary of records and occurrence	Nearest record to study area
		EPBC Act	WC Act	DBCA Priority list		Salt lake	Mosaic of shrubland and grassland	Woodland		
Reptiles										
Lerista macropisthopus remota	Unpatterned Robust Slider			P2	Likely		•		Likely to occur in sandy habitats with loose leaf litter within the study area, particularly shrubland and grassland habitsts fringing salt lakes.	~9 km northeast of southern lake (Phoenix 2018d)
Liopholis kintorei	Great Desert Skink	VU	VU		Possible		•		Species may occur in sandy habitats within the study area. The nearest record approximately 300 km south of the study area; however, sparse survey effort between the closest record and the study area.	~300 km south (DBCA 2017b)
Birds										
Leipoa ocellata	Malleefowl	VU	VU		Unlikely				Study area at northernmost extent of species range and habitat within the study area unlikely to support the species. Suitable habitat for the species is present in areas outside of the study area; however, it is not considered the species is likely to move into the study area due to the sparse vegetation cover throughout the majority of the study area, and remaining areas of unsuitable habitat for the species, i.e. salt lake.	~56 km south-southeast (DBCA 2017b)
Anas querquedula	Garganey	Mig	Mig		Possible	•			Species may rarely occur in salt lake habitat within study area, particularly after rainfall when water is present.	~65 km west (DBCA 2017b)

Scientific name	Common name	Conservation status[1]			Likelihood of occurrence	Fauna habitats			Summary of records and occurrence	Nearest record to study area
		EPBC Act	WC Act	DBCA Priority list		Salt lake	Mosaic of shrubland and grassland	Woodland		
Apus pacificus	Fork-tailed Swift	Mig	Mig		Likely	•	•	•	Species forages in variety of habitats including those within the study area; unlikely to land or nest.	~75 km west (DBCA 2017b)
Falco hypoleucos	Grey Falcon		VU		Possible	•	•	•	Species may occasionally forage in all habitats present within and in the vicinity of the study area. Unlikely to nest due to the lack of suitable nesting structures.	~56 km southeast (DBCA 2017b)
Falco peregrinus	Peregrine Falcon		SP		Possible	•	•	•	Species may occasionally forage within and in the vicinity of the study area, in all habitats present. Unlikely to nest within the study area due to lack of suitable nesting structures.	~54 km southeast (DBCA 2017b)
Charadrius veredus	Oriental Plover	Mig	Mig		Possible	•			Species may occur in salt lake habitat within study area, particularly after rainfall when water is present.	within 15 km of southern lake (Phoenix 2017)
Actitis hypoleucos	Common Sandpiper	Mig	Mig		Possible	•			Species may occur in salt lake habitat within study area, particularly after rainfall when water is present.	~116 km northwest (DBCA 2017b)
Tringa nebularia	Common Greenshank	Mig	Mig		Possible	•			Species may occur in salt lake habitat within study area, particularly after rainfall when water is present.	within 15 km of southern lake (Phoenix 2017)
Tringa glareola	Wood Sandpiper	Mig	Mig		Possible	•			Species may occur in salt lake habitat within study area, particularly after rainfall when water is present.	~160 km northwest (DBCA 2017b)

Scientific name	Common name	Conservation status[1]			Likelihood of occurrence	Fauna habitats			Summary of records and occurrence	Nearest record to study area
		EPBC Act	WC Act	DBCA Priority list		Salt lake	Mosaic of shrubland and grassland	Woodland		
Pezoporus occidentalis	Night Parrot	EN	CR		Possible	•	•		Species may occur in all habitats of the study area to nest and or forage, particularly grassland and shrubland habitat where suitable old-growth spinifex is present and salt lake habitat where suitable samphire cover is present. Concurrent targeted surveys underway for species and will be reported separately.	~180 km east (DBCA 2017b)
Polytelis alexandrae	Princess Parrot	VU		P4	Possible		•		Species may occur in grassland and shrubland habitat when conditions are favourable, particularly following rainfall events.	~110 km west-southwest (DBCA 2017b)
Amytornis striatus striatus	Striated Grasswren			P4	Unlikely				Study are outside of subspecies current known distribution, subspecies likely to occur within the study area (*A. s. oweni* or *A. s. whitei*) not listed as subspecies of conservation significance (Menkhorst *et al.* 2017).	>500 km from the study area
Mammals										
Dasycercus blythi	Brush-tailed Mulgara			P4	Likely		•	•	Species likely to occur frequently in non salt lake habitats within the study area.	~9 km northwest of southern lake (Phoenix 2018d)
Dasycercus cristicauda	Crest-tailed Mulgara	VU		P4	Unlikely				Based on genetic data, the species is no longer considered to occur in Western Australia (DSEWPaC 2011a).	>500 km from the study area
Dasyurus geoffroii	Western Quoll	VU	VU		Unlikely				Suitable habitat not present within study area. Occurence records of the species within the vicinity of the study area are skeletal material	~45 km northwest of northern lakes (skeletal material) (DBCA 2017b)

Scientific name	Common name	Conservation status[1]			Likelihood of occurrence	Fauna habitats			Summary of records and occurrence	Nearest record to study area
		EPBC Act	WC Act	DBCA Priority list		Salt lake	Mosaic of shrubland and grassland	Woodland		
									records representative of the species former range (Van Dyck & Strahan 2008).	
Dasyurus hallucatus	Northern Quoll	EN	EN		Unlikely				Suitable habitat not present within study area.	~194 km northwest (DBCA 2017b)
Sminthopsis longicaudata	Long-tailed Dunnart			P4	Unlikely				Suitable habitat not present within study area.	~26 km northwest of northern lakes (DBCA 2017b)
Macrotis lagotis	Greater Bilby	VU	VU		Possible		•		Species may occur within the study area, particularly where where suitable sandy burrowing substrate is present. Suitable habitat for the species is restructed to areas fringing salt lakes within the study area; however, extensive suitable habitat for the species occurs in areas adjacent to the study area.	~9 km northwest of southern lake (Phoenix 2018d)
Notoryctes caurinus	Northern Marsupial Mole			P4	Likely		•		Species likely to occur in shrubland and grassland habitats where suitable sandy substrate permitting burrowing is present.	~9 km northwest of southern lake (Phoenix 2018d)
Petrogale lateralis lateralis	Black-flanked Rock-wallaby	EN	EN		Unlikely				Suitable habitat not present within study area.	~48 km north-northwest of northern lakes (DBCA 2017b)
Macroderma gigas	Ghost Bat	VU	VU		Unlikely				Suitable habitat not present within study area.	~150 km north-northwest (DBCA 2017b)

Scientific name	Common name	Conservation status[1]			Likelihood of occurrence	Fauna habitats			Summary of records and occurrence	Nearest record to study area
		EPBC Act	WC Act	DBCA Priority list		Salt lake	Mosaic of shrubland and grassland	Woodland		
Leporillus apicalis	Lesser Stick-nest Rat	EX	EX		Unlikely				Species is considered regionally extinct in the vicinity fot eh study area with populations occurring only on offshore islands or managed captive populations (Burbidge 2004). Secondary evidence of the species former presence still occurs across the species former distribution which is reflected from records of the species in the vicinity of the study area.	~23 km northwest of northern lakes (DBCA 2017b)
Pseudomys chapmani	Western Pebble-mound Mouse			P4	Unlikely				Suitable habitat not present within study area.	~83 km north (DBCA 2017b)

[1] CR – Critically Endangered; EN – Endangered; VU – Vulnerable; SP – Specially Protected; EX – Extinct; [3] P2 – Priority 2; P4 – Priority 4; Mig – Migratory.

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Appendix 1 Flora, fauna and ecological community conservation codes and definitions (DEC 2013; DPaW 2017a)

Department of Parks and Wildlife

CONSERVATION CODES

For Western Australian Flora and Fauna

Specially protected fauna or flora[1] are species[2] which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such.

Categories of specially protected fauna and flora are:

T **Threatened species**

Published as Specially Protected under the *Wildlife Conservation Act 1950,* and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**

Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN **Endangered species**

Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU **Vulnerable species**

Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX **Presumed extinct species**

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA **Migratory birds protected under an international agreement**

Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD Conservation dependent fauna

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS Other specially protected fauna

Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

[1] The definition of flora includes algae, fungi and lichens
[2]Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

Appendix 2 Flora survey site descriptions

Site details			
Site:	LSC02R001	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.666, 120.48944 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	35	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	yellow, whitish
Shrub cover <2 m (%):	35	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	calcrete
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia indica* subsp. *bidens*, *T.* sp. Dennys Crossing and *T.* sp. Little Sandy Desert chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	20.0	00.40		
Tecticornia willisii	10.0	00.80		P1 (WC Act)
Tecticornia indica subsp. *bidens*	05.0	00.40		

Site details			
Site:	LSC02R002	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.666511, 120.488833 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, yellow, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Mid open *Tecticornia willisii* chenopod shrubland over low open *Tecticornia* sp. Dennys Crossing and *T. indica* subsp. *bidens* chenopod shrubland over isolated clumps of low *Dysphania kalpari*, *Mimulus gracilis* and *Swainsona laciniata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	25.0	01.20		P1 (WC Act)
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	15.0	00.40		
Tecticornia indica subsp. *bidens*	05.0	00.40		
Sclerolaena fimbriolata	00.1	00.15		
Dysphania kalpari	00.1	00.10		
Mimulus gracilis	00.1	00.10		
Swainsona laciniata	00.1	00.01		

Site details			
Site:	LSC02R003	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.666019, 120.488237 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	55	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	55	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals, livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *T.* sp. sterile 5 and *T.* sp. *Dennys Crossing* chenopod shrubland over isolated clumps of low *Lawrencia glomerata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	35.0	00.25		
Tecticornia sp. sterile 5	20.0	00.25		
Lawrencia glomerata	00.1	00.20		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	00.1	00.20		

Site details			
Site:	LSC02R004	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.665906, 120.487256 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	55	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	2	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	55	**Soil:**	clay loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Isolated low *Casuarina obesa* trees over low *Tecticornia laevigata*, *T.* aff *calyptrata* and *Scaevola collaris* shrubland over isolated clumps of low *Lawrencia glomerata* and*Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	45.0	00.25		
Scaevola collaris	05.0	00.30		
Tecticornia aff. *calyptrata*	05.0	00.25		
Casuarina obesa	02.0	08.00		
Lawrencia glomerata	00.1	00.15		
Velleia glabrata	00.1	00.01		

Site details			
Site:	LSC02R005	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.665184, 120.486237 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	35	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	55	**Soil:**	clay loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Casuarina obesa* woodland over low *Tecticornia laevigata* , *T.* sp. Dennys Crossing and *T.* sp. Christmas Creek chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	50.0	00.40		
Casuarina obesa	30.0	08.00		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	15.0	00.40		
Frankenia cinerea	00.1	00.40		
Surreya diandra	00.1	00.30		
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	00.1	00.25		P1 (WC Act)

Site details			
Site:	LSC02R006	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.664123, 120.485669 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	70	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	2	**Soil colour:**	red-brown, brown, whitish
Shrub cover <2 m (%):	10	**Soil:**	sandy clay
Grass cover (%):	65	**Rock type:**	none
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals, livestock tracks
Land system:	SV5		
Vegetation description and type:	Isolated tall *Acacia burkittii* shrubs over low open *Tecticornia pruinosa*, *T. indica* subsp. *bidens* and *Neobassia astrocarpa* chenopod shrubland over low *Eragrostis falcata* and *E. pergracilis* grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Eragrostis falcata	35.0	00.25		
Eragrostis pergracilis	30.0	00.25		
Tecticornia indica subsp. *bidens*	05.0	00.40		
Tecticornia pruinosa	05.0	00.40		
Acacia burkittii	02.0	02.50		
Neobassia astrocarpa	01.0	00.15		
Ptilotus obovatus	00.1	00.60		
Eremophila glabra	00.1	00.50		
Zygophyllum compressum	00.1	00.10		

Site details			
Site:	LSC02R007	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.666839, 120.484959 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	70	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	70	**Soil:**	clay loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *Lawrencia glomerata* and *Scaevola collaris* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	60.0	00.35		
Scaevola collaris	05.0	00.40		
Lawrencia glomerata	05.0	00.30		
Surreya diandra	00.1	00.15		

Site details			
Site:	LSC02R008	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.668868, 120.48589 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy clay, clay loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *Scaevola collaris* and *Surreya diandra* shrubland over isolated low *Dysphania kalpari*, *Lawrencia glomerata* and *Neobassia astrocarpa* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	30.0	00.40		
Scaevola collaris	10.0	00.30		
Surreya diandra	05.0	00.15		
Neobassia astrocarpa	01.0	00.05		
Lawrencia glomerata	00.1	00.20		
Dysphania kalpari	00.1	00.10		

Site details			
Site:	LSC02R009	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.669028, 120.487375 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	60	**Soil:**	sandy clay, clay loam
Grass cover (%):	1	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Mid *Tecticornia pruinosa* chenopod shrubland over low *Tecticornia laevigata* and *T.* sp. Little Sandy Desert chenopod shrubland over isolated low *Eragrostis pergracilis* grasses and isolated clumps of low *Mimulus gracilis* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	30.0	00.30		
Tecticornia pruinosa	20.0	01.20		
Tecticornia willisii	10.0	00.60		P1 (WC Act)
Eragrostis pergracilis	01.0	00.10		
Mimulus gracilis	00.1	00.15		

Site details			
Site:	LSC02R010	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.668348, 120.489811 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	6	**Soil colour:**	red-orange
Shrub cover <2 m (%):	30	**Soil:**	sand
Grass cover (%):	55	**Rock type:**	calcrete
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Sparse tall *Acacia tetragonophylla*, *Grevillea eriostachya* and *G.stenobotrya* shrubland over mid *Melaleuca interioris* and *Acacia ligulata* shrubland over mid *Triodia basedowii* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	55.0	00.60		
Melaleuca interioris	20.0	01.80		
Acacia ligulata	10.0	01.90		
Grevillea eriostachya	03.0	04.00		
Grevillea stenobotrya	02.0	03.00		
Acacia tetragonophylla	01.0	03.00		
Eremophila glabra	00.1	01.00		
Adriana tomentosa	00.1	00.60		
Alyogyne pinoniana	00.1	00.50		
Senna artemisioides subsp. *petiolaris*	00.1	00.25		
Aristida holathera	00.1	00.20		

Site details			
Site:	LSC02R011	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.672623, 120.482496 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	22	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy clay, clay loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia calyptrata*, *T. laevigata* and *Scaevola collaris* shrubland over isolated low *Neobassia astrocarpa*, *Salsola australis* and *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia calyptrata	10.0	00.25		
Scaevola collaris	05.0	00.30		
Tecticornia laevigata	05.0	00.25		
Lawrencia glomerata	01.0	00.25		
Velleia glabrata	01.0	00.01		
Frankenia cinerea	00.1	00.40		
Neobassia astrocarpa	00.1	00.15		

Site details			
Site:	LSC02R012	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.670719, 120.482095 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	30	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Casuarina obesa* woodland over low open *Tecticornia* sp. Christmas Creek and *Surreya diandra* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Casuarina obesa	30.0	05.00		
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	20.0	00.25		P1 (WC Act)
Surreya diandra	00.1	00.20		

Site details			
Site:	LSC02R013	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.670181, 120.481631 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	70	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	30	**Soil:**	sand
Grass cover (%):	50	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Mid *Melaleuca interioris*, *Acacia burkittii* and *Eremophila glabra* shrubland over low *Triodia basedowii* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	50.0	00.40		
Melaleuca interioris	20.0	01.50		
Acacia burkittii	05.0	01.50		
Eremophila glabra	05.0	01.50		
Chenopodium gaudichaudianum	01.0	00.50		
Eragrostis eriopoda	01.0	00.20		
Solanum lasiophyllum	00.1	00.40		

Site details			
Site:	LSC02R014	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.6712, 120.480826 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	35	**Soil:**	clay loam
Grass cover (%):	10	**Rock type:**	none
Herb cover (%):	5	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia indica* and *T.* sp. Christmas Creek chenopod shrubland over low open *Eragrostis kennedeyae* and *E. pergracilis* grassland and low sparse *Angianthus tomentosus* and *Zygophyllum compressum* forbland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia indica subsp. *bidens*	30.0	00.25		
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	05.0	00.25		P1 (WC Act)
Eragrostis falcata	05.0	00.15		
Angianthus tomentosus	05.0	00.10		
Eragrostis pergracilis	05.0	00.10		
Zygophyllum compressum	00.1	00.10		

Site details			
Site:	LSC02R015	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.670114, 120.479616 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	5	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	25	**Soil:**	clay loam
Grass cover (%):	10	**Rock type:**	none
Herb cover (%):	5	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals, livestock tracks
Land system:	SV5		
Vegetation description and type:	Isolated low *Casuarina obesa* trees over low open *Tecticornia indica* subsp. *bidens* and *T.* sp. Christmas Creek chenopod shrubland over low open *Eragrostis pergracilis* and *E. falcata* grassland and sparse low *Angianthus tomentosus*, *Dysphania kalparri* and *Podolepis capillaris* forbland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia indica subsp. *bidens*	20.0	00.40		
Casuarina obesa	05.0	08.00		
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	05.0	00.30		P1 (WC Act)
Eragrostis falcata	05.0	00.20		
Eragrostis pergracilis	05.0	00.15		
Angianthus tomentosus	03.0	00.08		
Dysphania kalpari	02.0	00.10		
Podolepis capillaris	01.0	00.20		

Site details			
Site:	LSC02R016	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.669789, 120.477637 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	25	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy loam
Grass cover (%):	5	**Rock type:**	calcrete
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Casuarina obesa* woodland over low open *Scaevola collaris , Tecticornia undulata* and *Sclerolaena fimbriolata* shrubland over isolated low *Eragrostis pergracilis* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Casuarina obesa	25.0	08.00		
Scaevola collaris	20.0	00.25		
Eragrostis pergracilis	05.0	00.15		
Sclerolaena fimbriolata	01.0	00.15		
Neobassia astrocarpa	01.0	00.05		
Tecticornia undulata	00.1	00.25		
Zygophyllum compressum	00.1	00.15		

Site details			
Site:	LSC02R017	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.666605, 120.473715 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	plain
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	30	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	calcrete
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Scaevola collaris* and *Lawrencia glomerata* shrubland over isolated clumps of low *Neobassia astrocarpa* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Scaevola collaris	25.0	00.25		
Lawrencia glomerata	05.0	00.20		
Neobassia astrocarpa	00.1	00.15		

Site details			
Site:	LSC02R018	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.666799, 120.479426 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	25	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	2	**Soil colour:**	red-brown, red-orange, whitish
Shrub cover <2 m (%):	20	**Soil:**	clay loam
Grass cover (%):	5	**Rock type:**	calcrete
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Isolated low *Casuarina obesa* trees over low open *Tecticornia indica* subsp. *leiostachya* chenopod shrubland over isolated low *Eragrostis falcata* and *E. pergracilis* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia indica subsp. *leiostachya*	20.0	00.25		
Eragrostis pergracilis	04.0	00.15		
Casuarina obesa	02.0	08.00		
Eragrostis falcata	01.0	00.20		

Site details			
Site:	LSC03R001	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.665103, 120.501522 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	40	**Soil:**	sandy loam
Grass cover (%):	0.1	**Rock type:**	calcrete
Herb cover (%):	0.2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia* sp. sterile 4, *T. calyptrata* and *T. laevigata* chenopod shrubland over isolated clumps of low *Eragrostis dielsii* grasses and isolated clumps of low *Lawrencia glomerata* and *Sclerolaena fimbriolata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. sterile 4	35.0	00.30		
Tecticornia calyptrata	05.0	00.25		
Tecticornia laevigata	01.0	00.25		
Lawrencia glomerata	00.1	00.15		
Sclerolaena fimbriolata	00.1	00.15		
Eragrostis dielsii	00.1	00.01		

Site details			
Site:	LSC03R002	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.665086, 120.501194 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	65	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	55	**Soil:**	sand
Grass cover (%):	5	**Rock type:**	none
Herb cover (%):	5	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia indica* subsp. *bidens*, *T. pterygosperma* subsp. *denticulata* and *T.* sp. Dennys Crossing chenopod shrubland over low sparse *Eragrostis falcata* grassland and low sparse *Podolepis capillaris*, *Mimulus gracilis* and *Sclerolaena fimbriolata* forbland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia pterygosperma subsp. *denticulata*	20.0	00.60		
Tecticornia indica subsp. *bidens*	20.0	00.40		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	10.0	00.40		
Eragrostis falcata	05.0	00.30		
Podolepis capillaris	05.0	00.30		
Tecticornia calyptrata	05.0	00.25		
Sclerolaena fimbriolata	00.1	00.20		
Mimulus gracilis	00.1	00.15		
Solanum cleistogamum	00.1	00.15		

Site details			
Site:	LSC03R003	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.665337, 120.500485 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	1	**Soil colour:**	red-orange
Shrub cover <2 m (%):	30	**Soil:**	sand
Grass cover (%):	45	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Isolated tall *Grevillea eriostachya* and *Acacia tetragonophylla* shrubs over mid *Melaleuca interioris* shrubland over low *Triodia basedowii* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	45.0	00.40		
Melaleuca interioris	30.0	01.20		
Grevillea eriostachya	01.0	02.50		
Olearia incana	01.0	01.20		
Acacia tetragonophylla	00.1	04.00		
Eremophila glabra	00.1	01.30		
Triodia schinzii	00.1	00.30		

Site details			
Site:	LSC03R004	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.664839, 120.499947 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	50	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *Zygophyllum compressum* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	45.0	00.20		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.40		
Zygophyllum compressum	00.1	00.25		

Site details			
Site:	LSC03R005	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.663841, 120.500168 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	breakaway
Tree/shrub cover >2 m (%)	25	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	1	**Soil:**	sand
Grass cover (%):	20	**Rock type:**	calcrete
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Tall open *Acacia tetragonophylla* and *Grevillea juncifolia* shrubland over isolated mid *Eremophila glabra* shrubs over low open *Triodia basedowii* and *T. melvillei* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Acacia tetragonophylla	20.0	06.00		
Triodia basedowii	15.0	00.40		
Triodia melvillei	10.0	00.40		
Grevillea juncifolia	05.0	05.00		
Eremophila glabra	01.0	01.20		
Eragrostis eriopoda	01.0	00.25		
Goodenia gypsicola	01.0	00.10		
Anthobolus leptomerioides	00.1	01.00		
Chenopodium gaudichaudianum	00.1	00.50		
Solanum lasiophyllum	00.1	00.50		

Site details			
Site:	LSC03R006	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.663149, 120.50049 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	40	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia pterygosperma* subsp. *denticulata* , *T.* sp. Dennys Crossing and *Scaevola collaris* shrubland over isolated clumps of low *Podolepis capillaris* and *Eremophea spinosa* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	30.0	00.40		
Tecticornia pterygosperma subsp. *denticulata*	05.0	00.50		
Scaevola collaris	05.0	00.30		
Lawrencia glomerata	03.0	00.25		
Podolepis capillaris	00.1	00.25		
Eremophea spinosa	00.1	00.15		

Site details			
Site:	LSC03R007	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.661848, 120.502227 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	15	**Soil colour:**	red-orange
Shrub cover <2 m (%):	10	**Soil:**	sand
Grass cover (%):	50	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	>5 years
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Tall open *Acacia tetragonophylla, A. ligulata* and *Dodonaea viscosa* shrubland over mid *Triodia basedowii* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	45.0	00.60		
Acacia tetragonophylla	05.0	05.00		
Acacia ligulata	05.0	02.20		
Eremophila glabra	05.0	01.20		
Monachather paradoxus	05.0	00.40		
Dodonaea viscosa	04.0	03.00		
Grevillea stenobotrya	02.0	01.20		
Eragrostis eriopoda	02.0	00.30		
Gyrostemon ramulosus	01.0	03.50		
Hakea lorea	00.1	02.50		
Acacia oswaldii	00.1	02.00		
Grevillea eriostachya	00.1	02.00		
Olearia incana	00.1	01.00		
Adriana tomentosa	00.1	00.90		
Chenopodium gaudichaudianum	00.1	00.50		

Site details			
Site:	LSC03R008	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.660358, 120.50326 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	30	**Soil:**	sand
Grass cover (%):	15	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Mid open *Tecticornia willisii* chenopod shrubland over low open *Tecticornia* sp. Dennys Crossing, *T. indica* subsp. *bidens* and *Scaevola collaris* shrubland over low open *Aristida holathera* and *Eragrostis pergracilis* grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	15.0	01.20		P1 (WC Act)
Aristida holathera	10.0	00.30		
Tecticornia indica subsp. *bidens*	05.0	00.40		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.40		
Scaevola collaris	05.0	00.30		
Eragrostis pergracilis	05.0	00.15		
Podolepis capillaris	01.0	00.25		
Sclerolaena fimbriolata	00.1	00.15		
Swainsona laciniata	00.1	00.01		

Site details			
Site:	LSC03R009	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.65988, 120.503863 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown
Shrub cover <2 m (%):	20	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia pruinosa* and *T.* sp. Little Sandy Desert chenopod shrubland over low isolated *Dysphania kalpari* and *Sclerolaena fimbriolata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	20.0	00.70		P1 (WC Act)
Dysphania kalpari	01.0	00.10		
Tecticornia pruinosa	00.1	00.40		
Sclerolaena fimbriolata	00.1	00.15		

Site details			
Site:	LSC03R010	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.658062, 120.505245 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	65	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	1	**Soil colour:**	red-orange
Shrub cover <2 m (%):	25	**Soil:**	sand
Grass cover (%):	55	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Isolated tall *Grevillea eriostachya* shrubs over low *Melaleuca interioris* and *Phyllota luehmannii* shrubland over mid *Triodia basedowii* and *T. schinzii* hummock grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	35.0	00.60		
Triodia schinzii	20.0	00.50		
Melaleuca interioris	15.0	00.80		
Phyllota luehmannii	10.0	00.60		
Grevillea eriostachya	01.0	02.50		

Site details			
Site:	LSC03R011	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.658441, 120.50104 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown
Shrub cover <2 m (%):	30	**Soil:**	sandy loam
Grass cover (%):	1	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia willisii* chenopod shrubland over isolated low *Eragrostis pergracilis* grasses and low isolated *Dysphania kalpari* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	30.0	00.50		P1 (WC Act)
Dysphania kalpari	01.0	00.10		
Eragrostis pergracilis	01.0	00.05		

Site details			
Site:	LSC03R012	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.660439, 120.49724 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	5	**Soil:**	sand
Grass cover (%):	5	**Rock type:**	none
Herb cover (%):	45	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Isolated low *Solanum cleistogamum* shrubs over isolated low *Aristida contorta* grasses in a low *Podolepis capillaris* forbland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Podolepis capillaris	45.0	00.25		
Aristida contorta	05.0	00.15		
Solanum cleistogamum	05.0	00.15		
Sclerolaena fimbriolata	00.1	00.20		

Site details			
Site:	LSC03R013	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.661434, 120.497071 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	90	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	yellow, grey, whitish
Shrub cover <2 m (%):	90	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low closed *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *Maireana luehmannii* chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	90.0	00.20		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.25		
Maireana luehmannii	01.0	00.15		

Site details			
Site:	LSC03R014	**Type:**	Relevé (unbounded)
Date(s):	16 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.662722, 120.497674 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	30	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia* sp. Dennys Crossing, *T. laevigata* and *T.* sp. sterile 1 chenopod shrubland over isolated low *Eremophea spinosa* and *Lawrencia glomerata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	28.0	00.40		
Tecticornia sp. sterile 1	05.0	00.50		
Tecticornia laevigata	01.0	00.30		
Eremophea spinosa	01.0	00.15		
Lawrencia glomerata	00.1	00.20		

Site details			
Site:	LSCQ01	**Type:**	Quadrat (unbounded)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689026, 120.469569 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	70	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	60	**Soil colour:**	red-orange
Shrub cover <2 m (%):	10	**Soil:**	sand
Grass cover (%):	1	**Rock type:**	none
Herb cover (%):	15	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals, livestock tracks
Land system:	SV5		
Vegetation description and type:	Tall *Melaleuca interioris* shrubland over low open *Enchylaena tomentosa*, *Chenopodium gaudichaudianum* and *Solanum* spp. shrubland over low open *Podolepis capillaris*, *Rutidosis helichrysoides* and *Cephalipterum drummondii* forbland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Melaleuca interioris	60.0	02.50		
Podolepis capillaris	15.0	00.25		
Chenopodium gaudichaudianum	03.0	00.60		
Enchylaena tomentosa	03.0	00.40		
Solanum lasiophyllum	02.0	00.60		
Solanum cleistogamum	02.0	00.20		
Acacia ligulata	00.1	01.20		
Indigofera georgei	00.1	00.40		
Triodia schinzii	00.1	00.30		
Eriachne aristidea	00.1	00.25		
Frankenia cinerea	00.1	00.25		
Eragrostis eriopoda	00.1	00.20		
Aristida holathera	00.1	00.15		
Cephalipterum drummondii	00.1	00.15		

Paspalidium reflexum	00.1	00.15
Rutidosis helichrysoides	00.1	00.10
Sclerolaena cornishiana	00.1	00.05

Site details			
Site:	LSCQ02	**Type:**	Quadrat (50 m x 50 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.686124, 120.467463 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	undulating plain
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	35	**Soil:**	sandy clay, sandy loam
Grass cover (%):	10	**Rock type:**	quartz
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Very Good, EPA (2016)	**Disturbance**	livestock tracks, weed infestation
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia indica* subsp. *bidens*, *T.* sp. Christmas Creek and *T.* sp. Little Sandy Desert chenopod shrubland over low open *Eragrostis dielsii*, *E. kennedeyae* and *E. pergracilis* grassland and low isolated **Sonchus oleraceus*, *Wahlenbergia tumidifructa* and *Angianthus tomentosus* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	12.0	00.40		P1 (WC Act)
Tecticornia willisii	10.0	00.80		P1 (WC Act)
Tecticornia indica subsp. *bidens*	10.0	00.30		
Eragrostis pergracilis	05.0	00.10		
Tecticornia indica subsp. *leiostachya*	03.0	00.30		
Eragrostis dielsii	03.0	00.02		
Eragrostis kennedyae	02.0	00.15		
Angianthus tomentosus	01.0	00.10		
Dysphania kalpari	01.0	00.10		
Podolepis capillaris	00.1	00.25		
Eremophea spinosa	00.1	00.20		
Mimulus gracilis	00.1	00.20		
Sonchus oleraceus	00.1	00.20	*	
Wahlenbergia tumidifructa	00.1	00.20		
Zygophyllum compressum	00.1	00.15		

Site details			
Site:	LSCQ03	**Type:**	Quadrat (50 m x 50 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.697245, 120.47117 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	25	**Soil:**	sand
Grass cover (%):	45	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	1 – 5 years
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	evidence of feral animals
Land system:	AB44		
Vegetation description and type:	Low open (emergent) *Melaleuca interioris*, *Grevillea eriostachya* and *G. stenobotrya* shrubland over low *Triodia schinzii* hummock grassland over isolated clumps of *Ptilotus stipitatus*, *Goodenia triodiophila* and *Polygala isingii* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia schinzii	45.0	00.30		
Melaleuca interioris	25.0	00.60		
Grevillea eriostachya	00.1	02.20		
Senna artemisioides subsp. *petiolaris*	00.1	01.20		
Acacia maitlandii	00.1	00.60		
Grevillea stenobotrya	00.1	00.60		
Alyogyne pinoniana	00.1	00.40		
Seringia elliptica	00.1	00.40		
Acacia dictyophleba	00.1	00.25		
Ptilotus stipitatus	00.1	00.25		
Cymbopogon ambiguus	00.1	00.20		
Eragrostis eriopoda	00.1	00.20		
Monachather paradoxus	00.1	00.20		
Aluta maisonneuvei	00.1	00.15		
Aristida holathera	00.1	00.15		

Halgania erecta	00.1	00.15
Goodenia triodiophila	00.1	00.10
Polygala isingii	00.1	00.02

Site details			
Site:	LSCR01	**Type:**	Relevé (unbounded)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689099, 120.469543 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, brown
Shrub cover <2 m (%):	60	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Mid open *Tecticornia willisii* chenopod shrubland over low *T.* sp. Christmas Creek and *T. laevigata* chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Christmas Creek (K.A. Shepherd & T	30.0	00.40		P1 (WC Act)
Tecticornia laevigata	20.0	00.40		
Tecticornia willisii	10.0	01.10		P1 (WC Act)

Site details			
Site:	LSCR02	**Type:**	Relevé (unbounded)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.69019, 120.476915 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia indica* subsp. *bidens*, *T. indica* subsp. *leiostachya* and *T. laevigata* chenopod shrubland over islated low *Dysphania kalpari* and *Swainsona laciniata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	20.0	00.30		
Tecticornia indica subsp. *bidens*	10.0	00.30		
Tecticornia indica subsp. *leiostachya*	10.0	00.25		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.25		
Dysphania kalpari	00.5	00.10		
Swainsona laciniata	00.5	00.01		

Site details			
Site:	LSCT01Q01	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689105, 120.469978 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	70	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	70	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *Frankenia cinerea* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	40.0	00.25		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	20.0	00.40		
Frankenia cinerea	15.0	00.40		

Site details			
Site:	LSCT01Q02	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689206, 120.470907 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	whitish, black
Shrub cover <2 m (%):	60	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	None
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *T*. sp. sterile 1 chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	40.0	00.20		
Tecticornia sp. sterile 1	10.0	00.50		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	10.0	00.30		

Site details			
Site:	LSCT01Q03	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689174, 120.47194 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	livestock tracks
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia willisii* and *Eremophea spinosa* chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	15.0	00.90		P1 (WC Act)
Eremophea spinosa	05.0	00.15		

Site details			
Site:	LSCT01Q04	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689194, 120.472955 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	15	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	15	**Soil:**	sandy clay
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia willisii*, *T. pruinosa* and *Eremophea spinosa* chenopod shrubland over isolated clumps of low *Eragrostis dielsii* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia pruinosa	08.0	00.40		
Tecticornia willisii	05.0	00.60		P1 (WC Act)
Eremophea spinosa	02.0	00.15		
Eragrostis dielsii	00.1	00.01		

Site details			
Site:	LSCT01Q05	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689283, 120.474104 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	10	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	10	**Soil:**	sandy clay
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia willisii*, *T. pruinosa* and *Eremophea spinosa* chenopod shrubland over isolated clumps of low *Eragrostis dielsii* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Eremophea spinosa	06.0	00.15		
Tecticornia willisii	02.0	00.60		P1 (WC Act)
Tecticornia pruinosa	02.0	00.30		
Eragrostis dielsii	00.1	00.01		

Site details			
Site:	LSCT01Q06	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.689343, 120.475214 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	40	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Mid *Tecticornia* sp Little Sandy Desert chenopod shrubland over sparse low *Eremophea spinosa* chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	40.0	01.10		P1 (WC Act)
Eremophea spinosa	02.0	00.15		

Site details			
Site:	LSCT02Q01	**Type:**	Quadrat (3 m x3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.694192, 120.476201 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange
Shrub cover <2 m (%):	25	**Soil:**	clay loam
Grass cover (%):	15	**Rock type:**	none
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low open *Tecticornia indica* subsp. *leiostachya*, *T.* sp. (sterile 2) and *Frankenia cinerea* shrubland over low open *Eragrostis kennedyae* grassland over isolated low *Podolepis capillaris* and *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia indica subsp. *leiostachya*	20.0	00.25		
Eragrostis kennedyae	15.0	00.15		
Tecticornia sp. (sterile 2)	05.0	00.30		
Frankenia cinerea	01.0	00.25		
Podolepis capillaris	01.0	00.20		
Velleia glabrata	01.0	00.05		

Site details			
Site:	LSCT02Q02	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.693247, 120.476218 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	yellow, grey, whitish
Shrub cover <2 m (%):	30	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	calcrete
Herb cover (%):	0.2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia laevigata*, *Frankenia cinerea* and *Scaevola collaris* shrubland over isolated low *Lawrencia densiflora* and *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Scaevola collaris	15.0	00.25		
Tecticornia laevigata	10.0	00.20		
Frankenia cinerea	05.0	00.40		
Lawrencia densiflora	00.1	00.15		
Velleia glabrata	00.1	00.05		

Site details			
Site:	LSCT02Q03	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.692325, 120.47617 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	yellow, grey, whitish
Shrub cover <2 m (%):	50	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	3	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Frankenia cinerea*, *Tecticornia laevigata* and *Scaevola collaris* shrubland over isolated low *Lawrencia densiflora* and *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	40.0	00.30		
Frankenia cinerea	05.0	00.40		
Scaevola collaris	05.0	00.30		
Lawrencia densiflora	02.0	00.25		
Velleia glabrata	01.0	00.05		
Tecticornia sp. sterile 1	00.1	00.40		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	00.1	00.30		

Site details			
Site:	LSCT02Q04	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.691428, 120.476162 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	40	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	40	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Mid *Tecticornia willisii* chenopod shrubland over isolated clumps of low *Tecticornia laevigata* shrubs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	40.0	01.30		P1 (WC Act)
Tecticornia laevigata	00.1	00.25		

Site details			
Site:	LSCT02Q05	**Type:**	Quadrat (3 x 3 m)
Date(s):	14 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.690458, 120.47611 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	35	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	15	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia willisii* and *T.* sp. Dennys Crossing chenopod shrubland over low open *Angianthus tomentosus*, *Dysphania kalpari* and *Swainsona laciniata* forbland and isolated clumps of low *Eragrostis dielsii* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	30.0	00.90		P1 (WC Act)
Angianthus tomentosus	07.0	00.10		
Dysphania kalpari	07.0	00.10		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.30		
Swainsona laciniata	01.0	00.01		
Eremophea spinosa	00.1	00.20		
Podolepis capillaris	00.1	00.20		
Eragrostis dielsii	00.1	00.01		

Site details			
Site:	LSCT03Q01	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.697199, 120.470914 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	25	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, brown, whitish
Shrub cover <2 m (%):	25	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low open *Tecticornia laevigata* and *T. calyptrata* chenopod shrubland over isolated clumps of low *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	20.0	00.20		
Tecticornia calyptrata	05.0	00.15		
Velleia glabrata	00.1	00.02		

Site details			
Site:	LSCT03Q02	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.696578, 120.469998 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	10	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	10	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Very Good, EPA (2016)	**Disturbance**	evidence of feral animals
Land system:	AB44		
Vegetation description and type:	Low open *Tecticornia laevigata*, *T. calyptrata* and *Frankenia cinerea* shrubland over isolated clumps of low *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia calyptrata	05.0	00.25		
Tecticornia laevigata	03.0	00.30		
Frankenia cinerea	02.0	00.25		
Velleia glabrata	00.1	00.01		

Site details			
Site:	LSCT03Q03	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.695966, 120.468929 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	55	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, brown, whitish
Shrub cover <2 m (%):	55	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia willisii*, *T. laevigata* and *T. calyptrata* chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	40.0	00.60		P1 (WC Act)
Tecticornia aff. *calyptrata*	20.0	00.30		
Tecticornia laevigata	05.0	00.40		
Frankenia cinerea	01.0	00.25		

Site details			
Site:	LSCT03Q04	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.695389, 120.467916 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	35	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	35	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low open *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *Frankenia cinerea* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	30.0	00.25		
Frankenia cinerea	05.0	00.35		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	00.1	00.45		

Site details			
Site:	LSCT03Q05	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.694799, 120.46687 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low open *Tecticornia laevigata*, *T.* sp. Dennys Crossing and *Frankenia cinerea* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	30.0	00.25		
Frankenia cinerea	10.0	00.30		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	05.0	00.40		

Site details			
Site:	LSCT03Q06	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.694208, 120.465889 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	80	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, yellow, whitish
Shrub cover <2 m (%):	80	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low closed *Tecticornia laevigata* and *Frankenia cinerea* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	70.0	00.25		
Frankenia cinerea	10.0	00.30		

Site details			
Site:	LSCT03Q07	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.693648, 120.46498 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, brown, whitish
Shrub cover <2 m (%):	60	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia laevigata* and *Frankenia cinerea* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	55.0	00.20		
Frankenia cinerea	05.0	00.40		

Site details			
Site:	LSCT03Q08	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.693061, 120.463921 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia laevigata* and *Frankenia cinerea* shrubland over isolated clumps of low *Eremophea spinosa* and *Velleia glabrata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	35.0	00.25		
Frankenia cinerea	10.0	00.30		
Eremophea spinosa	00.1	00.15		
Velleia glabrata	00.1	00.02		

Site details			
Site:	LSCT03Q09	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.692468, 120.462771 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	brown, grey, whitish
Shrub cover <2 m (%):	60	**Soil:**	sandy clay
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia laevigata* and *Frankenia cinerea* shrubland over isolated clumps of *Eremophea spinosa* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia laevigata	50.0	00.25		
Frankenia cinerea	10.0	00.40		
Eremophea spinosa	00.1	00.10		

Site details			
Site:	LSCT03Q10	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.691734, 120.461746 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	50	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Low *Tecticornia indica* subsp. *bidens*, *T.* sp. Little Sandy Desert and *T.* sp. Dennys Crossing chenopod shrubland over isolated clumps of *Eragrostis pergracilis* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	25.0	00.80		P1 (WC Act)
Tecticornia indica subsp. *bidens*	15.0	00.30		
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	10.0	00.50		
Eragrostis pergracilis	00.1	00.10		

Site details			
Site:	TMCQ01	**Type:**	Quadrat (50 m x 50 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.766462, 120.366808 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	45	**Topography:**	sand dune
Tree/shrub cover >2 m (%)	15	**Soil colour:**	red-brown
Shrub cover <2 m (%):	10	**Soil:**	sand
Grass cover (%):	30	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	AB44		
Vegetation description and type:	Tall open *Acacia ligulata* and *Gyrostemon ramulosus* shrubland over low open *Quoya loxocarpa*, *Dicrastylis kumarinensis* and *Leiocarpa semiclava* shrubland over low *Triodia basedowii* and *Aristida holathera* grassland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Triodia basedowii	20.0	00.40		
Acacia ligulata	10.0	02.50		
Aristida holathera	10.0	00.30		
Gyrostemon ramulosus	05.0	03.00		
Quoya loxocarpa	05.0	00.70		
Dicrastylis kumarinensis	05.0	00.40		
Grevillea stenobotrya	02.0	02.00		
Leiocarpa semicalva	02.0	00.25		
Aluta maisonneuvei	01.0	01.50		
Eremophila cuneifolia	01.0	01.50		
Dodonaea viscosa	00.1	02.00		
Senna artemisioides subsp. *helmsii*	00.1	02.00		
Newcastelia spodiotricha	00.1	01.20		
Adriana tomentosa	00.1	01.00		
Sida sp. sand dunes (A.A. Mitchell PRP1208)	00.1	00.70		

Alyogyne pinoniana	00.1	00.40
Trichodesma zeylanicum	00.1	00.40
Triodia schinzii	00.1	00.40
Scaevola parvifolia subsp. *pilbarae*	00.1	00.25

Site details			
Site:	TMCQ02	**Type:**	Quadrat (50 m x 50 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.772824, 120.363927 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	hill slope
Tree/shrub cover >2 m (%)	25	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	10	**Soil:**	sandy loam
Grass cover (%):	1	**Rock type:**	calcrete
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Tall open *Acacia burkittii* and *A. tetragonophylla* ashrubland over low sparse *Ptilotus obovatus* and *Scaevola collaris* shrubland over isolated low *Goodenia gypsicola* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Acacia burkittii	20.0	02.20		
Acacia tetragonophylla	05.0	02.20		
Scaevola collaris	05.0	00.30		
Eragrostis cumingii	02.0	00.15		
Goodenia gypsicola	02.0	00.15		
Senna artemisioides subsp. *petiolaris*	01.0	01.20		
Ptilotus obovatus	01.0	00.70		
Aristida contorta	01.0	00.15		
Acacia ligulata	00.1	01.80		
Eremophila decipiens	00.1	01.50		
Scaevola spinescens	00.1	01.00		
Enchylaena tomentosa	00.1	00.50		
Lawrencia helmsii	00.1	00.50		
Rhagodia drummondii	00.1	00.50		
Sclerolaena fimbriolata	00.1	00.50		

Solanum lasiophyllum	00.1	00.50
Zygophyllum aurantiacum	00.1	00.50
Stackhousia sp. swollen gynophore (W.R. Barker 204	00.1	00.40
Codonocarpus cotinifolius	00.1	00.20
Kippistia suaedifolia	00.1	00.20

Site details			
Site:	TMCT01Q01	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.767054, 120.366309 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	30	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia* willisii chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	30.0	00.50		P1 (WC Act)

Site details			
Site:	TMCT01Q01A	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.768593, 120.365652 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	25	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	25	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	calcrete
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia* sp. Sunshine Lake chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	20.0	00.25		P1 (WC Act)

Site details			
Site:	TMCT01Q02	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.768984, 120.365471 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	15	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	15	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia* sp. Sunshine Lake chenopod shrubland over isolated clumps of low *Lawrencia densiflora* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	15.0	00.25		P1 (WC Act)
Lawrencia densiflora	00.1	00.10		

Site details			
Site:	TMCT01Q03	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.771079, 120.364919 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy loam
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia pruinosa*, *T.* sp. Little Sandy Desert and *T.* sp. Sunshine Lake chenopod shrubland over isolated clumps of low *Lawrencia densiflora* forbs and *Eragrostis pergracilis* grasses.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	15.0	00.25		P1 (WC Act)
Tecticornia willisii	05.0	00.40		P1 (WC Act)
Surreya diandra	00.1	00.20		
Lawrencia densiflora	00.1	00.15		
Tecticornia pruinosa	00.1	00.15		
Eragrostis pergracilis	00.1	00.01		

Site details			
Site:	TMCT01Q03A	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.772094, 120.365 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	calcrete
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia willisii* and *Lawrencia densiflora* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	15.0	00.60		P1 (WC Act)
Lawrencia densiflora	05.0	00.25		

Site details			
Site:	TMCT01Q04	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.772943, 120.364636 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	50	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	45	**Soil:**	sandy loam
Grass cover (%):	5	**Rock type:**	none
Herb cover (%):	2	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia willisii* chenopod shrubland over low isolated *Eragrostis leptocarpa* grasses and low isolated *Dysphania kalpari*, *Podolepis capillaris* and *Sclerolaena fimbriolata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia willisii	40.0	01.00		P1 (WC Act)
Eragrostis leptocarpa	05.0	00.10		
Podolepis capillaris	02.0	00.20		
Sclerolaena fimbriolata	00.1	00.20		
Surreya diandra	00.1	00.10		
Dysphania kalpari	00.1	00.05		

Site details			
Site:	TMCT02Q01	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.769816, 120.361759 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	30	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	30	**Soil:**	sandy loam
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia* sp. Dennys Crossing chenopod shrubland over isolated clumps of low *Eragrostis leptocarpa* grasses and *Eremophea spinosa* and *Sclerolaena fimbriolata* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	30.0	00.70		
Eremophea spinosa	00.1	00.20		
Eragrostis leptocarpa	00.1	00.15		
Sclerolaena fimbriolata	00.1	00.15		

Site details			
Site:	TMCT02Q01A	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.769977, 120.368171 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	60	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-brown, whitish
Shrub cover <2 m (%):	60	**Soil:**	sandy clay, sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia pruinosa*, *T. calyptrata* and *T.* sp. Little Sandy Desert chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia pruinosa	50.0	00.40		
Tecticornia willisii	05.0	00.40		P1 (WC Act)
Tecticornia calyptrata	05.0	00.30		

Site details			
Site:	TMCT02Q02	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.769841, 120.36296 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	14	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	14	**Soil:**	sandy loam
Grass cover (%):	0.1	**Rock type:**	none
Herb cover (%):	0.1	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia pruinosa*. *T.* sp. Litle Sandy Desert and *Lawrencia densiflora* shrubland over isolated clumps of low *Eragrostris pergracilis* grasses and *Maireana amoena* forbs.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia pruinosa	10.0	00.40		
Lawrencia densiflora	03.0	00.25		
Tecticornia willisii	01.0	00.50		P1 (WC Act)
Maireana amoena	00.1	00.20		
Eragrostis pergracilis	00.1	00.15		

Site details			
Site:	TMCT02Q02A	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.770005, 120.367141 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia* sp. sterile 3 and *T.* sp. Little Sandy Desert chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. sterile 3	20.0	00.25		
Tecticornia willisii	00.1	00.30		P1 (WC Act)

Site details			
Site:	TMCT02Q03	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.769839, 120.364143 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	25	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	25	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low *Tecticornia pruinosa*, *T.* sp. Little Sandy Desert and *T.* sp. Sunshine Lake chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia pruinosa	10.0	00.30		
Tecticornia willisii	05.0	00.40		P1 (WC Act)
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	05.0	00.30		P1 (WC Act)
Maireana amoena	05.0	00.20		

Site details			
Site:	TMCT02Q03A	**Type:**	Quadrat (3 x 3 m)
Date(s):	15 October 2017	**Permanent:**	No
Observer(s):	Grant Wells	**Position:**	-24.769972, 120.366099 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	20	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	20	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia* sp. Sunshine Lake, *Eremophea spinosa* and *Lawrencia densiflora* shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	15.0	00.30		P1 (WC Act)
Lawrencia densiflora	05.0	00.40		
Eremophea spinosa	00.1	00.15		

Site details			
Site:	TMCT02Q04	**Type:**	Quadrat (3 x 3 m)
Date(s):	13 October 2017	**Permanent:**	Yes
Observer(s):	Grant Wells	**Position:**	-24.769893, 120.36524 (North-west)
Vegetation		**Physical features**	
Total vegetation cover (%):	15	**Topography:**	salt lake (playa)
Tree/shrub cover >2 m (%)	0	**Soil colour:**	red-orange, whitish
Shrub cover <2 m (%):	15	**Soil:**	sandy loam
Grass cover (%):	0	**Rock type:**	none
Herb cover (%):	0	**Fire age:**	not evident
Vegetation condition:	Excellent, EPA (2016)	**Disturbance**	none
Land system:	SV5		
Vegetation description and type:	Low open *Tecticornia pruinosa* and *T.* sp. Sunshine Lake chenopod shrubland.		

Species	Cover (%)	Height (m)	Weed	Conservation status
Tecticornia sp. Sunshine Lake (K.A. Shepherd et al	15.0	00.30		P1 (WC Act)
Tecticornia pruinosa	00.1	00.20		

Appendix 3 NVIC Information Hierarchy (ESCAVI 2003) and comparable WA current practice (from EPA 2016c)

WA current practice			National standard		
Hierarchy of terms	**Brief description in WA**	**Indicative scale**	**NVIS Level**	**Description**	**NVIS structural/floristic components required**
Vegetation formation	Structure and growth form – Forest, Woodland.	1:5 000 000	I	Class	Dominant growth form for the ecologically or structurally dominant stratum.
Vegetation sub-formation	Structural and dominant vegetation layer - Eucalypt Forest, Banksia Woodland.	1:2 500 000	II	Structural Formation	Dominant growth form, cover and height for the ecologically or structurally dominant stratum.
Vegetation association	Structural form and dominant species - Medium woodland; York gum (*Eucalyptus loxophleba*) & Wandoo.	1:1 000 000 to 1:250 000	III	Broad Floristic Formation	Dominant growth form, cover, height and dominant land cover genus for the uppermost or dominant stratum.
Vegetation complex	Structural and floristic description linked to geomorphology – Quindalup Complex.	1:250 000 to 1:100 000	IV	Sub-Formation	Dominant growth form, cover, height and dominant genus and Family for the three traditional strata. (i.e. Upper, Mid and Ground).
Vegetation type	Floristic definition by strata with structural detail. Often represented with a code and floristic description.	1:100 000 to 1:10 000	V	Association	Dominant growth form, height, cover and up to thee species for the three traditional strata. (i.e. Upper, Mid and Ground).
Plant community	Basic unit of vegetation classification, site specific and highly localised with detailed floristics for each stratum.	1:10 000	VI	Sub-Association	Dominant growth form, height, cover and up to five species for all layers/strata.
Floristic Community Type	Floristic composition definition; e.g. Northern banksia woodlands over herb rich shrublands on the Swan Coastal Plain.	No absolute scale			

Appendix 4 Terrestrial fauna survey site descriptions

Site:	**001 (Opportunistic fauna site) (-24.771108, 120.36505)**
Habitat description:	Saltlake with open low *Tecticornia* shrubland with scattered *Tecticornia* to 0.3 m on sandy salt encrusted substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	sand
Soil colour:	red - orange
Rock type:	none
Fire age:	>5 years
Disturbance:	livestock tracks

Site:	**002 (Opportunistic fauna site) (-24.767502, 120.367044)**
Habitat description:	Grassland on sand dune with sparsely scattered tall shrubs to 2.5 m over scattered small shrubs to 1 m and scattered mature and immature hummock grasses to 0.6 on sandy substrate.
Habitat type:	grassland
Topography:	sand dune
Slope:	moderate
Soil:	sand
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

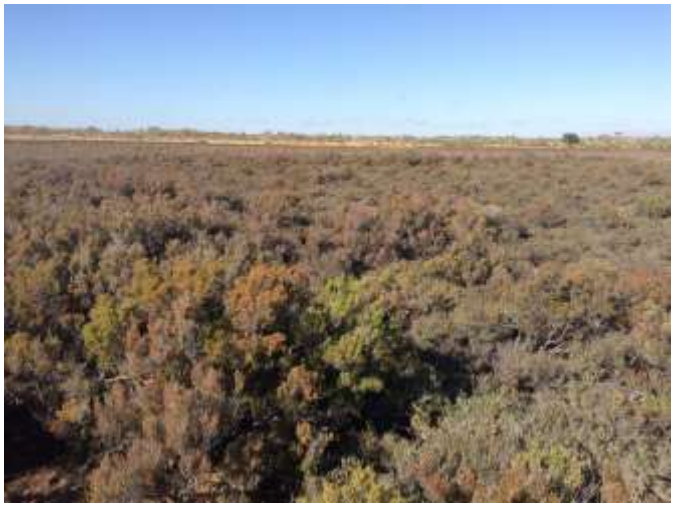
Site:	**003 (Opportunistic fauna site) (-24.767623, 120.362308)**
Habitat description:	Low calcrete ridge on edge of saltlake with scattered medium shrubs to 2 m over scattered small shrubs and herbs to 0.5 m on clay loam substrate and exposed calcrete.
Habitat type:	shrubland
Topography:	breakaway
Slope:	moderate
Soil:	clay loam, rocks
Soil colour:	red-orange
Rock type:	calcrete
Fire age:	>5 years
Disturbance:	none

Site:	**004 (Opportunistic fauna site) (-24.689525, 120.469912)**
Habitat description:	Open shrubland on small sand dune island on salt lake with scattered patches of *Melaleuca* to 4 m over scattered patches of small shrubs to 1.5 m on low sand dune. Low lying around dune system dominated by low *Tecticornia* shrubland.
Habitat type:	shrubland
Topography:	sand dune
Slope:	gentle
Soil:	sand
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**006 (Opportunistic fauna site) (-24.688443, 120.473384)**
Habitat description:	Low open *Tecticornia* shrubland with scatterd *Tecticornia* to 0.6 m over scattered patches of tussock grass to 0.5 m on clay loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	clay loam
Soil colour:	brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**008 (Opportunistic fauna site) (-24.686499, 120.466431)**
Habitat description:	Low open *Tecticornia* shrubland on plain with scatterd *Tecticornia* spp. and sparsely scattered hummock grasses to 0.6 m over scattered tussock grasses to 0.3 m on sandy loam substrate.
Habitat type:	chenopod shrubland
Topography:	plain
Slope:	negligible
Soil:	sandy loam
Soil colour:	brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**009 (Opportunistic fauna site) (-24.694649, 120.467977)**
Habitat description:	Mid to low *Tecticornia* shrubland with scattered patches of *Tecticornia* spp. to 1 m over low Tecticornia to 0.5 m on clay loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	clay loam
Soil colour:	brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none



Site:	**010 (Opportunistic fauna site) (-24.699219, 120.466111)**
Habitat description:	Open shrubland on plain between salt lake and dune with sparsely scattered tall shrubs to 3 m over scattered patches of small shrubs to 1 m over hummock grasses of various life stages to 0.8 m on sandy substrate.
Habitat type:	shrubland
Topography:	plain
Slope:	negligible
Soil:	sand
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**011 (Opportunistic fauna site) (-24.69232, 120.462026)**
Habitat description:	Low open *Tecticornia* shrubland on edge of salt lake with scattered patches of *Tecticornia* spp. to 0.8 m over low scattered patches of tussock grasses and herbs to 0.1 m on clay loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	clay loam
Soil colour:	red-orange, brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**012 (Opportunistic fauna site) (-24.76613, 120.364126)**
Habitat description:	Low open *Tecticornia* shrubland on salt lake with scatterd *Tecticornia* sp to 0.4 m over sparsely scattered herbs to 0.2 m on sandy clay substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	sandy clay
Soil colour:	red-orange, brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	013 (Opportunistic fauna site) (-24.661658, 120.502219)
Habitat description:	Open shrubland on large sand dune island on salt lake with sparsely scattered tall shrubs to 4 m over scattered shrubs to 2 m over mature hummock grasses to 0.6 m on sandy substrate with scattered areas of exposed calcrete rock.
Habitat type:	shrubland
Topography:	sand dune
Slope:	moderate
Soil:	sand
Soil colour:	red-orange
Rock type:	calcrete
Fire age:	>5 years
Disturbance:	none

Site:	014 (Opportunistic fauna site) (-24.656556, 120.501629)
Habitat description:	Sand dune on edge of salt lake with sparsely scattered tall shrubs to 3 m over scattered shrubs to 1.5 m over hummock grasses of various life stages to 0.7 m on sandy substrate.
Habitat type:	shrubland
Topography:	sand dune
Slope:	gentle
Soil:	loam
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**015 (Opportunistic fauna site) (-24.658821, 120.498948)**
Habitat description:	Low *Tecticornia* shrubland on salt lake with scatterd *Tecticornia* spp. to 0.5 m on sandy loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	sandy loam
Soil colour:	brown, grey, whitish
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**016 (Opportunistic fauna site) (-24.662847, 120.496943)**
Habitat description:	Low open *Tecticornia* shrubland on salt lake with scattered *Tecticornia* to 0.3 m on sandy clay loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	sandy clay, sandy loam
Soil colour:	brown, grey, whitish
Rock type:	none
Fire age:	>5 years
Disturbance:	livestock tracks,

Site:	**017 (Opportunistic fauna site) (-24.663173, 120.505975)**
Habitat description:	Low open *Tecticornia* shrubland on salt lake with scattered *Tecticornia* spp.and mixed herbs to 0.3 m on sandy clay substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	sandy clay
Soil colour:	brown, whitish
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**018 (Opportunistic fauna site) (-24.66433, 120.502905)**
Habitat description:	Open shrubland on low sand dune and low calcrete ridge with scattered patches of tall shrubs to 3 m over scattered small to medium shrubs to 2 m over scattered patches of hummock and tussock grasses at various life stages to 0.6 m on a sandy and calcrete substrate.
Habitat type:	shrubland
Topography:	breakaway
Slope:	moderate
Soil:	sand, rocks
Soil colour:	red-orange
Rock type:	calcrete
Fire age:	>5 years
Disturbance:	none

Site:	**019 (Opportunistic fauna site) (-24.664645, 120.485247)**
Habitat description:	Tall *Allocasuarina* shrubland on salt lake with scattered patches of *Allocasuarina* to 6 m over scattered patches of mixed hummock and tussock grasses to 0.4 m on loam substrate.
Habitat type:	shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	loam
Soil colour:	red-brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**020 (Opportunistic fauna site) (-24.667479, 120.484967)**
Habitat description:	Low open *Tecticornia* shrubland on salt lake with scattered *Tecticornia* spp. and sparsely scattered tussock grasses to 0.5 m on clay loam substrate.
Habitat type:	chenopod shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	clay loam
Soil colour:	brown, grey, whitish
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	021 (Opportunistic fauna site) (-24.670598, 120.486866)
Habitat description:	Shrubland on plain with low sand dunes at edge of salt lake with sparsely scattered tall shrubs to 4 m over scattered patches of small to medium shrubs to 1.5 m over scattered patches of tussock grasses and hummock grasses to 0.4 m on clay loam substrate.
Habitat type:	shrubland
Topography:	plain
Slope:	gentle
Soil:	clay loam
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	022 (Opportunistic fauna site) (-24.674512, 120.481676)
Habitat description:	Grassland on plain between salt lake and sand dunes with scattered patches of small shrubs to 1.5 m over tussock grasses and herbs to 0.5 m on clay loam substrate.
Habitat type:	grassland
Topography:	plain
Slope:	negligible
Soil:	clay loam
Soil colour:	red-orange, brown
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**023 (Opportunistic fauna site) (-24.668053, 120.479958)**
Habitat description:	Open *Allocasuarina* shrubland on salt lake with scattered *Allocasuarina* to 6 m over scattered *Tecticornia* spp. and tussock grasses to 0.4 m on clay loam substrate.
Habitat type:	shrubland
Topography:	salt lake (playa)
Slope:	negligible
Soil:	clay loam
Soil colour:	red-orange, grey, whitish
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Site:	**024 (Opportunistic fauna site) (-24.667443, 120.476303)**
Habitat description:	Open shrubland on plain with scattered tall shrubs to 4 m over scattered small shrubs to 1.5 over scattered patches of hummock and tussock grasses of various life stages to 0.5 m on sandy loam substrate.
Habitat type:	shrubland
Topography:	plain
Slope:	negligible
Soil:	sandy loam
Soil colour:	red-orange
Rock type:	none
Fire age:	>5 years
Disturbance:	none

Appendix 5 Flora species identified in the desktop review

Family	Species	Conservation status
Aizoaceae	*Gunniopsis* sp. Lake Kerrylyn (N. Gibson *et al.* NG 7028)	P1
Aizoaceae	*Trianthema glossostigmum*	
Aizoaceae	*Trianthema triquetrum*	
Aizoaceae	*Trianthema turgidifolium*	
Amaranthaceae	**Aerva javanica*	
Amaranthaceae	*Alternanthera angustifolia*	
Amaranthaceae	*Alternanthera nana*	
Amaranthaceae	*Alternanthera nodiflora*	
Amaranthaceae	*Amaranthus cuspidifolius*	
Amaranthaceae	*Amaranthus mitchellii*	
Amaranthaceae	*Amaranthus* sp. Little Sandy Desert (SVL 3348)	
Amaranthaceae	*Gomphrena affinis*	
Amaranthaceae	*Gomphrena kanisii*	
Amaranthaceae	*Ptilotus aervoides*	
Amaranthaceae	*Ptilotus albidus*	
Amaranthaceae	*Ptilotus aphyllus*	
Amaranthaceae	*Ptilotus astrolasius*	
Amaranthaceae	*Ptilotus calostachyus*	
Amaranthaceae	*Ptilotus carinatus*	
Amaranthaceae	*Ptilotus chrysocomus*	P1
Amaranthaceae	*Ptilotus daphne*	P1
Amaranthaceae	*Ptilotus fusiformis*	
Amaranthaceae	*Ptilotus gaudichaudii*	
Amaranthaceae	*Ptilotus helipteroides*	
Amaranthaceae	*Ptilotus latifolius*	
Amaranthaceae	*Ptilotus macrocephalus*	
Amaranthaceae	*Ptilotus nobilis*	
Amaranthaceae	*Ptilotus obovatus*	
Amaranthaceae	*Ptilotus polystachyus*	
Amaranthaceae	*Ptilotus roei*	
Amaranthaceae	*Ptilotus rotundifolius*	
Amaranthaceae	*Ptilotus schwartzii*	
Amaranthaceae	*Ptilotus schwartzii* var. *georgei*	
Amaranthaceae	*Ptilotus* sp. Little Sandy Desert (SVL 2884)	
Amaranthaceae	*Ptilotus stipitatus*	
Amaranthaceae	*Ptilotus tetrandrus*	P1
Amaranthaceae	*Surreya diandra*	
Apiaceae	*Daucus glochidiatus*	
Apocynaceae	*Cynanchum floribundum*	
Apocynaceae	*Cynanchum viminale* subsp. *Australe*	
Apocynaceae	*Marsdenia australis*	
Apocynaceae	*Rhyncharrhena linearis*	
Araliaceae	*Trachymene bialata*	

Family	Species	Conservation status
Araliaceae	*Trachymene glaucifolia*	
Araliaceae	*Trachymene oleracea*	
Araliaceae	*Trachymene* sp.	
Asparagaceae	*Lomandra leucocephala* subsp. *robusta*	
Asparagaceae	*Thysanotus exiliflorus*	
Asparagaceae	*Thysanotus* sp. Desert East of Newman (R.P. Hart 964)	P2
Asteraceae	**Bidens bipinnata*	
Asteraceae	**Sigesbeckia orientalis*	
Asteraceae	*Actinobole uliginosum*	
Asteraceae	*Angianthus cyathifer*	
Asteraceae	*Angianthus milnei*	
Asteraceae	*Angianthus* sp. Little Sandy Desert (SVL 2911)	
Asteraceae	*Angianthus tomentosus*	
Asteraceae	*Brachyscome blackii*	
Asteraceae	*Brachyscome ciliaris*	
Asteraceae	*Brachyscome iberidifolia*	
Asteraceae	*Calocephalus beardii*	
Asteraceae	*Calocephalus knappii*	
Asteraceae	*Calotis erinacea*	
Asteraceae	*Calotis hispidula*	
Asteraceae	*Calotis* sp. Carnarvon Range (D.J. Edinger & K.F. Kenneally D 2708 K 12243)	
Asteraceae	*Centipeda thespidioides*	
Asteraceae	*Cephalipterum drummondii*	
Asteraceae	*Chrysocephalum eremaeum*	
Asteraceae	*Chrysocephalum* sp. Little Sandy Desert (SVL 4899)	
Asteraceae	*Erymophyllum ramosum subsp. ramosum*	
Asteraceae	Genus nov. sp. nov. Little Sandy Desert (SVL 2645)	
Asteraceae	*Gnephosis brevifolia*	
Asteraceae	*Ixiochlamys cuneifolia*	
Asteraceae	*Kippistia suaedifolia*	
Asteraceae	*Leiocarpa semicalva*	
Asteraceae	*Minuria multiseta*	
Asteraceae	*Minuria* sp. Little Sandy Desert (SVL 4919)	P1
Asteraceae	*Myriocephalus rudallii*	
Asteraceae	*Olearia incana*	
Asteraceae	*Olearia* sp. Little Sandy Desert (SVL 3335)	
Asteraceae	*Olearia stuartii*	
Asteraceae	*Olearia subspicata*	
Asteraceae	*Peripleura arida*	
Asteraceae	*Pluchea dentex*	
Asteraceae	*Pluchea rubelliflora*	
Asteraceae	*Pluchea tetranthera*	
Asteraceae	*Podolepis canescens*	
Asteraceae	*Podolepis capillaris*	

Family	Species	Conservation status
Asteraceae	*Podolepis gardneri*	
Asteraceae	*Podolepis kendallii*	
Asteraceae	*Pterocaulon serrulatum*	
Asteraceae	*Pterocaulon sphacelatum*	
Asteraceae	*Rhodanthe charsleyae*	
Asteraceae	*Rhodanthe floribunda*	
Asteraceae	*Rhodanthe humboldtiana*	
Asteraceae	*Rhodanthe polakii*	
Asteraceae	*Rhodanthe propinqua*	
Asteraceae	*Rhodanthe sterilescens*	
Asteraceae	*Rhodanthe stricta*	
Asteraceae	*Rhodanthe tietkensii*	
Asteraceae	*Rutidosis helichrysoides*	
Asteraceae	*Schoenia cassiniana*	
Asteraceae	*Senecio gregorii*	
Asteraceae	*Senecio magnificus*	
Asteraceae	*Streptoglossa bubakii*	
Asteraceae	*Streptoglossa cylindriceps*	
Asteraceae	*Streptoglossa decurrens*	
Asteraceae	*Streptoglossa liatroides*	
Asteraceae	*Taplinia saxatilis*	
Asteraceae	*Tietkensia corrickiae*	
Asteraceae	*Vittadinia eremaea*	
Asteraceae	*Waitzia acuminata var. acuminata*	
Asteraceae	*Xerochrysum* sp. Beyondie (SVL 1831)	
Boraginaceae	*Halgania cyanea* var. Allambi Stn (B.W. Strong 676)	
Boraginaceae	*Halgania erecta*	
Boraginaceae	*Halgania glabra*	
Boraginaceae	*Halgania gustafsenii*	
Boraginaceae	*Halgania solanacea* var. Mt Doreen (G.M. Chippendale 4206)	
Boraginaceae	*Halgania* sp. A Kimberley Flora (H.A. Johnson 5123)	
Boraginaceae	*Heliotropium chrysocarpum*	
Boraginaceae	*Heliotropium cunninghamii*	
Boraginaceae	*Heliotropium curassavicum*	
Boraginaceae	*Heliotropium heteranthum*	
Boraginaceae	*Heliotropium tanythrix*	
Boraginaceae	*Trichodesma zeylanicum* var. *grandiflorum*	
Boraginaceae	*Trichodesma zeylanicum* var. *zeylanicum*	
Brassicaceae	*Lepidium echinatum*	
Brassicaceae	*Lepidium muelleri-ferdinandii*	
Brassicaceae	*Lepidium oxytrichum*	
Brassicaceae	*Lepidium pedicellosum*	
Brassicaceae	*Lepidium phlebopetalum*	

Family	Species	Conservation status
Brassicaceae	*Menkea sphaerocarpa*	
Brassicaceae	*Menkea villosula*	
Brassicaceae	*Stenopetalum anfractum*	
Brassicaceae	*Stenopetalum decipiens*	
Brassicaceae	*Stenopetalum lineare*	
Brassicaceae	*Stenopetalum lineare* var. *lineare*	
Brassicaceae	*Stenopetalum pedicellare*	
Brassicaceae	*Stenopetalum* sp. Little Sandy Desert (SVL 4964)	
Brassicaceae	*Stenopetalum velutinum*	
Campanulaceae	*Lobelia heterophylla*	
Campanulaceae	*Wahlenbergia tumidifructa*	
Capparaceae	*Capparis lasiantha*	
Capparaceae	*Capparis spinosa*	
Capparaceae	*Cassytha filiformis*	
Caryophyllaceae	*Polycarpaea corymbosa*	
Caryophyllaceae	*Polycarpaea holtzei*	
Caryophyllaceae	*Polycarpaea involucrata*	
Casuarinaceae	*Allocasuarina decaisneana*	
Casuarinaceae	*Casuarina pauper*	
Celastraceae	*Macgregoria racemigera*	
Celastraceae	*Maytenus* sp. Mt Windell (S. van Leeuwen 846)	
Celastraceae	*Stackhousia clementii*	P3
Celastraceae	*Stackhousia intermedia*	
Celastraceae	*Stackhousia megaloptera*	
Celastraceae	*Stackhousia* sp. Lake Mackay (P.K. Latz 12870)	
Celastraceae	*Stackhousia* sp. Little Sandy Desert (SVL 4426)	
Celastraceae	*Stackhousia* sp. swollen gynophore (W.R. Barker 2041)	
Centrolepidaceae	*Centrolepis eremica*	
Chenopodiaceae	*Atriplex amnicola*	
Chenopodiaceae	*Atriplex bunburyana*	
Chenopodiaceae	*Atriplex* sp.	
Chenopodiaceae	*Atriplex spongiosa*	
Chenopodiaceae	*Atriplex vesicaria*	
Chenopodiaceae	*Chenopodium gaudichaudianum*	
Chenopodiaceae	*Dissocarpus paradoxus*	
Chenopodiaceae	*Dysphania kalpari*	
Chenopodiaceae	*Dysphania melanocarpa*	
Chenopodiaceae	*Dysphania plantaginella*	
Chenopodiaceae	*Dysphania rhadinostachya*	
Chenopodiaceae	*Dysphania saxatilis*	
Chenopodiaceae	*Dysphania simulans*	
Chenopodiaceae	*Dysphania sphaerosperma*	
Chenopodiaceae	*Enchylaena tomentosa*	
Chenopodiaceae	*Eremophea spinosa*	

Family	Species	Conservation status
Chenopodiaceae	*Maireana amoena*	
Chenopodiaceae	*Maireana carnosa*	
Chenopodiaceae	*Maireana convexa*	
Chenopodiaceae	*Maireana georgei*	
Chenopodiaceae	*Maireana luehmannii*	
Chenopodiaceae	*Maireana melanocoma*	
Chenopodiaceae	*Maireana planifolia*	
Chenopodiaceae	*Maireana platycarpa*	
Chenopodiaceae	*Maireana prosthecochaeta*	P3
Chenopodiaceae	*Maireana pyramidata*	
Chenopodiaceae	*Maireana scleroptera*	
Chenopodiaceae	*Maireana* sp. Little Sandy Desert (SVL 2985)	
Chenopodiaceae	*Maireana suaedifolia*	
Chenopodiaceae	*Maireana thesioides*	
Chenopodiaceae	*Maireana tomentosa*	
Chenopodiaceae	*Maireana tomentosa* subsp*. tomentosa*	
Chenopodiaceae	*Maireana trichoptera*	
Chenopodiaceae	*Maireana triptera*	
Chenopodiaceae	*Maireana villosa*	
Chenopodiaceae	*Rhagodia drummondii*	
Chenopodiaceae	*Rhagodia eremaea*	
Chenopodiaceae	*Rhagodia* sp. Little Sandy Desert (SVL 2984)	
Chenopodiaceae	*Salsola australis*	
Chenopodiaceae	*Sclerolaena alata*	
Chenopodiaceae	*Sclerolaena clelandii*	
Chenopodiaceae	*Sclerolaena cornishiana*	
Chenopodiaceae	*Sclerolaena costata*	
Chenopodiaceae	*Sclerolaena cuneata*	
Chenopodiaceae	*Sclerolaena deserticola*	
Chenopodiaceae	*Sclerolaena diacantha*	
Chenopodiaceae	*Sclerolaena eriacantha*	
Chenopodiaceae	*Sclerolaena fimbriolata*	
Chenopodiaceae	*Sclerolaena glabra*	
Chenopodiaceae	*Sclerolaena lanicuspis*	
Chenopodiaceae	*Sclerolaena sp.*	
Chenopodiaceae	*Sclerolaena* sp. Little Sandy Desert (SVL 2945)	
Chenopodiaceae	*Tecticornia* aff. sp. Dennys Crossing (KS 552)	
Chenopodiaceae	*Tecticornia auriculata*	
Chenopodiaceae	*Tecticornia bibenda*	P1
Chenopodiaceae	*Tecticornia calyptrata*	
Chenopodiaceae	*Tecticornia disarticulata*	
Chenopodiaceae	*Tecticornia globulifera*	P1
Chenopodiaceae	*Tecticornia halocnemoides*	
Chenopodiaceae	*Tecticornia indica*	

Family	Species	Conservation status
Chenopodiaceae	*Tecticornia indica* subsp*. bidens*	
Chenopodiaceae	*Tecticornia indica* subsp*. leiostachya*	
Chenopodiaceae	*Tecticornia laevigata*	
Chenopodiaceae	*Tecticornia mellarium*	P1
Chenopodiaceae	*Tecticornia peltata*	
Chenopodiaceae	*Tecticornia pergranulata* subsp*. elongata*	
Chenopodiaceae	*Tecticornia pergranulata* subsp*. pergranulata*	
Chenopodiaceae	*Tecticornia pruinosa*	
Chenopodiaceae	*Tecticornia pterygosperma* subsp*. denticulata*	
Chenopodiaceae	*Tecticornia pterygosperma* subsp*. pterygosperma*	
Chenopodiaceae	*Tecticornia* sp.	
Chenopodiaceae	*Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer *et al.* KS 1063)	P1
Chenopodaceae	*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	
Chenopodiaceae	*Tecticornia* sp. nov. 1 (aff. pruinosa/ laevigata)	
Chenopodiaceae	*Tecticornia* sp. nov. 2 (aff. pruinosa/undulata)	
Chenopodiaceae	*Tecticornia* sp. Sunshine Lake (K.A. Shepherd *et al.* KS 867)	P1
Chenopodiaceae	*Tecticornia* sp. Yoothapina Station (A.A. Mitchell 883)	
Chenopodiaceae	*Tecticornia undulata*	
Chenopodiaceae	*Tecticornia verrucosa*	
Chenopoiaceae	*Tecticornia willisii*	P1
Cleomaceae	*Cleome oxalidea*	
Cleomaceae	*Cleome viscosa*	
Colchicaceae	*Wurmbea deserticola*	
Convolvulaceae	*Bonamia erecta*	
Convolvulaceae	*Bonamia pannosa*	
Convolvulaceae	*Convolvulus clementii*	
Convolvulaceae	*Duperreya commixta*	
Convolvulaceae	*Evolvulus alsinoides*	
Convolvulaceae	*Evolvulus alsinoides* var*. villosicalyx*	
Convolvulaceae	*Ipomoea calobra*	
Cucurbitaceae	**Citrullus colocynthis*	
Cucurbitaceae	**Citrullus lanatus*	
Cucurbitaceae	*Cucumis variabilis*	
Cupressaceae	*Callitris columellaris*	
Cyperaceae	*Bulbostylis barbata*	
Cyperaceae	*Bulbostylis turbinata*	
Cyperaceae	*Cyperus bulbosus*	
Cyperaceae	*Cyperus centralis*	
Cyperaceae	*Cyperus iria*	
Cyperaceae	*Cyperus rigidellus*	
Cyperaceae	*Cyperus* sp. Little Sandy Desert (SVL 4470)	
Cyperaceae	*Cyperus squarrosus*	

Family	Species	Conservation status
Cyperaceae	*Eleocharis pallens*	
Cyperaceae	*Eleocharis* sp. Little Sandy Desert (SVL 3055)	
Cyperaceae	*Fimbristylis dichotoma*	
Cyperaceae	*Fimbristylis rara*	
Cyperaceae	*Fimbristylis sieberiana*	P3
Cyperaceae	*Fimbristylis simulans*	
Droseraceae	*Drosera burmanni*	
Droseraceae	*Drosera finlaysoniana*	
Droseraceae	*Drosera indica*	
Elaeocarpaceae	*Tetratheca chapmanii*	P1
Elatinaceae	*Bergia pedicellaris*	
Elatinaceae	*Bergia trimera*	
Euphorbiaceae	*Adriana tomentosa var. hookeri*	
Euphorbiaceae	*Euphorbia australis*	
Euphorbiaceae	*Euphorbia boophthona*	
Euphorbiaceae	*Euphorbia coghlanii*	
Euphorbiaceae	*Euphorbia drummondii*	
Euphorbiaceae	*Euphorbia sarcostemmoides*	P1
Euphorbiaceae	*Euphorbia stevenii*	P3
Euphorbiaceae	*Euphorbia tannensis*	
Euphorbiaceae	*Euphorbia tannensis* subsp. *eremophila*	
Euphorbiaceae	*Monotaxis luteiflora*	
Fabaceae	*Acacia abrupta*	
Fabaceae	*Acacia adoxa* var. *adoxa*	
Fabaceae	*Acacia adsurgens*	
Fabaceae	*Acacia* aff. *validinervia* (SVL 3234)	
Fabaceae	*Acacia ampliceps*	
Fabaceae	*Acacia ancistrocarpa*	
Fabaceae	*Acacia aneura*	
Fabaceae	*Acacia aneura* var. (SVL 2545)	
Fabaceae	*Acacia aptaneura*	
Fabaceae	*Acacia ayersiana*	
Fabaceae	*Acacia balsamea*	
Fabaceae	*Acacia bivenosa*	
Fabaceae	*Acacia brachystachya*	
Fabaceae	*Acacia burkittii*	
Fabaceae	*Acacia caesaneura*	
Fabaceae	*Acacia citrinoviridis*	
Fabaceae	*Acacia coriacea*	
Fabaceae	*Acacia coriacea* subsp. *pendens*	
Fabaceae	*Acacia craspedocarpa*	
Fabaceae	*Acacia cuthbertsonii*	
Fabaceae	*Acacia daviesioides*	
Fabaceae	*Acacia dictyophleba*	

Family	Species	Conservation status
Fabaceae	*Acacia doreta*	
Fabaceae	*Acacia eriopoda*	
Fabaceae	*Acacia fuscaneura*	
Fabaceae	*Acacia grasbyi*	
Fabaceae	*Acacia hamersleyensis*	
Fabaceae	*Acacia hilliana*	
Fabaceae	*Acacia inaequilatera*	
Fabaceae	*Acacia incurvaneura*	
Fabaceae	*Acacia jamesiana*	
Fabaceae	*Acacia kempeana*	
Fabaceae	*Acacia ligulata*	
Fabaceae	*Acacia macraneura*	
Fabaceae	*Acacia maitlandii*	
Fabaceae	*Acacia marramamba*	
Fabaceae	*Acacia melleodora*	
Fabaceae	*Acacia minyura*	
Fabaceae	*Acacia mulganeura*	
Fabaceae	*Acacia nyssophylla*	
Fabaceae	*Acacia oswaldii*	
Fabaceae	*Acacia pachyacra*	
Fabaceae	*Acacia paraneura*	
Fabaceae	*Acacia prainii*	
Fabaceae	*Acacia pruinocarpa*	
Fabaceae	*Acacia pteraneura*	
Fabaceae	*Acacia pyrifolia*	
Fabaceae	*Acacia pyrifolia* var. *pyrifolia*	
Fabaceae	*Acacia quadrimarginea*	
Fabaceae	*Acacia ramulosa*	
Fabaceae	*Acacia ramulosa* var. *linophylla*	
Fabaceae	*Acacia ramulosa* var. *ramulosa*	
Fabaceae	*Acacia rhodophloia*	
Fabaceae	*Acacia sericophylla*	
Fabaceae	*Acacia sibirica*	
Fabaceae	*Acacia* sp.	
Fabaceae	*Acacia* sp. Little Sandy Desert (SVL 2397)	
Fabaceae	*Acacia spondylophylla*	
Fabaceae	*Acacia steedmanii* subsp. *borealis*	
Fabaceae	*Acacia subcontorta*	
Fabaceae	*Acacia synchronicia*	
Fabaceae	*Acacia tenuissima*	
Fabaceae	*Acacia tetragonophylla*	
Fabaceae	*Acacia thoma*	
Fabaceae	*Acacia validinervia*	
Fabaceae	*Acacia wanyu*	

Family	Species	Conservation status
Fabaceae	*Acacia xiphophylla*	
Fabaceae	*Crotalaria cunninghamii*	
Fabaceae	*Cullen pustulatum*	
Fabaceae	*Daviesia arthropoda*	P3
Fabaceae	*Daviesia eremaea*	
Fabaceae	*Daviesia grahamii*	
Fabaceae	*Gastrolobium grandiflorum*	
Fabaceae	*Glycine canescens*	
Fabaceae	*Gompholobium polyzygum*	
Fabaceae	*Gompholobium simplicifolium*	
Fabaceae	*Indigofera colutea*	
Fabaceae	*Indigofera georgei*	
Fabaceae	*Indigofera linnaei*	
Fabaceae	*Indigofera monophylla*	
Fabaceae	*Isotropis atropurpurea*	
Fabaceae	*Isotropis forrestii*	
Fabaceae	*Jacksonia aculeata*	
Fabaceae	*Kennedia prorepens*	
Fabaceae	*Leptosema chambersii*	
Fabaceae	*Lotus cruentus*	
Fabaceae	*Mirbelia viminalis*	
Fabaceae	*Muelleranthus stipularis*	
Fabaceae	*Muelleranthus trifoliolatus*	
Fabaceae	*Petalostylis cassioides*	
Fabaceae	*Phyllota luehmannii*	
Fabaceae	*Senna artemisioides* subsp. *filifolia*	
Fabaceae	*Senna artemisioides* subsp. *helmsii*	
Fabaceae	*Senna artemisioides* subsp. *oligophylla*	
Fabaceae	*Senna artemisioides* subsp. *petiolaris*	
Fabaceae	*Senna artemisioides* subsp. *x artemisioides*	
Fabaceae	*Senna artemisioides* subsp. *x sturtii*	
Fabaceae	*Senna curvistyla*	
Fabaceae	*Senna glaucifolia*	
Fabaceae	*Senna glutinosa*	
Fabaceae	*Senna glutinosa* subsp. *chatelainiana*	
Fabaceae	*Senna glutinosa* subsp. *glutinosa*	
Fabaceae	*Senna glutinosa* subsp. *pruinosa*	
Fabaceae	*Senna glutinosa* subsp. *x luerssenii*	
Fabaceae	*Senna notabilis*	
Fabaceae	*Senna pleurocarpa*	
Fabaceae	*Senna pleurocarpa* var. *angustifolia*	
Fabaceae	*Senna pleurocarpa* var. *pleurocarpa*	
Fabaceae	*Senna sericea*	
Fabaceae	*Senna* sp. Meekatharra (E. Bailey 1-26)	

Family	Species	Conservation status
Fabaceae	*Senna symonii*	
Fabaceae	*Sesbania cannabina*	
Fabaceae	*Swainsona decurrens*	
Fabaceae	*Swainsona formosa*	
Fabaceae	*Swainsona kingii*	
Fabaceae	*Swainsona laciniata*	
Fabaceae	*Swainsona microphylla*	
Fabaceae	*Swainsona oroboides*	
Fabaceae	*Swainsona* sp. Little Sandy Desert (SVL 5017)	
Fabaceae	*Templetonia egena*	
Fabaceae	*Tephrosia* sp. deserts (J.R. Maconochie 1403)	
Fabaceae	*Tephrosia* sp. Little Sandy Desert (SVL 3195)	
Fabaceae	*Trigonella suavissima*	
Frankeniaceae	*Frankenia cinerea*	
Frankeniaceae	*Frankenia desertorum*	
Frankeniaceae	*Frankenia fecunda*	
Frankeniaceae	*Frankenia glomerata*	P4
Frankeniaceae	*Frankenia interioris*	
Frankeniaceae	*Frankenia laxiflora*	
Frankeniaceae	*Frankenia punctata*	
Frankeniaceae	*Frankenia setosa*	
Gentianaceae	*Schenkia australis*	
Goodeniaceae	*Brunonia australis*	
Goodeniaceae	*Dampiera atriplicina*	P3
Goodeniaceae	*Dampiera candicans*	
Goodeniaceae	*Dampiera cinerea*	
Goodeniaceae	*Dampiera dentata*	
Goodeniaceae	*Dampiera ramosa*	
Goodeniaceae	*Dampiera roycei*	
Goodeniaceae	*Goodenia* ?*pinifolia*	
Goodeniaceae	*Goodenia azurea*	
Goodeniaceae	*Goodenia gypsicola*	
Goodeniaceae	*Goodenia heterochila*	
Goodeniaceae	*Goodenia lamprosperma*	
Goodeniaceae	*Goodenia microptera*	
Goodeniaceae	*Goodenia modesta*	P3
Goodeniaceae	*Goodenia mueckeana*	
Goodeniaceae	*Goodenia muelleriana*	
Goodeniaceae	*Goodenia pascua*	
Goodeniaceae	*Goodenia prostrata*	
Goodeniaceae	*Goodenia quasilibera*	
Goodeniaceae	*Goodenia ramelii*	
Goodeniaceae	*Goodenia schwerinensis*	
Goodeniaceae	*Goodenia* sp. Beyondie (L.W. Sage & S. van Leeuwen LWS 2518)	P1

Family	Species	Conservation status
Goodeniaceae	*Goodenia* sp. Little Sandy Desert (SVL 2926)	
Goodeniaceae	*Goodenia stellata*	
Goodeniaceae	*Goodenia stobbsiana*	
Goodeniaceae	*Goodenia triodiophila*	
Goodeniaceae	*Goodenia wilunensis*	
Goodeniaceae	*Goodenia xanthosperma*	
Goodeniaceae	*Goodeniaceae* sp.	
Goodeniaceae	*Lechenaultia striata*	
Goodeniaceae	*Scaevola amblyanthera*	
Goodeniaceae	*Scaevola amblyanthera* var. *centralis*	
Goodeniaceae	*Scaevola basedowii*	
Goodeniaceae	*Scaevola browniana* subsp. *browniana*	
Goodeniaceae	*Scaevola collaris*	
Goodeniaceae	*Scaevola parvifolia* subsp. *pilbarae*	
Goodeniaceae	*Scaevola sericophylla*	
Goodeniaceae	*Scaevola spinescens*	
Goodeniaceae	*Velleia connata*	
Goodeniaceae	*Velleia glabrata*	
Goodeniaceae	*Velleia panduriformis*	
Gyrostemonaceae	*Codonocarpus cotinifolius*	
Gyrostemonaceae	*Gyrostemon ramulosus*	
Haloragaceae	*Glischrocaryon angustifolium*	
Haloragaceae	*Gonocarpus eremophilus*	
Haloragaceae	*Gonocarpus pycnostachyus*	P3
Haloragaceae	*Haloragis gossei*	
Haloragaceae	*Haloragis gossei* var. *gossei*	
Haloragaceae	*Haloragis odontocarpa* forma *pterocarpa*	
Haloragaceae	*Haloragis odontocarpa* forma *rugosa*	
Haloragaceae	*Haloragis* sp.	
Haloragaceae	*Haloragis trigonocarpa*	
Hemerocallidaceae	*Corynotheca micrantha* var. *divaricata*	
Hemerocallidaceae	*Corynotheca pungens*	
Hypericaceae	*Hypericum gramineum*	
Juncaginaceae	*Triglochin nana*	
Lamiaceae	*Clerodendrum tomentosum* var. *lanceolatum*	
Lamiaceae	*Clerodendrum tomentosum* var. *tomentosum*	
Lamiaceae	*Dicrastylis cordifolia*	
Lamiaceae	*Dicrastylis doranii*	
Lamiaceae	*Dicrastylis exsuccosa*	
Lamiaceae	*Dicrastylis fulva*	
Lamiaceae	*Dicrastylis kumarinensis*	
Lamiaceae	*Dicrastylis* sp. Little Sandy Desert (SVL 2937)	
Lamiaceae	*Hemigenia tysonii*	P3
Lamiaceae	*Lachnostachys verbascifolia*	

Family	Species	Conservation status
Lamiaceae	*Microcorys macredieana*	
Lamiaceae	*Newcastelia cephalantha*	
Lamiaceae	*Newcastelia cladotricha*	
Lamiaceae	*Newcastelia spodiotricha*	
Lamiaceae	*Pityrodia loricata*	
Lamiaceae	*Prostanthera albiflora*	
Lamiaceae	*Prostanthera wilkieana*	
Lamiaceae	*Quoya loxocarpa*	
Lamiaceae	*Spartothamnella teucriiflora*	
Lauraceae	*Cassytha* sp. Little Sandy Desert (SVL 3233)	
Loranthaceae	*Amyema bifurcata*	
Loranthaceae	*Amyema fitzgeraldii*	
Loranthaceae	*Amyema gibberula* var. *gibberula*	
Loranthaceae	*Amyema hilliana*	
Loranthaceae	*Amyema miquelii*	
Loranthaceae	*Amyema sanguinea* var. *pulchra*	
Loranthaceae	*Lysiana casuarinae*	
Loranthaceae	*Lysiana exocarpi*	
Loranthaceae	*Lysiana murrayi*	
Malvaceae	**Malvastrum americanum*	
Malvaceae	*Abutilon cryptopetalum*	
Malvaceae	*Abutilon fraseri*	
Malvaceae	*Abutilon leucopetalum*	
Malvaceae	*Abutilon macrum*	
Malvaceae	*Abutilon otocarpum*	
Malvaceae	*Abutilon oxycarpum*	
Malvaceae	*Abutilon* sp. Dioicum (A.A. Mitchell PRP 1618)	
Malvaceae	*Abutilon* sp. Little Sandy Desert (SVL 2630)	
Malvaceae	*Alyogyne pinoniana*	
Malvaceae	*Androcalva loxophylla*	
Malvaceae	*Androcalva luteiflora*	
Malvaceae	*Brachychiton gregorii*	
Malvaceae	*Corchorus crozophorifolius*	
Malvaceae	*Corchorus sidoides*	
Malvaceae	*Corchorus* sp. Little Sandy Desert (SVL 2383)	
Malvaceae	*Corchorus tectus*	
Malvaceae	*Hannafordia bissillii* subsp. *bissillii*	
Malvaceae	*Hibiscus arenicola*	
Malvaceae	*Hibiscus burtonii*	
Malvaceae	*Hibiscus coatesii*	
Malvaceae	*Hibiscus leptocladus*	
Malvaceae	*Hibiscus* sp.	
Malvaceae	*Hibiscus* sp. Carnarvon (S. van Leeuwen 5110)	P1
Malvaceae	*Hibiscus* sp. *gardneri* (A.L. Payne PRP 1435)	

Family	Species	Conservation status
Malvaceae	*Hibiscus* sp. Little Sandy Desert (SVL 2489)	
Malvaceae	*Hibiscus sturtii* var. *truncatus*	
Malvaceae	*Keraudrenia* sp. Little Sandy Desert (SVL 2376)	
Malvaceae	*Lawrencia densiflora*	
Malvaceae	*Lawrencia glomerata*	
Malvaceae	*Lawrencia helmsii*	
Malvaceae	*Lawrencia squamata*	
Malvaceae	*Seringia elliptica*	
Malvaceae	*Sida ammophila*	
Malvaceae	*Sida arenicola*	
Malvaceae	*Sida calyxhymenia*	
Malvaceae	*Sida cardiophylla*	
Malvaceae	*Sida echinocarpa*	
Malvaceae	*Sida ectogama*	
Malvaceae	*Sida fibulifera*	
Malvaceae	*Sida intricata*	
Malvaceae	*Sida platycalyx*	
Malvaceae	*Sida* sp.	
Malvaceae	*Sida* sp. (SVL 3227)	
Malvaceae	*Sida* sp. Articulation below (A.A. Mitchell PRP 1605)	
Malvaceae	*Sida* sp. dark green fruits (S. van Leeuwen 2260)	
Malvaceae	*Sida* sp. Excedentifolia (J.L. Egan 1925)	
Malvaceae	*Sida* sp. Golden calyces glabrous (H.N. Foote 32)	
Malvaceae	*Sida* sp. Golden calyces pubescent (G.J. Leach 1966)	
Malvaceae	*Sida* sp. Little Sandy Desert (SVL 2489)	
Malvaceae	*Sida* sp. Pilbara (A.A. Mitchell PRP 1543)	
Malvaceae	*Sida* sp. Rabbit Flat (B.J. Carter 626)	
Malvaceae	*Sida* sp. tiny glabrous fruit (A.A. Mitchell PRP1152)	
Malvaceae	*Sida* sp. verrucose glands (F.H. Mollemans 2423)	
Malvaceae	*Sida* sp. Western sand dunes (P.K. Latz 11980)	
Malvaceae	*Sida trichopoda*	
Marsileaceae	*Marsilea drummondii*	
Marsileaceae	*Marsilea hirsuta*	
Meliaceae	*Owenia acidula*	P3
Molluginaceae	*Glinus oppositifolius*	
Molluginaceae	*Hypertelis cerviana*	
Moraceae	*Ficus brachypoda*	
Myrtaceae	*Aluta maisonneuvei*	
Myrtaceae	*Aluta maisonneuvei* subsp. *maisonneuvei*	
Myrtaceae	*Calothamnus aridus*	
Myrtaceae	*Calytrix carinata*	
Myrtaceae	*Calytrix praecipua*	P3
Myrtaceae	*Corymbia* ?*aspera*	
Myrtaceae	*Corymbia chippendalei*	

Family	Species	Conservation status
Myrtaceae	*Corymbia deserticola*	
Myrtaceae	*Corymbia hamersleyana*	
Myrtaceae	*Corymbia opaca*	
Myrtaceae	*Corymbia terminalis*	
Myrtaceae	*Eucalyptus ?victrix*	
Myrtaceae	*Eucalyptus camaldulensis*	
Myrtaceae	*Eucalyptus camaldulensis* subsp. *obtusa*	
Myrtaceae	*Eucalyptus eremicola* subsp. *peeneri*	
Myrtaceae	*Eucalyptus gamophylla*	
Myrtaceae	*Eucalyptus kingsmillii*	
Myrtaceae	*Eucalyptus lucasii*	
Myrtaceae	*Eucalyptus mannensis* subsp. *mannensis*	
Myrtaceae	*Eucalyptus odontocarpa*	
Myrtaceae	*Eucalyptus oldfieldii*	
Myrtaceae	*Eucalyptus pachyphylla*	
Myrtaceae	*Eucalyptus rameliana*	
Myrtaceae	*Eucalyptus repullulans*	
Myrtaceae	*Eucalyptus semota*	P1
Myrtaceae	*Eucalyptus socialis*	
Myrtaceae	*Eucalyptus* sp.	
Myrtaceae	*Eucalyptus* sp. Little Sandy Desert (D. Nicolle & M. French DN 4304)	
Myrtacea	*Eucalyptus trivalva*	
Myrtacee	*Eucalyptus victrix*	
Myrtaceae	*Lamarchea sulcata*	
Myrtaceae	*Melaleuca eleuterostachya*	
Myrtaceae	*Melaleuca glomerata*	
Myrtaceae	*Melaleuca interioris*	
Myrtaceae	*Melaleuca lasiandra*	
Myrtaceae	*Melaleuca linophylla*	
Myrtaceae	*Melaleuca uncinata*	
Myrtaceae	*Melaleuca xerophila*	
Myrtaceae	*Micromyrtus flaviflora*	
Myrtaceae	*Micromyrtus mucronulata*	P1
Myrtaceae	*Thryptomene wittweri*	VU (EPBC Act); VU (WC Act)
Nyctaginaceae	*Boerhavia coccinea*	
Nyctaginaceae	*Boerhavia repleta*	
Nyctaginaceae	*Boerhavia schomburgkiana*	
Oleaceae	*Jasminum calcareum*	
Oleaceae	*Jasminum didymum* subsp. *lineare*	
Ophioglossaceae	*Ophioglossum lusitanicum*	
Orobnachaceae	*Buchnera linearis*	
Phrymaceae	*Mimulus gracilis*	
Phrymaceae	*Peplidium aithocheilum*	

Family	Species	Conservation status
Phrymaceae	*Peplidium maritimum*	
Phrymaceae	*Peplidium muelleri*	
Phrymaceae	*Peplidium* sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge& A. Kanis 8158)	
Phrymaceae	*Peplidium* sp. E Evol. Fl. Fauna Arid Aust. (A.S. Weston12768)	
Phrymaceae	*Peplidium* sp. Little Sandy Desert (SVL 4986)	
Phrymaceae	*Thyridia repens*	
Phyllanthaceae	*Phyllanthus erwinii*	
Phyllanthaceae	*Phyllanthus maderaspatensis*	
Pittosporaceae	*Pittosporum angustifolium*	
Plantaginaceae	*Stemodia linophylla*	
Plantaginaceae	*Stemodia viscosa*	
Plumbaginaceae	*Muellerolimon salicorniaceum*	
Poaceae	**Cenchrus ciliaris*	
Poaceae	**Chloris virgata*	
Poaceae	**Digitaria ciliaris*	
Poaceae	**Setaria verticillata*	
Poaceae	*Amphipogon caricinus*	
Poaceae	*Amphipogon sericeus*	
Poaceae	*Aristida contorta*	
Poaceae	*Aristida holathera*	
Poaceae	*Aristida inaequiglumis*	
Poaceae	*Aristida jerichoensis* var. *subspinulifera*	P3
Poaceae	*Aristida nitidula*	
Poaceae	*Aristida* sp. Little Sandy Desert (SVL 3047)	
Poaceae	*Bothriochloa ewartiana*	
Poaceae	*Chrysopogon fallax*	
Poaceae	*Cymbopogon ambiguus*	
Poaceae	*Cymbopogon bombycinus*	
Poaceae	*Cymbopogon obtectus*	
Poaceae	*Cynodon convergens*	
Poaceae	*Cynodon prostratus*	
Poaceae	*Dactyloctenium radulans*	
Poaceae	*Dichanthium sericeum* subsp*. humilius*	
Poaceae	*Digitaria brownii*	
Poaceae	*Digitaria ctenantha*	
Poaceae	*Enneapogon avenaceus*	
Poaceae	*Enneapogon caerulescens*	
Poaceae	*Enneapogon polyphyllus*	
Poaceae	*Enneapogon robustissimus*	
Poaceae	*Enteropogon ramosus*	
Poaceae	*Eragrostis cumingii*	
Poaceae	*Eragrostis desertorum*	
Poaceae	*Eragrostis dielsii*	

Family	Species	Conservation status
Poaceae	*Eragrostis eriopoda*	
Poaceae	*Eragrostis falcata*	
Poaceae	*Eragrostis kennedyae*	
Poaceae	*Eragrostis leptocarpa*	
Poaceae	*Eragrostis olida*	
Poaceae	*Eragrostis pergracilis*	
Poaceae	*Eragrostis setifolia*	
Poaceae	*Eragrostis* sp. Little Sandy Desert (SVL 2491)	
Poaceae	*Eragrostis xerophila*	
Poaceae	*Eriachne aristidea*	
Poaceae	*Eriachne flaccida*	
Poaceae	*Eriachne helmsii*	
Poaceae	*Eriachne mucronata*	
Poaceae	*Eriachne ovata*	
Poaceae	*Eriachne pulchella*	
Poaceae	*Eriachne pulchella* subsp. *pulchella*	
Poaceae	*Eriachne* sp. Woolly culms (P.K. Latz 10065)	
Poaceae	*Eulalia aurea*	
Poaceae	*Iseilema eremaeum*	
Poaceae	*Iseilema membranaceum*	
Poaceae	*Iseilema vaginiflorum*	
Poaceae	*Monachather paradoxus*	
Poaceae	*Neurachne minor*	
Poaceae	*Paractaenum novae-hollandiae* subsp. *novae-hollandiae*	
Poaceae	*Paractaenum refractum*	
Poaceae	*Paraneurachne muelleri*	
Poaceae	*Paspalidium clementii*	
Poaceae	*Paspalidium constrictum*	
Poaceae	*Paspalidium rarum*	
Poaceae	*Paspalidium reflexum*	
Poaceae	*Perotis rara*	
Poaceae	Poaceae sp.	
Poaceae	*Setaria dielsii*	
Poaceae	*Sporobolus australasicus*	
Poaceae	*Themeda triandra*	
Poaceae	*Thyridolepis mitchelliana*	
Poaceae	*Thyridolepis xerophila*	
Poaceae	*Tragus australianus*	
Poaceae	*Triodia angusta*	
Poaceae	*Triodia basedowii*	
Poaceae	*Triodia birriliburu*	P3
Poaceae	*Triodia brizoides*	
Poaceae	*Triodia lanigera*	
Poaceae	*Triodia longiceps*	

Family	Species	Conservation status
Poaceae	*Triodia melvillei*	
Poaceae	*Triodia pungens*	
Poaceae	*Triodia schinzii*	
Poaceae	*Triodia* sp.	
Poaceae	*Triodia wiseana*	
Poaceae	*Tripogonella loliiformis*	
Poaceae	*Triraphis mollis*	
Poaceae	*Xerochloa laniflora*	
Poaceae	*Yakirra australiensis*	
Polygalaceae	*Comesperma pallidum*	P3
Polygalaceae	*Comesperma viscidulum*	P4
Polygalaceae	*Polygala isingii*	
Polygonaceae	*Duma florulenta*	
Portulacaceae	**Portulaca pilosa*	
Portulacaceae	*Calandrinia eremaea*	
Portulacaceae	*Calandrinia polyandra*	
Portulacaceae	*Calandrinia ptychosperma*	
Portulacaceae	*Calandrinia* sp.	
Portulacaceae	*Portulaca filifolia*	
Portulacaceae	*Portulaca intraterranea*	
Portulacaceae	*Portulaca oleracea*	
Pottiaceae	*Tortula atrovirens*	
Primulaceae	*Samolus repens*	
Primulaceae	*Samolus* sp. Fortescue Marsh (A. Markey & R. CoppenFM 9702)	P1
Primulaceae	*Samolus* sp. Little Sandy Desert (SVL 2912)	
Proteaceae	*Grevillea berryana*	
Proteaceae	*Grevillea deflexa*	
Proteaceae	*Grevillea eriostachya*	
Proteaceae	*Grevillea juncifolia*	
Proteaceae	*Grevillea juncifolia* subsp. *juncifolia*	
Proteaceae	*Grevillea nematophylla*	
Proteaceae	*Grevillea pterosperma*	
Proteaceae	*Grevillea* sp.	
Proteaceae	*Grevillea spinosa*	
Proteaceae	*Grevillea stenobotrya*	
Proteaceae	*Grevillea striata*	
Proteaceae	*Grevillea wickhamii* subsp. *aprica*	
Proteaceae	*Hakea divaricata*	
Proteaceae	*Hakea leucoptera* subsp. *sericipes*	
Proteaceae	*Hakea lorea*	
Proteaceae	*Hakea preissii*	
Proteaceae	*Hakea rhombales*	
Pteridaceae	*Cheilanthes brownii*	
Pteridaceae	*Cheilanthes lasiophylla*	

Family	Species	Conservation status
Pteridaceae	*Cheilanthes sieberi* subsp. *pseudovellea*	
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*	
Rubiaceae	*Oldenlandia crouchiana*	
Rubiaceae	*Pomax* sp. desert (A.S. George 11968)	
Rubiaceae	*Psydrax attenuata*	
Rubiaceae	*Psydrax latifolia*	
Rubiaceae	*Psydrax rigidula*	
Rubiaceae	*Psydrax suaveolens*	
Rubiaceae	*Synaptantha tillaeacea*	
Rubiaceae	*Synaptantha tillaeacea* var. *hispidula*	
Rubiaceae	*Synaptantha tillaeacea* var. *tillaeacea*	
Ruppiaceae	*Ruppia maritima*	
Santalaceae	*Anthobolus leptomerioides*	
Santalaceae	*Exocarpos sparteus*	
Santalaceae	*Santalum acuminatum*	
Santalaceae	*Santalum lanceolatum*	
Santalaceae	*Santalum spicatum*	
Sapindaceae	*Diplopeltis stuartii* var. *stuartii*	
Sapindaceae	*Dodonaea coriacea*	
Sapindaceae	*Dodonaea microzyga* var. acrolobata	
Sapindaceae	*Dodonaea pachyneura*	
Sapindaceae	*Dodonaea petiolaris*	
Sapindaceae	*Dodonaea viscosa*	
Sapindaceae	*Dodonaea viscosa* subsp. *angustissima*	
Sapindaceae	*Dodonaea viscosa* subsp. *spatulata*	
Scrophulariaceae	*Eremophila* ?*clarkei*	
Scrophulariaceae	*Eremophila anomala*	P1
Scrophulariaceae	*Eremophila appressa*	P1
Scrophulariaceae	*Eremophila arachnoides* subsp. *arachnoides*	P3
Scrophulariaceae	*Eremophila citrina*	
Scrophulariaceae	*Eremophila clarkei*	
Scrophulariaceae	*Eremophila cuneifolia*	
Scrophulariaceae	*Eremophila eriocalyx*	
Scrophulariaceae	*Eremophila exilifolia*	
Scrophulariaceae	*Eremophila falcata*	
Scrophulariaceae	*Eremophila fasciata*	P3
Scrophulariaceae	*Eremophila forrestii*	
Scrophulariaceae	*Eremophila forrestii* subsp. *forrestii*	
Scrophulariaceae	*Eremophila galeata*	
Scrophulariaceae	*Eremophila glabra* subsp. *glabra*	
Scrophulariaceae	*Eremophila glabra* subsp. Inland Salt Lakes (B. & B.Backhouse SR 191)	
Scrophulariaceae	*Eremophila glabra* subsp. *tomentosa*	
Scrophulariaceae	*Eremophila laccata*	P1
Scrophulariaceae	*Eremophila lachnocalyx*	

Family	Species	Conservation status
Scrophulariaceae	*Eremophila lanata*	P3
Scrophulariaceae	*Eremophila lanceolata*	
Scrophulariaceae	*Eremophila latrobei* subsp. *filiformis*	
Scrophulariaceae	*Eremophila latrobei* subsp. *glabra*	
Scrophulariaceae	*Eremophila latrobei* subsp. *latrobei*	
Scrophulariaceae	*Eremophila longifolia*	
Scrophulariaceae	*Eremophila maculata*	
Scrophulariaceae	*Eremophila maculata* subsp. *brevifolia*	
Scrophulariaceae	*Eremophila margarethae*	
Scrophulariaceae	*Eremophila oppositifolia*	
Scrophulariaceae	*Eremophila oppositifolia* subsp. *angustifolia*	
Scrophulariaceae	*Eremophila petrophila* subsp. *petrophila*	
Scrophulariaceae	*Eremophila phyllopoda* subsp. *phyllopoda*	
Scrophulariaceae	*Eremophila platythamnos*	
Scrophulariaceae	*Eremophila punctata*	
Scrophulariaceae	*Eremophila rigida*	P3
Scrophulariaceae	*Eremophila* sp.	
Scrophulariaceae	*Eremophila* sp. Carnarvon Range (D.J. Edinger Nats 24)	
Scrophulariaceae	*Eremophila* sp. Katjarra South (N. Gibson *et al.* NG 7149)	P1
Scrophulariaceae	*Eremophila* sp. Little Sandy Desert (SVL 2615)	
Scrophulariaceae	*Eremophila* sp. Ostrina (M. Officer 164)	P1
Scrophulariaceae	*Eremophila spectabilis*	
Scrophulariaceae	*Eremophila tietkensii*	
Solanaceae	*Duboisia hopwoodii*	
Solanaceae	*Nicotiana benthamiana*	
Solanaceae	*Nicotiana occidentalis*	
Solanaceae	*Nicotiana rosulata*	
Solanaceae	*Nicotiana rosulata* subsp. *rosulata*	
Solanaceae	*Nicotiana simulans*	
Solanaceae	*Solanaceae* sp.	
Solanaceae	*Solanum centrale*	
Solanaceae	*Solanum cleistogamum*	
Solanaceae	*Solanum gabrielae*	
Solanaceae	*Solanum horridum*	
Solanaceae	*Solanum lasiophyllum*	
Solanaceae	*Solanum orbiculatum* subsp. *macrophyllum*	
Solanaceae	*Solanum phlomoides*	
Solanaceae	*Solanum* sp.	
Solanaceae	*Solanum sturtianum*	
Stylidiaceae	*Levenhookia chippendalei*	
Stylidiaceae	*Stylidium desertorum*	
Stylidiaceae	*Stylidium humphreysii*	
Stylidiaceae	*Stylidium inaequipetalum*	
Surianaceae	*Stylobasium spathulatum*	

Family	Species	Conservation status
Thymelaceae	*Pimelea ammocharis*	
Thymelaeaceae	*Pimelea ammocharis*	
Thymelaeaceae	*Pimelea microcephala* subsp. *microcephala*	
Thymelaeceae	*Pimelea trichostachya*	
Typhaceae	*Typha domingensis*	
Violaceae	*Hybanthus aurantiacus*	
Xanthorrhoeaceae	*Xanthorrhoea thorntonii*	
Zygophyllaceae	*Tribulus astrocarpus*	
Zygophyllaceae	*Tribulus macrocarpus*	
Zygophyllaceae	*Tribulus occidentalis*	
Zygophyllaceae	*Tribulus platypterus*	
Zygophyllaceae	*Tribulus suberosus*	
Zygophyllaceae	*Zygophyllum aurantiacum*	
Zygophyllaceae	*Zygophyllum aurantiacum* subsp. *aurantiacum*	
Zygophyllaceae	*Zygophyllum compressum*	
Zygophyllaceae	*Zygophyllum eremaeum*	
Zygophyllaceae	*Zygophyllum iodocarpum*	
Zygophyllaceae	*Zygophyllum simile*	
Zygophyllaceae	*Zygophyllum tesquorum*	

Appendix 6 Vertebrate species records from desktop review and the field survey

Scientific name	Common name	EPBC Threatened species	WC Act	DBCA Priority list	Introduced	EPBC Protected Matters database	DBCA Threatened Species database	NatureMap	Birdata	Van Leeuwen (2002)	Start *et al.* (2012)	Phoenix (2010)	Phoenix (2011)	Enviroworks (2010a)	Enviroworks (2010b)	Phoenix (2012)	Phoenix (2017)	Phoenix (2018c, d)	This survey
Amphibians																			
Cyclorana maini	Sheep Frog							●		●						●		●	
Cyclorana platycephala	Water-holding Frog															●		●	
Litoria rubella	Little Red Tree Frog												●			●		●	
Neobatrachus aquilonius	Northern Burrowing Frog									●								●	
Neobatrachus sudellae	Desert Trilling Frog							●											
Neobatrachus sutor	Shoemaker Frog							●										●	
Neobatrachus wilsmorei	Plonking Frog							●											
Notaden nichollsi	Desert Spadefoot							●		●								●	
Platyplectrum spenceri	Desert Spadefoot									●		●							
Uperoleia micromeles	Tanami Toadlet																	●	
Uperoleia russelli	Northwest Toadlet											●							
Reptiles																			
Chelodina steindachneri	Flat-shelled Turtle							●		●									
Amphibolurus longirostris	Long-nosed Dragon							●		●		●	●					●	
Ctenophorus caudicinctus caudicinctus	No Common Name							●		●		●	●			●			
Ctenophorus caudicinctus mensarum	No Common Name							●											
Ctenophorus isolepis gularis	Central Military Dragon							●		●		●	●			●		●	●
Ctenophorus nuchalis	Central Netted Dragon							●		●		●	●		●			●	●

Scientific name	Common name	EPBC Threatened species	WC Act	DBCA Priority list	Introduced	EPBC Protected Matters database	DBCA Threatened Species database	NatureMap	Birdata	Van Leeuwen (2002)	Start *et al.* (2012)	Phoenix (2010)	Phoenix (2011)	Enviroworks (2010a)	Enviroworks (2010b)	Phoenix (2012)	Phoenix (2017)	Phoenix (2018c, d)	This survey
Ctenophorus reticulatus	Western Netted Dragon							●		●		●	●			●			
Ctenophorus scutulatus	Lozenge-marked Dragon							●		●								●	
Diporiphora amphiboluroides	Mulga dragon												●			●			
Diporiphora paraconvergens	Grey-striped Western Desert Dragon							●										●	
Diporiphora valens	Southern Pilbara Tree Dragon									●			●		●			●	
Moloch horridus	Thorny Devil							●		●		●	●		●				●
Pogona minor minor	Western Bearded Dragon							●		●		●	●	●	●			●	
Nephrurus laevissimus	Pale Knob-tailed Gecko							●		●								●	
Nephrurus levis	Smooth Knob-tailed Gecko							●		●								●	
Nephrurus wheeleri cinctus	Northern Banded Knob-tailed Gecko												●						
Crenadactylus ocellatus	Clawless Gecko							●											
Diplodactylus conspicillatus	Variable Fat-tailed Gecko							●		●		●	●					●	
Diplodactylus laevis	Desert Fat-tailed Gecko							●										●	
Diplodactylus pulcher	No Common Name							●		●		●				●			
Lucasium stenodactylum	Sand-plain Gecko							●		●		●	●					●	
Oedura marmorata	Marbled Velvet Gecko							●		●									
Rhynchoedura ornata	Western Beaked Gecko							●		●		●	●			●		●	
Strophurus assimilis	Goldfields Spiny-tailed Gecko												●						
Strophurus ciliaris aberrans	Northern Spiny-tailed Gecko							●		●			●					●	
Strophurus elderi	Jewelled Gecko							●		●			●					●	

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Strophurus jeanae	Southern Phasmid Gecko									●			●						
Strophurus wellingtonae	Western Spiny-tailed Gecko									●		●	●			●			
Gehyra punctata	Spotted Dtella							●		●		●	●						
Gehyra purpurascens	Purplish Dtella							●		●									
Gehyra variegata	Variegated Tree Dtella							●		●		●	●			●		●	
Heteronotia binoei	Bynoe's Gecko							●		●		●	●					●	
Delma desmosa	Banded Delma							●				●							
Delma haroldi	No Common Name									●						●			
Delma nasuta	No Common Name							●		●									
Delma pax	Peace Delma									●									
Delma tincta	Excitable Delma											●							
Lialis burtonis	Burton's Legless Lizard							●		●		●						●	●
Pygopus nigriceps	Western Hooded Scaly-foot									●									
Carlia munda	Rainbow-skink												●			●			
Carlia triacantha	Desert Rainbow-skink									●			●						
Cryptoblepharus buchananii	Buchanan's Snake-eyed Skink							●		●									
Cryptoblepharus plagiocephalus	Peron's Snake-eyed Skink									●									
Ctenotus ariadnae	Ariadna's Ctenotus							●		●									
Ctenotus brooksi	Brook's Ctenotus							●		●								●	
Ctenotus calurus	Blue-tailed Finesnout Ctenotus							●		●			●					●	

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Ctenotus duricola	Pilbara Ctenotus											●	●						
Ctenotus dux	Narrow-lined Ctenotus							●		●									
Ctenotus grandis grandis	No Common Name							●		●		●	●	●	●			●	
Ctenotus hanloni	Nimble Ctenotus												●					●	
Ctenotus inornatus	Bar-shouldered Ctenotus							●		●		●	●			●		●	
Ctenotus leae	Orange-tailed Finesnout Ctenotus									●								●	
Ctenotus leonhardii	Leonhard's Ctenotus									●		●	●					●	
Ctenotus nasutus	Nasute Finesnout Ctenotus							●		●									
Ctenotus pantherinus ocellifer	No Common Name							●		●		●	●			●		●	
Ctenotus piankai	Pianka's Ctenotus							●		●									
Ctenotus quattuordecimlineatus	Fourteen-lined Ctenotus							●		●		●	●					●	
Ctenotus schomburgkii	Barred Widesnout Ctenotus							●		●		●						●	
Ctenotus uber	Spotted Ctenotus							●				●	●			●			
Cyclodomorphus melanops melanops	Spinifex Slender Blue-tongue									●								●	
Egernia depressa	Southern Pygmy Spiny-tailed Skink							●		●		●	●					●	
Egernia formosa	No Common Name							●											
Eremiascincus fasciolatus	Narrow-banded Sand Swimmer									●									
Eremiascincus musivus	Mosaic Desert Skink																	●	
Eremiascincus pallidus	No Common Name							●										●	
Eremiascincus richardsonii	Broad-banded Sand Swimmer							●		●		●	●			●		●	

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Lerista amicorum	No Common Name												●						
Lerista bipes	North-western Sandslider							●		●		●	●					●	●
Lerista ips	No Common Name							●		●								●	
Lerista macropisthopus remota	No Common Name			P2			●	●		●								●	
Lerista muelleri	Wood Mulch Slider									●									
Lerista neander	Pilbara Robust Slider									●		●							
Lerista timida	Timid Slider							●				●	●						
Lerista xanthura	Yellow-tailed Plain Slider							●											
Liopholis kintorei	Great Desert Skink	VU	VU			●													
Liopholis striata	Night Skink							●		●									
Menetia greyii	Common Dwarf Skink							●		●		●	●			●			
Morethia ruficauda exquisita	Pilbara Lined Fire-tailed Skink							●											
Morethia ruficauda ruficauda	Northern Lined Fire-tailed Skink							●		●									
Notoscincus ornatus ornatus	No Common Name							●		●									
Tiliqua multifasciata	Central Blue-tongue									●		●						●	
Varanus acanthurus	Ridge-tailed Monitor									●									
Varanus brevicauda	Short-tailed Pygmy Monitor									●		●	●						
Varanus caudolineatus	Stripe-tailed Pygmy Monitor									●		●	●			●			
Varanus eremius	Pygmy Desert Monitor							●		●		●	●					●	●
Varanus giganteus	Perentie									●			●						

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Varanus gilleni	Pygmy Mulga Monitor							●		●			●						
Varanus gouldii	Sand Monitor							●		●						●			
Varanus panoptes	Yellow-spotted Monitor							●		●		●	●			●		●	
Varanus tristis tristis	Black-headed Monitor							●		●		●	●						
Anilios endoterus	No Common Name									●								●	
Anilios grypus	Beaked Blind Snake									●									
Anilios hamatus	Paleheaded Blind Snake											●							
Anilios waitii	No Common Name									●									
Antaresia perthensis	Pygmy Python									●									
Brachyurophis fasciolatus	Narrow-banded Shovel-nosed Snake									●									
Demansia psammophis cupreiceps	No Common Name							●		●									
Demansia rufescens	Rufous Whipsnake									●									
Furina ornata	Moon Snake							●		●									
Parasuta monachus	Monk Snake							●		●						●			
Pseudechis australis	Mulga Snake							●				●	●					●	
Pseudonaja mengdeni	Western Brown Snake									●								●	
Pseudonaja modesta	Ringed Brown Snake							●		●		●	●						
Simoselaps anomalus	Desert Banded Snake							●		●								●	
Simoselaps bertholdi	Jan's Banded Snake									●									
Suta fasciata	Rosen's Snake															●			

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Suta punctata	Spotted Snake											●	●						
Birds																			
Anas gracilis	Grey Teal									●			●			●	●	●	
Anas querquedula	Garganey	Mig	Mig				●												
Anas rhynchotis	Australasian Shoveler																●		
Anas superciliosa	Pacific Black Duck									●			●			●			
Aythya australis	Hardhead									●						●	●		
Chenonetta jubata	Australian Wood Duck									●						●			
Cygnus atratus	Black Swan									●							●	●	
Dendrocygna eytoni	Plumed Whistling-duck															●			
Malacorhynchus membranaceus	Pink-eared Duck									●						●	●		
Tadorna tadornoides	Australian Shelduck									●							●		
Apus pacificus	Fork-tailed Swift	Mig	Mig										●			●			
Aegotheles cristatus	Australian Owlet-nightjar							●	●	●						●			
Eurostopodus argus	Spotted Nightjar							●	●	●						●			
Podargus strigoides	Tawny Frogmouth							●	●	●									
Burhinus grallarius	Bush Stone-curlew									●		●							
Charadrius ruficapillus	Red-capped Plover							●	●	●						●			
Charadrius veredus	Oriental Plover	Mig	Mig			●											●		
Elseyornis melanops	Black-fronted Dotterel									●						●			

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Erythrogonys cinctus	Red-kneed Dotterel															●			
Larus novaehollandiae	Silver Gull															●			
Vanellus tricolor	Banded Lapwing																	●	
Stiltia isabella	Australian Pratincole									●									
Ardeotis australis	Australian Bustard							●	●	●		●	●		●	●		●	●
Cladorhynchus leucocephalus	Banded Stilt																		
Himantopus himantopus	Black-winged Stilt									●						●	●		
Recurvirostra novaehollandiae	Red-necked Avocet									●							●		
Tringa nebularia	Common Greenshank	Mig	Mig														●		
Actitis hypoleucos	Common Sandpiper	Mig	Mig							●									
Tringa glareola	Wood Sandpiper	Mig	Mig							●									
Ardea ibis	Cattle Egret					●													
Ardea modesta	Eastern Great Egret					●				●									
Ardea pacifica	White-necked Heron									●							●	●	
Egretta novaehollandiae	White-faced Heron									●						●	●		
Threskiornis spinicollis	Straw-necked Ibis															●			
Columba livia	Rock Dove				●	●													
Geopelia cuneata	Diamond Dove							●	●	●		●	●			●			●
Geophaps plumifera	Spinifex Pigeon							●	●	●			●						
Ocyphaps lophotes	Crested Pigeon							●	●	●		●	●	●	●	●		●	

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Phaps chalcoptera	Common Bronzewing							●	●	●		●	●						
Dacelo leachii	Blue-winged Kookaburra												●						
Todiramphus pyrrhopygius	Red-backed Kingfisher							●	●	●		●	●			●			
Merops ornatus	Rainbow Bee-eater					●				●		●	●					●	●
Cacomantis pallidus	Pallid Cuckoo							●	●	●			●			●			
Chalcites basalis	Horsfield's Bronze-cuckoo								●	●			●						
Chalcites osculans	Black-eared Cuckoo								●				●			●			
Accipiter cirrocephalus	Collared Sparrowhawk							●	●	●		●				●			
Accipiter fasciatus	Brown Goshawk							●	●	●								●	
Aquila audax	Wedge-tailed Eagle							●	●	●		●	●		●	●		●	
Circus assimilis	Spotted Harrier							●	●	●			●			●			
Elanus axillaris (Elanus caeruleus)	Black-shouldered Kite								●	●								●	
Haliastur sphenurus	Whistling Kite							●	●	●		●	●			●		●	
Hamirostra melanosternon	Black-breasted Buzzard									●		●	●					●	
Hieraaetus morphnoides (*Aquila morphnoides*)	Little Eagle									●		●	●					●	
Milvus migrans	Black Kite								●	●			●	●	●				
Falco berigora	Brown Falcon							●	●	●		●	●			●			
Falco cenchroides	Nankeen Kestrel							●	●	●		●	●			●		●	
Falco hypoleucos	Grey Falcon		VU				●	●	●						●				
Falco longipennis	Australian Hobby							●	●	●		●	●						

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Falco peregrinus	Peregrine Falcon		SP				●	●	●			●	●						
Leipoa ocellata	Malleefowl	VU	VU			●	●	●											
Fulica atra	Eurasian Coot									●						●	●		
Tribonyx ventralis	Black-tailed Native-hen															●			
Acanthiza apicalis	Inland Thornbill							●	●	●			●			●			
Acanthiza chrysorrhoa	Yellow-rumped Thornbill							●	●	●		●				●			
Acanthiza robustirostris	Slaty-backed Thornbill							●	●	●		●	●			●		●	●
Acanthiza uropygialis	Chestnut-rumped Thornbill							●	●	●		●	●			●		●	
Aphelocephala leucopsis	Southern Whiteface									●		●							
Aphelocephala nigricincta	Banded Whiteface									●			●						
Gerygone fusca	Western Gerygone							●	●	●		●	●		●			●	
Pyrrholaemus brunneus	Redthroat									●						●		●	
Smicrornis brevirostris	Weebill							●	●	●		●	●			●		●	
Mirafra javanica	Horsfield's Bushlark									●		●	●					●	
Artamus cinereus	Black-faced Woodswallow							●	●	●		●	●	●	●	●		●	●
Artamus minor	Little Woodswallow							●	●	●		●							
Artamus personatus	Masked Woodswallow							●	●	●			●			●		●	
Cracticus nigrogularis	Pied Butcherbird							●	●	●		●	●	●	●			●	●
Cracticus tibicen	Australian Magpie							●	●	●		●	●			●			
Cracticus torquatus	Grey Butcherbird							●	●	●		●	●			●			

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Coracina maxima	Ground Cuckoo-shrike							●	●			●				●			
Coracina novaehollandiae	Black-faced Cuckoo-shrike							●	●	●		●	●		●	●		●	
Lalage sueurii	White-winged Triller								●	●			●			●			
Climacteris affinis	White-browed Treecreeper							●	●										
Corvus bennetti	Little Crow							●	●	●		●	●		●	●			●
Corvus orru	Torresian Crow							●	●	●		●	●			●			
Emblema pictum	Painted Finch							●	●	●		●							
Taeniopygia guttata	Zebra Finch							●	●	●		●	●	●	●	●		●	●
Cinclosoma castaneothorax	Chestnut-breasted Quail-thrush							●	●			●				●			
Cinclosoma cinnamomeum	Cinnamon Quail-thrush									●									
Psophodes occidentalis	Chiming Wedgebill							●	●										
Cheramoeca leucosterna	White-backed Swallow								●	●									
Hirundo neoxena	Welcome Swallow							●	●										
Petrochelidon ariel	Fairy Martin								●	●									
Petrochelidon nigricans	Tree Martin								●	●			●			●			
Amytornis striatus striatus	Striated Grasswren			P4			●	●		●			●						
Malurus lamberti	Variegated Fairy-wren							●	●	●		●	●		●	●		●	●
Malurus leucopterus	White-winged Fairy-wren							●	●	●		●	●			●		●	●
Malurus splendens	Splendid Fairy-wren											●				●			
Stipiturus ruficeps	Rufous-crowned Emu-wren									●									●

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Cincloramphus cruralis	Brown Songlark							●	●	●			●						
Cincloramphus mathewsi	Rufous Songlark									●			●			●		●	
Eremiornis carteri	Spinifexbird									●									●
Acanthagenys rufogularis	Spiny-cheeked Honeyeater							●	●	●		●	●	●	●	●		●	
Certhionyx variegatus	Pied Honeyeater							●	●	●			●			●		●	
Conopophila whitei	Grey Honeyeater											●							
Epthianura aurifrons	Orange Chat							●	●	●									
Epthianura tricolor	Crimson Chat							●	●	●		●	●			●			
Lichenostomus keartlandi	Grey-headed Honeyeater								●	●			●					●	
Lichenostomus penicillatus	White-plumed Honeyeater								●	●		●	●			●		●	
Lichenostomus virescens	Singing Honeyeater								●			●	●			●		●	
Lichmera indistincta	Brown Honeyeater							●	●	●			●						
Manorina flavigula	Yellow-throated Miner							●	●			●	●			●		●	●
Melithreptus gularis	Black-chinned Honeyeater																	●	
Purnella albifrons (*Phylidonyris albifrons*)	White-fronted Honeyeater							●	●	●						●		●	
Sugomel niger (*Certhionyx niger*)	Black Honeyeater							●	●	●			●			●		●	
Grallina cyanoleuca	Magpie-lark							●	●	●		●	●		●	●		●	
Anthus novaeseelandiae	Australasian Pipit								●	●		●	●					●	
Dicaeum hirundinaceum	Mistletoebird							●	●	●			●			●			
Daphoenositta chrysoptera	Varied Sittella									●		●	●			●			

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Colluricincla harmonica	Grey Shrike-thrush							●	●	●		●				●			
Oreoica gutturalis pallescens	Crested Bellbird							●	●	●		●	●			●		●	●
Pachycephala rufiventris	Rufous Whistler							●	●	●		●	●			●		●	
Pardalotus rubricatus	Red-browed Pardalote							●	●			●	●						
Pardalotus striatus	Striated Pardalote							●	●	●									
Melanodryas cucullata	Hooded Robin								●	●		●	●			●		●	
Microeca fascinans	Jacky Winter									●								●	
Petroica goodenovii	Red-capped Robin							●	●	●		●	●			●			
Pomatostomus superciliosus	White-browed Babbler							●	●	●			●			●			
Pomatostomus temporalis	Grey-crowned Babbler							●	●	●		●	●		●	●		●	
Ptilonorhynchus guttatus	Western Bowerbird								●	●		●							
Rhipidura albiscapa	Grey Fantail								●	●									
Rhipidura leucophrys	Willie Wagtail							●	●	●		●	●		●	●		●	●
Anhinga novaehollandiae	Australasian Darter									●						●			
Pelecanus conspicillatus	Australian Pelican												●						
Microcarbo melanoleucos	Little Pied Cormorant									●									
Poliocephalus poliocephalus	Hoary-headed Grebe									●						●	●		
Tachybaptus novaehollandiae	Australasian Grebe															●			
Cacatua sanguinea	Little Corella							●	●	●		●	●	●	●	●		●	
Eolophus roseicapillus (*Cacatua roseicapilla*)	Galah							●	●	●		●	●	●	●	●		●	

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Nymphicus hollandicus	Cockatiel							●	●	●		●	●			●			
Barnardius zonarius	Australian Ringneck								●	●		●	●	●	●	●			
Melopsittacus undulatus	Budgerigar							●	●	●			●	●	●	●		●	
Pezoporus occidentalis	Night Parrot	EN	CR															●	
Polytelis alexandrae	Princess Parrot	VU		P4		●													
Psephotus varius	Mulga Parrot								●	●					●	●			
Ninox novaeseelandiae	Southern Boobook							●	●	●		●	●						
Tyto javanica	Eastern Barn Owl								●			●							
Dromaius novaehollandiae	Emu							●	●	●		●	●	●	●	●		●	●
Turnix velox	Little Button-quail							●	●	●			●			●		●	
Mammals																			
Bos taurus	European Cattle				●	●				●	●	●	●	●	●	●		●	●
Capra hircus	Goat				●									●	●				
Camelus dromedarius	Camel				●	●				●	●	●	●	●	●			●	●
Canis sp.	Dog / Dingo					●		●		●	●	●	●	●	●	●		●	
Vulpes vulpes	Red Fox				●	●		●										●	
Felis catus	Cat				●	●				●	●	●	●					●	
Saccolaimus flaviventris	Yellow-bellied Sheath-tail Bat							●		●		●	●						
Taphozous georgianus	Common Sheath-tail Bat							●		●		●	●						
Taphozous hilli	Hill's Sheath-tail Bat											●	●						

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Macroderma gigas	Ghost Bat	VU	VU									●							
Chaerephon jobensis	Northern Free-tail Bat												●			●		●	
Mormopterus lumsdenae	Northern Free-tail Bat							●		●			●					●	
Tadarida australis	White-striped Free-tail Bat									●		●	●					●	
Chalinolobus gouldii	Gould's Wattled Bat									●		●	●			●		●	
Nyctophilus geoffroyi	Lesser Long-eared Bat							●		●		●	●			●		●	
Scotorepens greyii	Little Broad-nosed Bat									●		●	●			●		●	
Vespadelus finlaysoni	Finlayson's Cave Bat									●		●	●			●		●	
Antechinomys laniger	Kultarr									●	●		●						
Dasycercus blythi	Brush-tailed Mulgara			P4			●	●					●			●		●	
Dasycercus cristicauda	Crest-tailed Mulgara	VU		P4						●	●	●	●						
Dasykaluta rosamondae	Little Red Kaluta									●	●	●	●					●	
Dasyurus geoffroii	Western Quoll	VU	VU				●			●	●								
Dasyurus hallucatus	Northern Quoll	EN	EN			●													
Ningaui ridei	Wongai Ningaui							●		●	●		●					●	
Planigale maculata	Common Planigale									●									
Planigale sp.																		●	
Planigale sp. 1											●								
Planigale sp. 2										●	●								
Pseudantechinus woolleyae	Woolley's Pseudantechinus							●		●	●								

Scientific name	Common name	EPBC Threatened species	WC Act	DBCA Priority list	Introduced	EPBC Protected Matters database	DBCA Threatened Species database	NatureMap	Birdata	Van Leeuwen (2002)	Start *et al.* (2012)	Phoenix (2010)	Phoenix (2011)	Enviroworks (2010a)	Enviroworks (2010b)	Phoenix (2012)	Phoenix (2017)	Phoenix (2018c, d)	This survey
Sminthopsis crassicaudata	Fat-tailed Dunnart											●	●					●	
Sminthopsis longicaudata	Long-tailed Dunnart			P4			●	●		●	●								
Sminthopsis macroura	Stripe-faced Dunnart							●		●	●	●				●		●	
Sminthopsis ooldea	Ooldea Dunnart							●		●	●		●						
Sminthopsis youngsoni	Lesser Hairy-footed Dunnart							●		●	●		●						
Macropus robustus	Euro							●		●	●	●							
Macropus rufus	Red Kangaroo									●	●	●	●	●	●	●		●	
Petrogale lateralis lateralis	Black-flanked Rock-wallaby	EN	EN				●												
Petrogale sp.										●	●								
Bettongia lesueur	Burrowing Bettong							●		●	●								
Oryctolagus cuniculus	Rabbit				●	●				●	●					●		●	●
Tachyglossus aculeatus	Short-beaked Echidna									●	●		●					●	
Notoryctes caurinus	Northern Marsupial Mole			P4		●												●	
Macrotis lagotis	Greater Bilby	VU	VU			●	●	●										●	
Equus asinus	Donkey				●	●				●	●	●	●			●		●	●
Equus caballus	Horse				●	●							●	●	●				
Leporillus apicalis	Lesser Stick-nest Rat	EX	EX					●		●	●								
Mus musculus	House Mouse				●	●		●		●	●	●				●		●	
Notomys alexis	Spinifex Hopping-mouse							●		●	●	●	●			●		●	
Pseudomys chapmani	Western Pebble-mound Mouse			P4						●	●		●						

Scientific name	Common name	EPBC Threatened species	WC Act	DBCA Priority list	Introduced	EPBC Protected Matters database	DBCA Threatened Species database	NatureMap	Birdata	Van Leeuwen (2002)	Start *et al.* (2012)	Phoenix (2010)	Phoenix (2011)	Enviroworks (2010a)	Enviroworks (2010b)	Phoenix (2012)	Phoenix (2017)	Phoenix (2018c, d)	This survey
Pseudomys desertor	Desert Mouse							●		●	●	●	●					●	
Pseudomys hermannsburgensis	Sandy Inland Mouse							●		●	●	●	●					●	
Zyzomys argurus	Common Rock-rat							●		●	●								

Appendix 7 Flora species inventory from the field survey

Family	Species
Amaranthaceae	*Ptilotus obovatus*
Amaranthaceae	*Ptilotus stipitatus*
Amaranthaceae	*Surreya diandra*
Asteraceae	*Angianthus tomentosus*
Asteraceae	*Brachyscome ciliaris*
Asteraceae	*Cephalipterum drummondii*
Asteraceae	*Kippistia suaedifolia*
Asteraceae	*Leiocarpa semicalva*
Asteraceae	*Olearia incana*
Asteraceae	*Podolepis capillaris*
Asteraceae	*Rutidosis helichrysoides*
Asteraceae	**Sonchus oleraceus*
Boraginaceae	*Halgania erecta*
Boraginaceae	*Trichodesma zeylanicum*
Campanulaceae	*Wahlenbergia tumidifructa*
Casuarinaceae	*Casuarina obesa*
Celastraceae	*Stackhousia* sp. swollen gynophore (W.R. Barker 2041)
Chenopodiaceae	*Chenopodium gaudichaudianum*
Chenopodiaceae	*Dysphania kalpari*
Chenopodiaceae	*Enchylaena tomentosa*
Chenopodiaceae	*Eremophea spinosa*
Chenopodiaceae	*Maireana amoena*
Chenopodiaceae	*Maireana luehmannii*
Chenopodiaceae	*Neobassia astrocarpa*
Chenopodiaceae	*Rhagodia drummondii*
Chenopodiaceae	*Sclerolaena cornishiana*
Chenopodiaceae	*Sclerolaena fimbriolata*
Chenopodiaceae	*Tecticornia* aff. *calyptrata*
Chenopodiaceae	*Tecticornia calyptrata*
Chenopodiaceae	*Tecticornia indica*
Chenopodiaceae	*Tecticornia indica* subsp. *bidens*
Chenopodiaceae	*Tecticornia indica* subsp. *leiostachya*
Chenopodiaceae	*Tecticornia laevigata*
Chenopodiaceae	*Tecticornia pruinosa*
Chenopodiaceae	*Tecticornia pterygosperma* subsp. *denticulata*

Family	Species
Chenopodiaceae	*Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer *et al.* KS 1063) (P1 WC Act)
Chenopodiaceae	*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)
Chenopodiaceae	*Tecticornia willisii* (K.A. Shepherd & C. Wilkins KS 830) (P1 WC Act)
Chenopodiaceae	*Tecticornia* sp. sterile 1
Chenopodiaceae	*Tecticornia* sp. (sterile 2)
Chenopodiaceae	*Tecticornia* sp. sterile 3
Chenopodiaceae	*Tecticornia* sp. sterile 4
Chenopodiaceae	*Tecticornia* sp. sterile 5
Chenopodiaceae	*Tecticornia* sp. Sunshine Lake (K.A. Shepherd *et al.* KS 867) (P1 WC Act)
Chenopodiaceae	*Tecticornia undulata*
Euphorbiaceae	*Adriana tomentosa*
Fabaceae	*Acacia burkittii*
Fabaceae	*Acacia dictyophleba*
Fabaceae	*Acacia ligulata*
Fabaceae	*Acacia maitlandii*
Fabaceae	*Acacia oswaldii*
Fabaceae	*Acacia tetragonophylla*
Fabaceae	*Indigofera georgei*
Fabaceae	*Phyllota luehmannii*
Fabaceae	*Senna artemisioides* subsp. *helmsii*
Fabaceae	*Senna artemisioides* subsp. *petiolaris*
Fabaceae	*Swainsona laciniata*
Frankeniaceae	*Frankenia cinerea*
Goodeniaceae	*Goodenia gypsicola*
Goodeniaceae	*Goodenia triodiophila*
Goodeniaceae	*Scaevola collaris*
Goodeniaceae	*Scaevola parvifolia* subsp. *pilbarae*
Goodeniaceae	*Scaevola spinescens*
Goodeniaceae	*Velleia glabrata*
Gyrostemonaceae	*Codonocarpus cotinifolius*
Gyrostemonaceae	*Gyrostemon ramulosus*
Lamiaceae	*Dicrastylis kumarinensis*
Lamiaceae	*Newcastelia spodiotricha*
Lamiaceae	*Quoya loxocarpa*
Malvaceae	*Alyogyne pinoniana*
Malvaceae	*Lawrencia densiflora*
Malvaceae	*Lawrencia glomerata*

Family	Species
Malvaceae	*Lawrencia helmsii*
Malvaceae	*Seringia elliptica*
Malvaceae	*Sida* sp. sand dunes (A.A. Mitchell PRP1208)
Myrtaceae	*Aluta maisonneuvei*
Myrtaceae	*Melaleuca interioris*
Myrtaceae	*Micromyrtus flaviflora*
Phrymaceae	*Mimulus gracilis*
Poaceae	*Aristida contorta*
Poaceae	*Aristida holathera*
Poaceae	*Cymbopogon ambiguus*
Poaceae	*Eragrostis cumingii*
Poaceae	*Eragrostis dielsii*
Poaceae	*Eragrostis eriopoda*
Poaceae	*Eragrostis falcata*
Poaceae	*Eragrostis kennedyae*
Poaceae	*Eragrostis leptocarpa*
Poaceae	*Eragrostis pergracilis*
Poaceae	*Eriachne aristidea*
Poaceae	*Monachather paradoxus*
Poaceae	*Paspalidium reflexum*
Poaceae	*Triodia basedowii*
Poaceae	*Triodia melvillei*
Poaceae	*Triodia schinzii*
Polygalaceae	*Polygala isingii*
Proteaceae	*Grevillea eriostachya*
Proteaceae	*Grevillea juncifolia*
Proteaceae	*Grevillea stenobotrya*
Proteaceae	*Hakea lorea*
Rubiaceae	*Synaptantha tillaeacea* var. *hispidula*
Santalaceae	*Anthobolus leptomerioides*
Sapindaceae	*Dodonaea viscosa*
Scrophulariaceae	*Eremophila cuneifolia*
Scrophulariaceae	*Eremophila decipiens*
Scrophulariaceae	*Eremophila glabra*
Solanaceae	*Solanum cleistogamum*
Solanaceae	*Solanum lasiophyllum*
Zygophyllaceae	*Zygophyllum aurantiacum*

Family	Species
Zygophyllaceae	*Zygophyllum compressum*