MERIDIAN BUSINESS PARK INDUSTRIAL DEVELOPMENT, NEERABUP

COMPLIANCE REPORT 2020
EPBC 2007/3479

Prepared for:	City of Wanneroo
Report Date:	15 October 2021
Version:	2
Report No.	2021-616

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Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed 

Full name (please print) Lionel Nicholson

Position (please print) Manager Infrastructure Capital Works

Organisation (please print including ABN/ACN if applicable):

City of Wanneroo

ABN: 64 295 981 165

Date 3 / 11 / 2021

1 INTRODUCTION

The Meridian Business Park Industrial Development, Neerabup is an area zoned for industrial development in the City of Wanneroo.

The Meridian Business Park Industrial Development contains Matters of National Environmental Significance so the proposed development was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal was assessed as a Controlled Action (EPBC 2007/3479) and was approved on 2 June 2014 with conditions (Appendix 1).

The following variations to the original approval have been undertaken by the Proponent:

- An amendment to the definition of the action was approved on 02 June 2014 (Appendix 2);
- A second request to vary Conditions 3 and 4 was approved on 17 June 2016 (Appendix 3);
- A third request to vary Schedule 1 and 2 was approved on 10 November 2016 (Appendix 4); and
- Aa fourth request for changes to Conditions 1 and 3, Schedules 1 and 2 and the addition of Schedule 3 was approved on 22 June 2019 (Appendix 5).

Condition 7 of the EPBC approval requires the City of Wanneroo to publish an annual compliance report. Specifically, Condition 7 states:

> *Within three (3) months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the management plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published. Non-compliance with any of the conditions of the approval must also be reported to the Department within 2 business days of becoming aware of the non-compliance*

This Compliance Report has been prepared by PGV Environmental on behalf of the City of Wanneroo in accordance with Condition 7 of the EPBC approval.

2 DESCRIPTION OF ACTIVITIES

2.1 Project Details

EPBC number:	2007/3479
Project name:	Meridian Business Park Industrial Development, Neerabup
Approval holder:	City of Wanneroo
ABN:	64 295 981 165
Approved action:	Resource Extraction and Industrial Development
Location of the project:	City of Wanneroo
Responsible Person:	Simon Hempsell
Reporting period:	19 July 2020 to 19 July 2021
Date of preparation:	12 October 2021

2.2 Current Status

Clearing for the extractive Industry commenced on 10 June 2021 in the area (44.54ha) designated as Stage 1 in the Management Plan being cleared (Plate 1). Prior to clearing a trapping program was undertaken for native vertebrate fauna.

Plate 1: Clearing of Stage 1

A one-way access loop has been constructed out of crushed brick material (Plate 2) and a temporary site office has been installed on the site.

Plate 2: Crushed Brick Access Road

Extraction operations have commenced in Stage 3 (Plate 3). As of September 2021, 41,838 m^3 of sand and limestone has been excavated and taken off site.

Plate 3: Extraction Operations September 2021

The clearing in the Mather Road Reserve was undertaken 17 September 2021 with the clearing of 1.98ha. A total of 46.52ha has been cleared to date.

3 COMPLIANCE

3.1 Condition 1

The person taking the action must not clear more than 130.7 hectares (ha) of foraging habitat for the Carnaby's Black Cockatoo (Calyptorhynchus latirostris) from the proposal site. This clearing may only be undertaken if the management plans required under conditions 2 and 3 have been approved by the Minister.

Currently 46.52ha have been cleared from the site. The Action is in compliance with Condition 1.

3.2 Condition 2

To mitigate impacts to Carnaby's Black Cockatoos, prior to the commencement of the action, the person taking the action must prepare and submit a Construction Environmental Management Plan (CEMP) to the Minister for approval. The CEMP must be submitted at least 3 months prior to commencement of the action.

The CEMP must include, but not be limited to:

a) *avoidance and mitigation measures to prevent impacts to black cockatoos following the commencement of the action;*
b) *measures to physically delineate areas that will be within the Conservation Area;*
c) *management measures to control site access, weeds, Phytophthora dieback, erosion and dust;*
d) *details of monitoring, reporting and contingency measures if performance indicators are not met;*
e) *timeframes for the implementation of the above measures; and*
f) *descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.*

If the Minister approves the CEMP the approved CEMP must be implemented.

The Construction Environmental Management Plan (CEMP) was approved by the Minister on 16 June 2017 and an updated plan approved on 3 July 2020. The initial plan approval was reported in 2018-2019 Compliance report and the approval of updated version reported in EPBC Compliance Report 2019-2020. No further changes are required in the 2020-2021 reporting period.

The CEMP is being implemented as detailed in Section 5 of this report.

3.3 Condition 3

To mitigate impacts to Carnaby's Black Cockatoos, prior to the commencement of the action. the person taking the action must prepare and submit a Conservation Area Management Plan (CAMP) to the Minister for approval. The CAMP must be submitted at least 3 months prior to

commencement of the action. The CAMP must include management details for the Conservation Area and the Mary Street Site. These details must include:

a) zoning and tenure arrangements;
b) objectives, targets and completion criteria for revegetation programs to increase black cockatoo foraging habitat at the Mary Street Site;
c) fencing and access management;
d) management measures to control weeds, Phytophthora dieback, erosion and dust;
e) timeframes and implementation of the above measures; and
f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

If the Minister approves the CAMP, the approved CAMP must be implemented.

The CAMP was approved by the Minister on 16 June 2017 and an updated plan approved on 3 July 2020. The initial plan approval was reported in 2018-2019 Compliance Report and the approval of the updated version reported in EPBC Compliance Report 2019-2020. No further changes are required in the 2020-2021 reporting period.

The CAMP is being implemented as detailed in Section 5 of this report.

3.4 Condition 4

To offset the loss of Carnaby's Black Cockatoos foraging habitat, the person taking the action must:

a) Prior to commencement of the action, provide the Department with written evidence that funds have been provided to the Western Australian Department of Parks and Wildlife (DPaW) for the acquisition of a 492 ha offset property in the vicinity of Gingin, Western Australia.
b) Provide a textual description and map clearly defining the location and boundaries of the offset property and be accompanied with the offset attributes and shapefiles.
c) If at any time the person taking the action is advised that the offset property cannot be acquired, the person taking the action must advise the Department in writing of the situation and advise of steps being taken to provide for an acceptable alternative offset.

The requirements under Condition 4 have been completed as reported in the 2018-2019 Compliance report.

3.5 Condition 5

Within 30 days after the commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.

The date of commencement was 19 July 2017 and notification was sent as required under Condition 5 as reported in the 2018-2019 Compliance report.

3.6 Condition 6

The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.

All documentation is appropriately managed. There was no requirement for an audit in the 2020-2021 reporting period.

3.7 Condition 7

Within three (3) months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the management plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published. Non-compliance with any of the conditions of the approval must also be reported to the Department within 2 business days of becoming aware of the non-compliance

The Compliance Report has been prepared to satisfy Condition 7. All Compliance Reports are available at https://www.wanneroo.wa.gov.au/downloads/20041/environment.

3.8 Condition 8

If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of the management plans. The varied activity shall not commence until the Minister has approved the varied management plans in writing. The Minister will not approve the varied management plans unless the revised management plans would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plans, the management plans must be implemented in place of the management plans originally approved.

There are no variations to activities as specified in the management plans in the 2020-2021 compliance period.

3.9 Condition 9

If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking

the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plans must be implemented. Unless the Minister has approved the revised management plans, then the person taking the action must continue to implement the management plans originally approved, as specified in the conditions

The Minister has not requested any changes to management plans.

3.10 Condition 10

Unless otherwise agreed to in writing by the Minister, the person taking the action must publish the management plans referred to in these conditions of approval on their website. The management plans must be published on the website within one (1) month of being approved. The management plans must remain on the website for the duration of the action.

The management plans are available at:

https://www.wanneroo.wa.gov.au/info/20041/environment/318/neerabup_management_plans

4 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLANS

4.1 Construction Environmental Management Plan

Following is a review of activities in 2020-2021 Compliance Period against the requirements in the CEMP. Activities that have been reported in previous compliance periods are not included and those relating to development along the boundary of Mather Reserve are not required as development has not commenced within this area.

Currently the extraction activities on the site are audited against the requirements under all management plans and conditions of approvals under State and Federal legislation on a monthly basis. There have been no non-compliances to date.

4.1.1 Auditing

Comprehensive auditing against the criteria and requirements under the CEMP has been undertaken since the commencement of the sand extraction on Lot 9003 Mather Road. A comprehensive audit of all conditions of approval under requirements for Federal, State and Local Government Approvals was undertaken on 27 July 2021. Additionally monthly compliance inspections have been undertaken on 23 August 2021 and 20 September 2021.

4.1.2 Clearing

Clearing as per the management plan included the following

- Demarcation of the clearing area using GPS coordinates and flagged star pickets, a 20m buffer to the limit of clearing was left to ensure that clearing was not undertaken outside of the approved area.
- Demarcation of the topsoil, weed and dieback management boundaries was completed using flagging tape and then a bund has been installed using cleared vegetation to ensure the areas remained separated (Plate 4).
- There were no trees felled into the retained vegetation on the site.
- All cleared vegetation is currently stockpiled as bunds and will be mulched when required.

Plate 4: Vegetation Bund Delineating Separate Topsoil Management Areas

4.1.3 Topsoil and Dieback Management

The topsoil mapping was included in the 2019-2020 compliance report. The topsoil currently stripped from the site is from the 'Uninterpretable' area and stockpiles are being managed in accordance with the CEMP. The topsoil is not suitable for use in rehabilitation programs so will be used as fill at the conclusion of the sand extraction program.

4.1.4 Fauna Management

Fauna management requirements under the CEMP being implemented on the site include:

- Display of the contact information for Wildcare Hotline and fauna handler on the Health, Safety and Environment noticeboard in the site office and a qualified fauna handler is on-call during all site activities.
- Inspection of the site for presence of foraging Carnaby's Black-Cockatoo and any injured fauna is undertaken on routine boundary inspections.
- Pets, domesticated animals and firearms are prohibited on the site.
- Personnel are prohibited from feeding or interacting with fauna (native or feral).

Comprehensive fauna trapping programs have been undertaken during clearing as per approved fauna management plans. The plans and resulting reports of the outcomes of the trapping program are included as Appendix 6.

4.1.5 Dust

To date conditions have been wet so dust management has not been required. Mather Reserve has not had any adverse impact from dust.

4.1.6 Access

Signage, fences and vegetation bunds have been used to restrict access to areas that have not been cleared within the development footprint. Access is restricted to Mather reserve by fencing as reported in the 2019-2020 Compliance Report.

4.1.7 Weeds

There have not been any infestations of weeds recorded in the development footprint. Mather Road verges were sprayed in June 2021.

4.1.8 Conclusion

The action is being implemented in compliance with the CEMP.

4.2 Conservation Area Management Plan

Activities in the 2020-2021 Compliance Period under the requirements in the CAMP are detailed in the following sections. Activities that have been reported in previous compliance periods are not included and those relating to development along the boundary of Mather Reserve are not required as development has not commenced within this area. There have been no non-compliances to date.

4.2.1 Auditing

Comprehensive auditing against the criteria and requirements under the CAMP has been undertaken since the commencement of the sand extraction on Lot 9003 Mather Road. A comprehensive audit of all conditions of approval under requirements for Federal, State and Local Government Approvals was undertaken on 27 July 2021. Additionally, monthly compliance inspections have been undertaken on 19 August 2021 and 20 September 2021 for the sand extraction.

Inspections and actions as they pertain to the management of the Conservation Reserves have been fully audited in the comprehensive audit of all conditions of approval undertaken on 27 July 2021 and for the preparation of this Compliance Report.

4.2.2 Access

The fencing around the conservation areas is monitored on a weekly basis, exceeding the requirement under the CAMP due to the frequency of attempted unauthorised access. There have been six incidences of damage to the fencing around Mather Reserve with all damage noted repaired. The fence to the Mary Street Reserve has had additional shadecloth attached to the boundary fence of the reserve and the adjoining lot to reduce the amount of weed seed coming from the adjoining lot.

Additionally, a bollard barrier was installed at the Mather Road Reserve in September 2020 as supplementary works to restrict access into the Conservation Area.

4.2.3 Firebreaks and Drainage

Firebreaks were installed around the Conservation Reserves. The firebreaks were upgraded to crushed limestone in two stages. The first stage comprised the eastern and southern boundaries and was constructed in 2018. The second stage comprised the western and northern boundaries and was constructed in 2019. The drainage infrastructure was installed in 2021. There were some incidences of erosion due to heavy rains in 2021 so caged gabions have been installed in the impacted areas (Plate 5).

Plate 5: Crushed limestone Firebreak with installed Caged Gabions

4.2.4 Dieback

Site inspection undertaken on 30 November 2020 shows no evidence of dieback impacting on the conservation reserves. Indicator proteaceous species, such as Banksias are evident in both mature and seedling form and are not showing any symptoms of dieback such as water stress, browning or death (Plates 6, 7 and 8).

Plate 6, 7 and 8: Dieback Inspection

4.2.5 Weed Control

Extensive weed control has been undertaken during the compliance period in the Mather and Mary Street Reserves. Table 1 outlines the weed management actions undertaken during the compliance period. Invoices for all weed control are logged in the City of Wanneroo's record system.

Table 1: Weeding Activities undertaken in the Compliance Period

Date	Reserve	Targeted Weed	Methodology
September 2020	Mary Street	Black Flag and Geophytes, general weeds	Round-up Biactive 50%, hand weeding
September 2020	Mather	General weeds, veldt, *Ursinia*	Glyphosate, two hand weeding operations
October 2020	Mary Street	Veldt Grass	Hand weeding

Date	Reserve	Targeted Weed	Methodology
November 2020	Mather	General weeds	Chemical and hand weeding, booth over two operations
December 2020	Mary Street	general weeds	Round-up Biactive 1%, hand weeding
December 2020	Mather	General weeds	Hand weeding
February 2021	Mary Street	General weeds	Hand weeding
March 2021	Mather	General weeds	Chemical
April 2021	Mather	General weeds	Glyphosate
June 2021	Mary Street	Caltrop and general weeds	Round-up Biactive 1%, hand weeding

Shadecloth has been added to the Mary Street reserve to interrupt weed vectors from the adjacent lot.

4.2.6 Pest Control

Pest control for foxes and rabbits has been undertaken in the Mather Reserve in February and March 2021. Invoices for all pest control are logged in the City of Wanneroo's record system.

4.2.7 Planting and Maintenance

Tubestock was propagated from seed supplies harvested from local vegetation in 2020. Tubestock planting of species as required under the CAMP was undertaken in Mather Reserve in June 2020. *Dianella revoluta* were planted in July 2020 when the tubestock has reached appropriate maturity. These plants were watered in November and December 2020 and March and April 2021 to ensure ongoing survival. Due to very favourable conditions in 2021 no watering has been required to date to maintain the tubestock. Watering of tubestock planted in June 2021 will commence in November 2021 and will likely continue through to March 2022 (weather dependent).

Invoices for all propagation, planting and maintenance are logged in the City of Wanneroo's record system.

4.2.8 Monitoring

Monitoring as required under the CAMP includes the monitoring of permanent quadrats on a two-yearly basis. The quadrats were set up by Terrratree in 2016 (6 quadrats in Mather Reserve and 2 in Lot 24 Mary Street) and were monitored in 2020 (Appendix 7).

4.2.9 Conclusion

The action is being implemented in compliance with the CAMP.

5 AUDIT TABLE

Note:
'Department' refers to the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Currently the Department of the Environment (DoE).
'Minister' refers to the Minister administering the EPBC Act and includes a delegate of the Minister.
CEMP: Construction Environmental Management Plan
CAMP: Conservation Area Management Plan
DBCA: Department of Biodiversity, Conservation and Attractions
DAWE: Department of Agriculture, Water and the Environment

EPBC Condition Number	Condition	Comments	Evidence	When	Status
1	The person taking the action must not clear more than 130.7 hectares (ha) of foraging habitat for the Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) from the proposal site. This clearing may only be undertaken if the management plans required under conditions 2 and 3 have been approved by the Minister.	A total of 46.52ha has been cleared.	Figure 1	Ongoing	Compliant
2	To mitigate impacts to Carnaby's Black Cockatoos, prior to the commencement of the action, the person taking the action must prepare and submit a Construction Environmental Management Plan (CEMP) to the Minister for approval. The CEMP must be submitted at least 3 months prior to commencement of the action. The CEMP must include, but not be limited to: a) avoidance and mitigation measures to prevent impacts to black cockatoos following the commencement of the action; b) measures to physically delineate areas that will be within the Conservation Area; c) management measures to control site access, weeds, Phytophthora dieback, erosion and dust; d) details of monitoring, reporting and contingency measures if performance indicators are not met; e) timeframes for the implementation of the above measures; and f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures. If the Minister approves the CEMP the approved CEMP must be implemented	The CEMP was approved on 25 July 2016 and changes 3 July 2020. The CEMP is being implemented as per Section 5.1 of this report	Evidence provided in 2018-2019 and 2019-2020 Compliance Reports Section 5.1, Appendix 6	Prior to Commencement Ongoing	Compliant – Complete unless further changes are made to the CEMP during the annual review Compliant
3	To mitigate impacts to Carnaby's Black Cockatoos, prior to the commencement of the action. the person taking the action must prepare and submit a Conservation Area Management Pian (CAMP) to the Minister for approval. The CAMP must be submitted at least 3 months prior to commencement of the action. The CAMP must include management details for the Conservation Area and the Mary Street Site. These details must include: a) zoning and tenure arrangements; b) objectives, targets and completion criteria for revegetation programs to increase black cockatoo foraging habitat at the Mary Street Site; c) fencing and access management; d) management measures to control weeds, Phytophthora dieback, erosion and dust; e) timeframes and implementation of the above measures; and f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures. If the Minister approves the CAMP, the approved CAMP must be implemented.	The CAMP was approved on 25 July 2016 and changes 3 July 2020. The CAMP is being implemented as per Section 5.2 of this report	Evidence provided in 2018-2019 and 2019-2020 Compliance Reports Section 5.2,	Prior to Commencement Ongoing	Compliant – Complete unless further changes are made to the CAMP during the annual review Compliant

EPBC Condition Number	Condition	Comments	Evidence	When	Status
4	To offset the loss of Carnaby's Black Cockatoos foraging habitat, the person taking the action must: a) Prior to commencement of the action, provide the Department with written evidence that funds have been provided to the Western Australian Department of Parks and Wildlife (DPaW) for the acquisition of a 492 ha offset property in the vicinity of Gingin, Western Australia. b) Provide a textual description and map clearly defining the location and boundaries of the offset property and be accompanied with the offset attributes and shapefiles. c) If at any time the person taking the action is advised that the offset property cannot be acquired, the person taking the action must advise the Department in writing of the situation and advise of steps being taken to provide for an acceptable alternative offset.	The City acquired land for the purposes of an offset, meeting the requirements of this condition. As per correspondence provided to the city on 17 January 2017, Lots 103 and 104 on Plan 17335 are to be protected. Correspondence to DAWE (then DotEE) was provided on 17 January 2017 to provide details of and shapefiles for the offset area	Provided in the 2019-2020 Compliance Report	Prior to commencement	Complaint and Complete
5	Within 30 days after the commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.	The action commenced on the 19 July 2017. The City provided written correspondence to the DotEE of this commencement date.	Provided in the 2017-2018 Compliance Report	At commencement	Compliant and Complete
6	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	All records are maintained in the City of Wanneroo document registers and record system. This includes inspection reports, invoices for works undertaken and audit reports	Not required – can be provided on request	When requested by the Minister	Not Applicable
7	Within three (3) months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the management plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published. Non-compliance with any of the conditions of the approval must also be reported to the Department within 2 business days of becoming aware of the non-compliance	The Compliance Report has been prepared to satisfy the condition and will be published at https://www.wanneroo.wa.gov.au/downloads/20041/environment There were no potential or actual contraventions in the 2020-2021 compliance period.	As per link.	Annually by October 17	Compliant
8	If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of the management plans. The varied activity shall not commence until the Minister has approved the varied management plans in writing. The Minister will not approve the varied management plans unless the revised management plans would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plans, the management plans must be implemented in place of the management plans originally approved.	No variations have been required.	Not required	N/A	Compliant
9	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plans must be implemented. Unless the Minister has approved the revised management plans, then the person taking the action must continue to implement the management plans originally approved, as specified in the conditions	There were no requests for changes to the CEMP and CAMP in the 2020-2021 Compliance Period	Not required	NA	Compliant
10	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish the management plans referred to in these conditions of approval on their website. The management plans must be published on the website within one (1) month of being approved. The management plans must remain on the website for the duration of the action.	The approved CAMP and CEMP documentation are published on the City's website, available as of August 2016 and updated in 2020 with the updated plans and are available at: https://www.wanneroo.wa.gov.au/info/20041/environment/318/neerabup_management_plans .	As reported in each Compliance Report	Within 1 month of approval	Compliant

6 COMPLIANCE STATEMENT

No non-compliance with regards to EPBC referral 2007/3479 were identified during the period covered by this 2020 to 2021 EPBC Compliance Report.

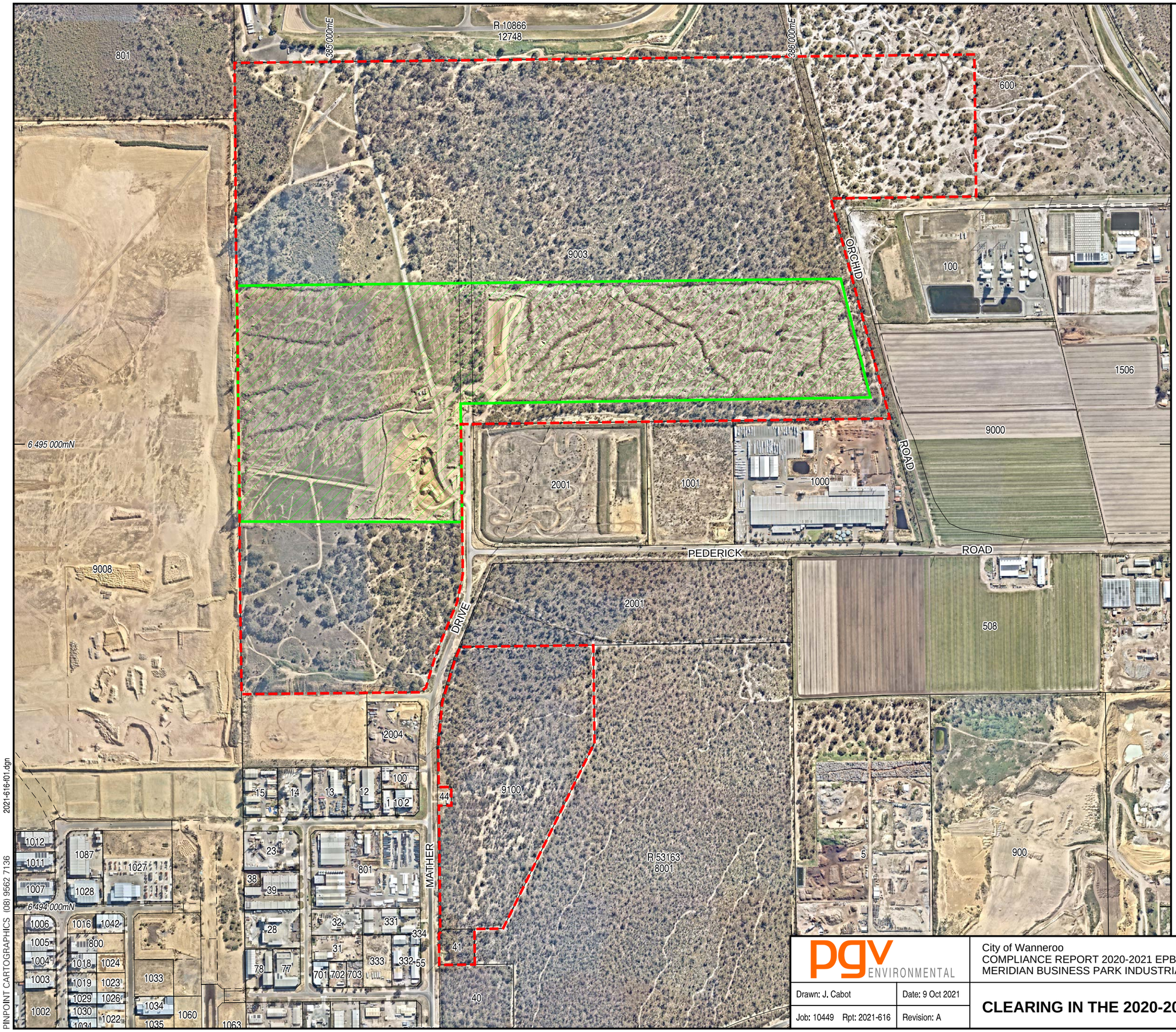
The Business Park Industrial Development, Neerabup is therefore compliant with the requirements of EPBC referral 2007/3479.

7 PUBLIC AVAILABILITY OF COMPLIANCE REPORT

In accordance with Condition 6 of EPBC referral 2007/3479 accurate records of all activities are being retained for the life of the Project and can be made available when requested by the Department of Agriculture, Water and the Environment.

In accordance with Condition 7 of EPBC referral 2007/3479 this Compliance Report will be published on the City of Wanneroo's website (https://www.wanneroo.wa.gov.au/downloads/20041/environment) and will remain available for the duration of the approval.

FIGURES



CADASTRAL SOURCE: Landgate, October 2021.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown August 2021.

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City of Wanneroo
COMPLIANCE REPORT 2020-2021 EPBC 2007/3479
MERIDIAN BUSINESS PARK INDUSTRIAL DEVELOPMENT, NEERABUP

Drawn: J. Cabot | Date: 9 Oct 2021
Job: 10449 Rpt: 2021-616 | Revision: A

CLEARING IN THE 2020-2021 COMPLIANCE PERIOD

Figure 1

PINPOINT CARTOGRAPHICS (08) 9562 7136 2021-616-f01.dgn

APPENDIX 1

Approval under the EPBC Act

EPBC 2007/3479

Australian Government
Department of the Environment

Approval

Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	CITY OF WANNEROO
proponent's ACN (if applicable)	ABN: 64 295 981 165
proposed action	To clear native vegetation, undertake resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia [See EPBC Act referral 2007/3479].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 31 December 2064.

Decision-maker

name and position	Dr. Simon Banks Assistant Secretary West Assessment Branch
signature	Simon Banks
date of decision	02/06/2014

Conditions attached to the approval

1. The person taking the action must not **clear** more than 130.7 hectares (ha) of **foraging habitat** for the Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) from the **proposal site** ("Development area" within the Map at Schedule 1). This **clearing** may only be undertaken if the **management plans** required under conditions 2 and 3 have been approved by the **Minister**.

2. To mitigate impacts to Carnaby's Black Cockatoos, prior to the **commencement of the action**, the person taking the action must prepare and submit a Construction Environmental Management Plan (CEMP) to the **Minister** for approval. The CEMP must be submitted at least 3 months prior to **commencement of the action**.

   The CEMP must include, but not be limited to:

   a) avoidance and mitigation measures to prevent impacts to black cockatoos following the **commencement of the action**;

   b) measures to physically delineate areas that will be within the **Conservation Area**;

   c) management measures to control site access, weeds, *Phytophthora* dieback, erosion and dust;

   d) details of monitoring, reporting and contingency measures if performance indicators are not met;

   e) timeframes for the implementation of the above measures; and

   f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

   If the **Minister** approves the CEMP the approved CEMP must be implemented.

3. To mitigate impacts to Carnaby's Black Cockatoos, prior to the **commencement of the action**, the person taking the action must prepare and submit a Conservation Area Management Plan (CAMP) to the **Minister** for approval. The CAMP must be submitted at least 3 months prior to **commencement of the action**.

   The CAMP must include management details for the **Conservation Area** within the **Proposal site**, as well as the **Tip Site** and **Mary Street Site** (refer to Map at Schedule 2), information must include, but not be limited to:

   a) zoning and tenure arrangements;

   b) objectives, targets and completion criteria for revegetation programs to increase black cockatoo foraging habitat at the **Tip Site** and **Mary Street Site**;

   c) fencing and access management;

d) management measures to control weeds, Phytophthora dieback, erosion and dust;

e) timeframes and implementation of the above measures; and

f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

If the **Minister** approves the CAMP, the approved CAMP must be implemented.

4. To offset the loss of Carnaby's Black Cockatoos **foraging habitat**, the person taking the action must:

a) Prior to **commencement of the action**, provide the **Department** with written evidence that funds have been provided to the Western Australian Department of Parks and Wildlife (**DPaW**) for the acquisition of a 400 ha **offset property** in the vicinity of Gingin, Western Australia.

b) Provide a textual description and map clearly defining the location and boundaries of the **offset property** and be accompanied with the **offset attributes** and **shapefiles**.

c) If at any time the person taking the action is advised that the offset property cannot be acquired, the person taking the action must advise the **Department** in writing of the situation and advise of steps being taken to provide for an acceptable alternative offset

5. Within 30 days after the **commencement of the action**, the person taking the action must advise the **Department** in writing of the actual date of commencement.

6. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the **management plans** required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.

7. Within three (3) months of every 12 month anniversary of the **commencement of the action**, the person taking the **action** must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the **management plans** as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of the approval must also be reported to the **Department** within 2 business days of becoming aware of the non-compliance.

8. If the person taking the action wishes to carry out any activity otherwise than in accordance with the **management plans** as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of the **management plans**. The varied activity shall not commence until the Minister has approved the varied **management plans** in writing. The **Minister** will not approve the varied **management plans** unless the revised **management plans** would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the

revised **management plans**, the **management plans** must be implemented in place of the **management plans** originally approved.

9. If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the **Minister** may request that the person taking the action make specified revisions to the **management plans** specified in the conditions and submit the revised **management plans** for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved **management plans** must be implemented. Unless the **Minister** has approved the revised **management plans**, then the person taking the action must continue to implement the **management plans** originally approved, as specified in the conditions.

10. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish the **management plans** referred to in these conditions of approval on their website. The **management plans** must be published on the website within one (1) month of being approved. The **management plans** must remain on the website for the duration of the **action**.

Definitions

Action is the clearing of 130.7 ha of native vegetation, undertaking resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia

Clear/Clearing is defined as the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation.

Commencement of the action, means any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures, tunnel enhancement works and the use of heavy duty equipment for demolition or other purposes relating to the action, including the breaking of ground.

Conservation area is a 50 ha area of native vegetation within the proposal site to be managed in accordance with the Conservation Area Management Plan (refer to "on-site conservation area" within the Map at Schedule 1 and Schedule 2).

Department, the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

DPaW means the Western Australian Department of Parks and Wildlife or any successor agency.

EPBC Act is the *Environment Protection and Biodiversity Conservation Act 1999*.

Foraging habitat as defined in the former Department of Sustainability, Environment, Water, Population & Communities, *EPBC Act Referral Guidelines for three species of Western Australian black cockatoos: Carnaby's black cockatoo (Endangered) (Calyptorhynchus latirostris), Baudin's black cockatoo (Vulnerable) (Calyptorhynchus baudinii), Forest red-tailed black cockatoo (Calyptorhynchus banksii naso)* (October 2012).

Management Plans means the Construction Environmental Management Plan (CEMP) and the Conservation Area Management Plan (CAMP).

Mary Street Site is a 4 ha site located at Lot 24 Mary Street (refer to refer to Map at Schedule 2).

Minister is the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Offset attributes means an '.xls' file capturing relevant attributes of the Offset Area, including the EPBC reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the EPBC protected matters that the offset compensates for, any additional EPBC protected matters that are benefiting from the offset, and the size of the offset in hectares.

Offset property means the acquisition of a 400 ha offset property in the vicinity of Gingin, that contains at least 400 ha of black cockatoo **foraging habitat**.

Proposal site means Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia.

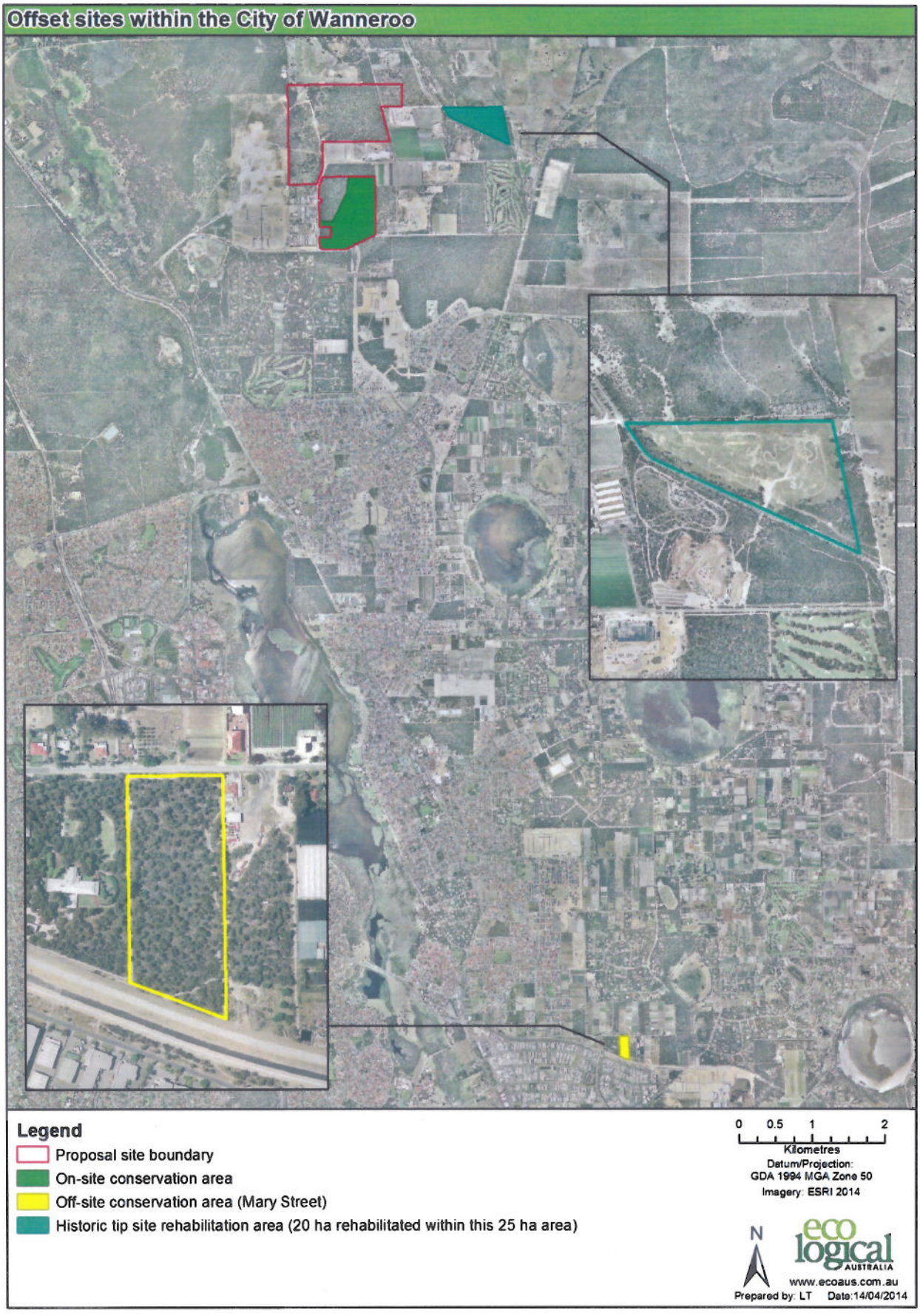
Shapefiles means an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes of the Offset Area, including the shape, EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format and in accordance with Departmental Requirements.

Tip site is a 25 ha site (of which 20 ha is proposed to be rehabilitated) at 1815 Old Yanchep Road (Lot 10823) (refer to Map at Schedule 2).

Schedule 1


Proposal site
bing
Legend
Proposal site boundary
Development area
Retained/proposed on-site conservation area
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 50
Imagery: Bing aerial 2014
N
eco logical AUSTRALIA
www.ecoaus.com.au
Prepared by: LT Date:14/04/2014

Schedule 2


Offset sites within the City of Wanneroo
Legend
Proposal site boundary
On-site conservation area
Off-site conservation area (Mary Street)
Historic tip site rehabilitation area (20 ha rehabilitated within this 25 ha area)
0 0.5 1 2
Kilometres
Datum/Projection:
GDA 1994 MGA Zone 50
Imagery: ESRI 2014
N
eco logical AUSTRALIA
www.ecoaus.com.au
Prepared by: LT Date:14/04/2014

APPENDIX 2

Notice of Variation to Conditions 2014

(EPBC 2007/3479)

Australian Government
Department of the Environment

VARIATION TO PROPOSAL

Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)

This decision to vary a proposal is made under section 156A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Proposed action

Designated proponent	CITY OF WANNEROO ABN: 64 295 981 165
Original proposed action	To clear up to 210 ha of habitat to develop an industrial estate known as the Meridian Business Park on Lot 9003, Lot 41, Lot 9000 and part of Lot 600 located at Neerabup, Western Australia.

Variation

Variation of proposal	The variation is: To clear native vegetation, undertake resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia.
Date of effect	This variation has effect on the date the instrument is signed

Person authorised to make decision

name and position	Dr. Simon Banks Assistant Secretary West Assessment Branch
Signature	Simon Banks
Date of decision	02/06/ 2014

APPENDIX 3

Notice of Variation to Conditions June 2016

(EPBC 2007/3479)

Australian Government
Department of the Environment

VARIATION TO CONDITIONS ATTACHED TO APPROVAL

Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)

This decision to vary a condition of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted	CITY OF WANNEROO ABN: 64 295 981 165
Approved action	To clear native vegetation, undertake resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia [See EPBC Act referral 2007/3479].

Variation

Variation of conditions of approval	The variation is: Delete condition 3 and 4 attached to the approval dated 2 June 2014 and substitute with the conditions and definition specified below. Remove the definition of the Pinjar tipsite. **Note:** All other conditions including the definitions in the approval dated 2 June 2014 remain unchanged.
Date of effect	This variation has effect on the date the instrument is signed

Person authorised to make decision

Name and position	Shane Gaddes Assistant Secretary Compliance & Enforcement Branch
Signature	S. Gaddes
Date of decision	17 June 2016

3. To mitigate impacts to Carnaby's Black Cockatoos, prior to the **commencement of the action**, the person taking the action must prepare and submit a Conservation Area Management Plan (CAMP) to the **Minister** for approval. The CAMP must be submitted at least 3 months prior to **commencement of the action.**

   The CAMP must include management details for the **Conservation Area** within the **Proposal site**, as well as the **Mary Street Site** (refer to Map at Schedule 2), information must include, but not be limited to:

   a) zoning and tenure arrangements;

   b) objectives, targets and completion criteria for revegetation programs to increase black cockatoo foraging habitat at the **Mary Street Site**;

   c) fencing and access management;

   d) management measures to control weeds, Phytophthora dieback, erosion and dust;

   e) timeframes and implementation of the above measures; and

   f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

   If the **Minister** approves the CAMP, the approved CAMP must be implemented.

4. To offset the loss of Carnaby's Black Cockatoos **foraging habitat**, the person taking the action must:

   a) Prior to **commencement of the action**, provide the **Department** with written evidence that funds have been provided to the Western Australian Department of Parks and Wildlife (**DPaW**) for the acquisition of a 492 ha **offset property** in the vicinity of Gingin, Western Australia.

   b) Provide a textual description and map clearly defining the location and boundaries of the **offset property** and be accompanied with the **offset attributes** and **shapefiles**.

   c) If at any time the person taking the action is advised that the offset property cannot be acquired, the person taking the action must advise the **Department** in writing of the situation and advise of steps being taken to provide for an acceptable alternative offset.

Definitions

Offset property means the acquisition of a 492 ha offset property in the vicinity of Gingin that contains at least 492 ha of black cockatoo **foraging habitat**.

Schedule 2

Regional Location

City of Wanneroo Landholdings, Meridian Business Park, Neerabup Industrial Area

Coordinate System: GDA 1994 MGA Zone 50

0 1 2 3

Kilometres

1:100,000 (A4)

LEGEND

- Development Site
- Offset Area
- Neerabup Industrial Estate

AECOM

Last Modified 16/02/2016 at 03:02 PM by fotheringhamd

\\AUPER1FP001.AU.AECOMNET.COM\Projects\603X\60330725\4. Tech work area\4.99 GIS\Workspaces\2014_10_20_CAMP\Fig1_Regional_Location_04_20160216.mxd

Last Printed: never

APPENDIX 4

Notice of Variation to Conditions November 2016 (EPBC 2007/3479)

Australian Government
Department of the Environment and Energy

VARIATION TO CONDITIONS ATTACHED TO APPROVAL

Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)

This decision to vary a condition of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Person to whom the approval is granted	City of Wanneroo ABN: 64 295 981 165
Approved action	To clear native vegetation, undertake resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia [See EPBC Act referral 2007/3479].

Variation

Variation of conditions of approval	The variation is: Delete Schedule 1 and Schedule 2 attached to the approval and substitute with Schedule 1 and Schedule 2 specified below. Revoke the definition of Tip site attached to the approval.
Date of effect	This variation has effect on the date the instrument is signed.

Person authorised to make decision

Name and position	Monica Collins Assistant Secretary Compliance & Enforcement Branch
Signature	Monica.
Date of decision	10 November 2016

Schedule 1

NOTE While the City of Wanneroo has made every effort to ensure the accuracy and completeness of data it accepts no responsibility or liability for any errors or omissions within the information presented. Based on information provided by and with the permission of the Western Australian Land Authority trading as LANDGATE (2012).

Schedule 2

NOTE: All dimensions and areas depicted on this plan are subject to survey
Road widening based on combined design using the existing MRS Other Regional Roads Reservation & DoP/GHD Flynn Drive Planning Study designs

LOT 9000 (240) FLYNN DRIVE, NEERABUP
NEERABUP INDUSTRIAL AREA
OFFSET SITES WITHIN THE CITY OF WANNEROO
SCHEDULE 2

SCALE: 1:3750 @ A3
DATE: October 2016
REF: 2016-10 NIA revised plan S2

NOTE While the City of Wanneroo has made every effort to ensure the accuracy and completeness of data it accepts no responsibility or liability for any errors or omissions within the information presented
Based on information provided by and with the permission of the Western Australian Land Authority trading as LANDGATE (2012)

Schedule 2

NOTE: While the City of Wanneroo has made every effort to ensure the accuracy and completeness of data it accepts no responsibility or liability for any errors or omissions within the information presented. Based on information provided by and with the permission of the Western Australian Land Authority trading as LANDGATE (2012)

APPENDIX 5

Notice of Variation to Conditions 2019 (EPBC 2007/3479)

Australian Government
Department of the Environment and Energy

VARIATION OF CONDITIONS ATTACHED TO APPROVAL

Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted	CITY OF WANNEROO ABN: 64 295 981 165
Approved action	To clear native vegetation, undertake resource extraction and industrial land development on Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue at Neerabup, Western Australia [See EPBC Act referral 2007/3479].

Variation

Variation of conditions attached to approval	The variation is: Delete conditions 1 and 3 attached to the approval and substitute with the conditions specified in the table below. Delete the definitions of Conservation Area, Proposal Site and Mary Street Site and substitute the definitions specified in the table below. Revoke the definition of Action. Delete Schedule 1 and Schedule 2 attached to the approval and substitute with Schedule 1 and Schedule 2 specified in the table below. Add Schedule 3 specified in the table below.
Date of effect	This variation has effect on the date the instrument is signed

Person authorised to make decision

Name and position	Greg Manning Assistant Secretary Assessments (WA, SA, NT) and Post Approval Branch
Signature	
Date of decision	22 June 2019

Date of decision	Conditions attached to approval
As varied on the date this instrument was signed	1. The person taking the action must not **clear** more than 130.7 hectares (ha) of **foraging habitat** for the Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) from the **proposal site**. This **clearing** may only be undertaken if the **management plans** required under conditions 2 and 3 have been approved by the **Minister**.
Original dated 2/6/2014	2. To mitigate impacts to Carnaby's Black Cockatoos, prior to the **commencement of the action**, the person taking the action must prepare and submit a Construction Environmental Management Plan (CEMP) to the **Minister** for approval. The CEMP must be submitted at least 3 months prior to **commencement of the action**. The CEMP must include, but not be limited to: a) avoidance and mitigation measures to prevent impacts to black cockatoos following the **commencement of the action**; b) measures to physically delineate areas that will be within the **Conservation Area**; c) management measures to control site access, weeds, *Phytophthora* dieback, erosion and dust; d) details of monitoring, reporting and contingency measures if performance indicators are not met; e) timeframes for the implementation of the above measures; and f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures. If the **Minister** approves the CEMP the approved CEMP must be implemented.
As varied on the date this instrument was signed	3. To mitigate impacts to Carnaby's Black Cockatoos, prior to the **commencement of the action**, the person taking the action must prepare and submit a Conservation Area Management Plan (CAMP) to the **Minister** for approval. The CAMP must be submitted at least 3 months prior to **commencement of the action**. The CAMP must include management details for the **Conservation Area** and the **Mary Street Site**. These details must include: a) zoning and tenure arrangements; b) objectives, targets and completion criteria for revegetation programs to increase black cockatoo foraging habitat at the **Mary Street Site**;

Date of decision	Conditions attached to approval
	c) fencing and access management; d) management measures to control weeds, Phytophthora dieback, erosion and dust; e) timeframes and implementation of the above measures; and f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures. If the **Minister** approves the CAMP, the approved CAMP must be implemented.
Variation dated 17/6/2016	4. To offset the loss of Carnaby's Black Cockatoos **foraging habitat**, the person taking the action must: a) Prior to **commencement of the action**, provide the **Department** with written evidence that funds have been provided to the Western Australian Department of Parks and Wildlife (**DPaW**) for the acquisition of a 492 ha **offset property** in the vicinity of Gingin, Western Australia. b) Provide a textual description and map clearly defining the location and boundaries of the **offset property** and be accompanied with the **offset attributes** and **shapefiles**. c) If at any time the person taking the action is advised that the offset property cannot be acquired, the person taking the action must advise the **Department** in writing of the situation and advise of steps being taken to provide for an acceptable alternative offset
Original dated 2/6/2014	5. Within 30 days after the **commencement of the action**, the person taking the action must advise the **Department** in writing of the actual date of commencement.
Original dated 2/6/2014	6. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the **management plans** required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
Original dated 2/6/2014	7. Within three (3) months of every 12 month anniversary of the **commencement of the action**, the person taking the action must publish a report on their website addressing compliance with each of the

Date of decision	Conditions attached to approval
	conditions of this approval, including implementation of the **management plans** as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of the approval must also be reported to the **Department** within 2 business days of becoming aware of the non-compliance.
Original dated 2/6/2014	8. If the person taking the action wishes to carry out any activity otherwise than in accordance with the **management plans** as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of the **management plans**. The varied activity shall not commence until the Minister has approved the varied **management plans** in writing. The **Minister** will not approve the varied **management plans** unless the revised **management plans** would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised **management plans**, the **management plans** must be implemented in place of the **management plans** originally approved.
Original dated 2/6/2014	9. If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the **Minister** may request that the person taking the action make specified revisions to the **management plans** specified in the conditions and submit the revised **management plans** for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved **management plans** must be implemented. Unless the **Minister** has approved the revised **management plans**, then the person taking the action must continue to implement the **management plans** originally approved, as specified in the conditions.
Original dated 2/6/2014	10. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish the **management plans** referred to in these conditions of approval on their website. The **management plans** must be published on the website within one (1) month of being approved. The **management plans** must remain on the website for the duration of the **action**.

Date of decision	Definitions attached to approval
As varied on the date this instrument was signed	**Action -** Revoked
Original dated 2/6/2014	**Clear/Clearing** is defined as the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation.

Date of decision	Definitions attached to approval
Original dated 2/6/2014	**Commencement of the action**, means any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures, tunnel enhancement works and the use of heavy duty equipment for demolition or other purposes relating to the action, including the breaking of ground.
As varied on the date this instrument was signed	**Conservation area** is a 50.0298 ha area of native vegetation at Lot 8001 (formerly part of Lot 9000) Flynn Drive, Neerabup, Western Australia designated as 'CONSERVATION OFFSET AREA' in the Map at Schedule 2, which is to be managed in accordance with the Conservation Area Management Plan.
Original dated 2/6/2014	**Department**, the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.
Original dated 2/6/2014	**DPaW** means the Western Australian Department of Parks and Wildlife or any successor agency.
Original dated 2/6/2014	**EPBC Act** is the *Environment Protection and Biodiversity Conservation Act 1999*.
Original dated 2/6/2014	**Foraging habitat** as defined in the former Department of Sustainability, Environment, Water, Population & Communities, *EPBC Act Referral Guidelines for three species of Western Australian black cockatoos: Carnaby's black cockatoo (Endangered) (Calyptorhynchus latirostris), Baudin's black cockatoo (Vulnerable) (Calyptorhynchus baudinii), Forest red-tailed black cockatoo (Calyptorhynchus banksii naso)* (October 2012).
Original dated 2/6/2014	**Management Plans** means the Construction Environmental Management Plan (CEMP) and the Conservation Area Management Plan (CAMP).
As varied on the date this instrument was signed	**Mary Street Site** is the 4.0372 ha area located at Lot 24 Mary Street, Wanneroo, Western Australia, designated as 'CONSERVATION OFFSET AREA' in the map at Schedule 3.
Original dated 2/6/2014	**Minister** is the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.
Original dated 2/6/2014	**Offset attributes** means an '.xls' file capturing relevant attributes of the Offset Area, including the EPBC reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the EPBC protected matters that the offset compensates for, any additional EPBC protected matters that are benefiting from the offset, and the size of the offset in hectares.

Date of decision	Definitions attached to approval
Variation dated 17/6/2016	**Offset property** means the acquisition of a 492 ha offset property in the vicinity of Gingin, that contains at least 492 ha of black cockatoo **foraging habitat**.
As varied on the date this instrument was signed	**Proposal site** means the area designated as "PROPOSAL AREA (EPBC 2007/3479)" in the map at Schedule 1, comprising Lot 9100 (formerly part of Lot 9000) Flynn Drive, Lot 41 and part Lot 9003 Mather Drive and Part Lot 600 Wattle Avenue, at Neerabup, Western Australia.
Original dated 2/6/2014	**Shapefiles** means an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes of the Offset Area, including the shape, EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format and in accordance with Departmental Requirements.
Variation dated 10/11/2016	**Tip site** - Revoked

Date of decision	Schedule 1 – Proposal Area - Neerabup Industrial Area – Site Plan
As varied on the date this instrument was signed	

Date of decision	**Schedule 2 Lot 8001 (former Lot 9000) Flynn Drive Neerabup Onsite Offset Site**
As varied on the date this instrument was signed	

Date of decision	Schedule 3 – Lot 24 – Mary Street Wanneroo Off-Site Offset site
As varied on the date this instrument was signed	

APPENDIX 6

Fauna Management Plans and Trapping Reports

Native Vertebrate Fauna Management Plan

Lot 9003 Mather Drive, Neerabup, WA

Prepared for: Urban Resources

Version 2. May, 2021

RECORD OF DISTRIBUTION

No. of copies	Report File Name	Report Status	Date	Prepared for:	Initials
Electronic	2021-0033-002-GT V1.DOCX	DRAFT	23 March 2021	Urban Resources	ST
Electronic	2021-0033-002-GT V2.DOCX	FINAL	15 May 2021	Urban Resources	ST

Suggested Citation: Terrestrial Ecosystems 2021 *Native Vertebrate Fauna Management Plan for Lot 9003 Mather Drive, Neerabup, WA*, Unpublished report for Urban Resources, Perth

Prepared For: Urban Resources
33 Cocos Drive
Bibra Lake DC,
WA 6965

Prepared By: Terrestrial Ecosystems
10 Houston Place
Mt Claremont WA 6010
Phone: 08 9385 2398, 0407 385 289
Website: www.terrestrialecosystems.com
ABN: 40921131346

REPORT CONTENTS

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EXECUTIVE SUMMARY

This native vertebrate fauna management plan describes the project area, fauna habitats in the project area, vertebrate fauna potentially in the project area and management strategies that will be implemented to minimise and mitigate potential impacts on the native vertebrate fauna for Lot 9003 Mather Drive, Neerabup, Western Australia.

1. INTRODUCTION

1.1 BACKGROUND

Urban Resources is intending to develop a City of Wanneroo development site at Lot 9003 Mather Drive, Neerabup (Figure 1).

The following two reports are directly relevant to this Plan:

Aecom (2016) *Conservation Area Management Plan City of Wanneroo Landholdings - Meridian Business Park - Neerabup Industrial Area*, Unpublished report for the City of Wanneroo, Perth

City of Wanneroo (2020) *Construction Environmental Management Plan Meridian Business Park - Neerabup Industrial Area*, Unpublished report for the City of Wanneroo, Perth.

Two environmental regulator approvals relevant to this project are:

Department of the Environment and Energy (2019) *Variation of Conditions Attached to Approval Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479)*

Government of Western Australia (2015) *Clearing permit CPS 6359/3*

The EPBC approval required the City of Wanneroo to prepare a Construction Environmental Management Plan (CEMP) and to obtain the Minister's approval of this plan.

The approval stated that the CEMP must include, but not be limited to:

a) avoidance and mitigation measures to prevent impacts to black cockatoos following the commencement of the action;

b) measures to physically delineate areas that will be within the Conservation Area;

c) management measures to control site access, weeds, Phytophthora dieback, erosion and dust;;

d) details of monitoring, reporting and contingency measures if performance indicators are not met;

e) timeframes for the implementation of the above measures; and

f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

There are no conditions in the Clearing Permit pertaining to the management of vertebrate fauna.

The Construction Environmental Management Plan (City of Wannneroo 2020) has the following conditions relevant to fauna:

a) Clearing of native vegetation for resource extraction and industrial development will be staged and will not exceed 130.7ha of Carnaby's Black-Cockatoo foraging habitat;

b) Ensure no new informal tracks arise and all vehicle and personnel movement is limited to the approved project boundary;

c) Display contact information for Wildcare Hotline and fauna handler on the Health, Safety and Environment noticeboard;

d) Inspect the site for the presence of foraging Carnaby's Black-Cockatoo;

e) A qualified fauna handler is to be on-call during all site activities;

f) Prohibit pets or domesticated animals on-site;

g) Prohibit personnel feeding or interacting with fauna (native or feral);

h) No firearms are permitted on site; and

i) Erect fencing around the site perimeter with signage indicating restricted access.

Table 1. Contingency and corrective actions

Incident or Consequence	Corrective Action	Responsibility
Carnaby's Black-Cockatoo foraging on vegetation within or adjacent to site during construction	Report as an incident	EM
	Halt adjacent construction activities until birds move on of their own accord; or on advice of EM if activities are deemed to not be interrupting foraging activities.	EMR
Native fauna present onsite during construction	Report as an incident (no investigation required).	EMR
	If animal is not at risk of being impacted (not in proximity to moving equipment or plant etc.) allow to move on in own time.	EMR
	If animal is at risk of being impacted, halt construction until fauna have moved on or are removed by a qualified fauna handler.	EMR
Injured fauna present onsite	Report and investigate as an incident.	EMR
	If animal is at further risk, contact Wildcare or Department of Biodiversity, Conservation and Attractions.	EMR
Feral fauna present onsite	Notify EM of sighting.	EMR

1.1.1 Fauna habitats

Ecoscape (2021) reported the following two fauna habitats in the project area:

- Woodlands (Tuart, Jarrah, Marri, Banksia, Coastal Blackbutt); and
- Degraded grassland.

Descriptions of these two fauna habitat types area as follows:

Woodland: Open woodland over low open shrubland on grey sandy flats. Habitat is suitable for expected suite of small reptiles, mammals and woodland birds. Breeding, foraging and roosting habitat for Black Cockatoo species.

Degraded grassland: Grassland of veldt grass with scattered shrubs. Habitat is suitable for Western Grey Kangaroos and rabbits for foraging and small reptiles; generally unsuitable for remaining species.

1.1.2 Relevant legislation

The protection of fauna and their habitat is the subject of several Acts listed in Table 2.

Table 2. Commonwealth and State legislation relevant to this management plan

Legislation	Application
Environmental Protection Act 1986	State environmental impact assessment and Ministerial approval process
WA *Biodiversity and Conservation Act 2016*	State legislation that regulates and controls native fauna capture and relocation programs
WA *Biosecurity and Agricultural Management Act 2007*	State Act that controls the management of vertebrate pest fauna
Environment Protection and Biodiversity Conservation Act 1999	Federal process that assesses the conservation significance of fauna species and forms the framework for protection of significant species

1.1.3 Fauna species

Ecoscape (2021) reported the following conservation significant species potentially in the project area.

Species	Common name
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo
Calyptorhynchus latirostris	Carnaby's Black-Cockatoo
Calyptorhynchus baudinii	Baudin's Black-Cockatoo
Falco peregrinus	Peregrine Falcon
Hylaeus globuliferus	Woolybush Bee
Idiosoma sigillatum	Swan Coastal Plain Shield-backed Trapdoor Spider
Isoodon fusciventer	Quenda
Neelaps calonotos	Black-striped Snake
Notamacropus irma	Western Brush Wallaby
Synemon gratiosa	Graceful Sunmoth

1.2 POTENTIAL IMPACTS ON NATIVE FAUNA

Vegetation clearing can directly impact native fauna through several threatening processes. Some relevant processes include:

- loss of fauna habitat;
- habitat fragmentation;
- increased access for feral predators; and
- injury or mortality during the clearing process.

These threats are described below.

1.2.1 Loss of fauna habitat and habitat fragmentation

Loss of habitat can adversely affect fauna survival through fragmentation, which can isolate or restrict movement of fauna populations and individuals within vegetation remnants from the wider area. It is intended that much of the surrounding area will eventually be cleared for industrial development.

Vegetation clearing will not impact on the availability of regional habitat linkages but will reduce the availability of overall habitat in the project area.

1.2.2 Predation by feral and domestic animals

Introduced animals, including feral cats and foxes can adversely impact native species, particularly in remnant vegetation. The clearing of vegetation will have a minor impact on some feral fauna (e.g. cats, foxes and rabbits) that currently inhabit the project area, as they are likely to move into adjacent areas before vegetation clearing becomes too advanced.

1.2.3 Displacement of fauna into adjacent areas

Vegetation clearing programs often encourage the movement of large snakes, mice and rats into adjacent areas, which in this case is mostly into similar adjacent bushland or a couple of industrial sites. An on-site zoologist will catch and relocate any snakes that are seen during the vegetation clearing program and humanely euthanase any non-native rats and mice that are caught.

1.2.4 Clearing of vegetation

It is inevitable that some vertebrate fauna will be lost or injured during the vegetation clearing process and occasionally birds will be nesting in trees that will be impacted by vegetation clearing. With appropriate management it is possible to catch and relocate some of these terrestrial fauna to suitable habitat. Adult birds will almost certainly move before trees are felled, but eggs and young chicks seldom survive. Some chicks found in tree hollows and nests may be suitable for rehabilitation with a wildlife carer. Some birds breed all year round, however, many species on the Swan Coastal Plain breed through spring, so clearing vegetation in summer, autumn and winter will have little impact on nesting birds.

Checking tree hollows for chicks and mammals once trees have been felled and catching and relocating animals will reduce potential impacts on native fauna that utilise tree hollows.

1.3 EXPECTED FAUNA IN THE PROJECT AREA

Terrestrial fauna species likely to be in the project area that will be readily observed or caught and relocated or euthanased are shown in Table 3.

Table 3. Species expected in the project area (from Ecoscape 2021)

Species	Common Name
Mammals	
***Canis familiaris**	Dog
***Felis catus**	Cat
Isoodon fusciventer	Quenda
Macropus fuliginosus	Western Grey Kangaroo
***Oryctolagus cuniculus**	Rabbit
Birds	
Anthochaera carunculata	Red Wattlebird
Artamus cyanopterus	Dusky Woodswallow
Cacatua roseicapilla	Galah
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo
Calyptorhynchus latirostris	Carnaby's Cockatoo
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Corvus coronoides	Australian Raven
Cracticus tibicen	Australian Magpie
Dacelo novaeguineae	Laughing Kookaburra
Falco berigora	Brown Falcon
Gavicalis virescens	Singing Honeyeater
Lichmera indistincta	Brown Honeyeater
Malurus splendens	Splendid Fairy-wren
Merops ornatus	Rainbow Bee-eater
Petroica boodang	Scarlet Robin
Phylidonyris novaehollandiae	New Holland Honeyeater
Platycercus spurius	Red-capped Parrot
Platycercus zonarius	Australian Ringneck
Rhipidura leucophrys	Willie Wagtail
Threskiornis spinicollis	Straw-necked Ibis
Todiramphus sanctus	Sacred Kingfisher
Reptiles	
Tiliqua rugosa	Bobtail Lizard
Varanus gouldii	Bungarra or Sand Monitor

* introduced species

1.3.1 Nesting birds and arboreal fauna

All trees will be inspected from ground level prior to vegetation clearing to locate active bird nests and tree hollows or retreats for mammals (e.g. Brushtail Possums). Where practical, trees with nests that contain chicks will be slowly lowered to the ground so that the chicks might be retrieved and given to wildlife carers.

Trees providing suitable hollows as retreats for arboreal mammals will be inspected on the ground to determine whether vertebrate fauna are present, and if so, they will be captured and released elsewhere. In some cases, this will require sections of the tree to be cut and removed with a chainsaw until a person can gain access to the animal.

If vegetation clearing is to be undertaken during October to December, then open areas will be searched for the ground nesting sites of the Rainbow Bee-eater (*Merops ornatus*). If active nest sites are located, then an effort will be made to protect these nests until the chicks have fledged. If this is not possible, chicks will be dug out and retrieved. These chicks will be assessed by the onsite zoologist and if assessed as suitable, given to a registered wildlife carer to raise and release.

1.3.2 Quenda

The project area may support a small population of Quenda. Quenda will be trapped and relocated. Because habitat in adjacent areas is likely to also support Quenda, the removal of Quenda from the project area will result in individuals from adjacent areas moving into the project area, but this is unavoidable.

1.3.3 Other vertebrate fauna

The project area is likely to support a depleted range of vertebrate fauna typically found in the sandy plain areas on the Swan Coastal Plain. It is inevitable that some of these will be lost during the vegetation clearing process. The presence of a zoologist on-site during the clearing program to catch and relocate animals that flee from the vegetation clearing will reduce the number of animals that are lost. The commonly seen Bobtail (*Tiliqua rugosa*) and Bearded Dragon (*Pogona minor*) are examples of fauna regularly caught and relocated during similar activities. Black Rats (*Rattus rattus*) and House Mice (*Mus musculus*) are also often abundant in these locations and are regularly caught in trapping programs designed to catch Quenda. All Black Rats and House Mice caught in the project area will be humanely euthanased.

A trapping program targeting Quenda using baited wire cage traps and an active searching and foraging program will be implemented prior to vegetation clearing to catch small mammals and reptiles.

1.3.4 Kangaroos and emus

The project area supports a small number of kangaroos and emus. It is proposed during the vegetation clearing program for this stage, that the kangaroos and emus are allowed to move into adjacent areas within the same development site prior to or during vegetation clearing. There is adequate space for these animals within the development site. The entire project area will be developed over a 5-10 year period and it is intended that the entire project area is fenced, so the management of kangaroos and emus on-site will not be moved to some other development, developer or the City. In a future fauna management plan for one of the next stages of development, the active management of kangaroos and emus will be dealt with.

MANAGEMENT ACTIONS AND IMPLEMENTATION

2.1.1 Fauna relocation license

The trapping program requires a Regulation 28 License to catch and relocate native vertebrate fauna.

M1 A Regulation 28 License (issued by DBCA) to take, catch and relocate native fauna will be applied for by Terrestrial Ecosystems and all obligations under the license will be fulfilled.

2.1.2 Contractor

The fauna management program will be implemented by Terrestrial Ecosystems. Terrestrial Ecosystems is a specialist consultant that use qualified and experienced staff and can complete all components of this plan.

M2 Terrestrial Ecosystems has qualified and experienced zoologists that will implement the fauna management program.

2.1.3 Trapping Program

Prior to vegetation clearing the project area will be trapped targeting Quenda, arboreal mammals and some of the larger reptiles (e.g. Bobtails). Baited wire cage traps will be set for 10 nights to catch Quenda, Brushtail Possums and Bobtails.

It is highly probable that the vegetation in the project area will be cleared in stages, and given the movement of vertebrate fauna, in particular Quenda, each stage in the vegetation clearing program will need to be trapped prior to vegetation clearing. The number of traps used for each area will be determined based on the size of the area to be cleared and the level of habitat degradation.

Trapping will be concluded within one week of the commencement of vegetation clearing.

All traps will be left open 24hrs per day to ensure that diurnal fauna such as Bobtails are also caught.

Any other vertebrate fauna caught in the traps that are not an introduced species will be relocated. Introduced species (e.g. House Mouse, Black Rat, Rabbit, etc) will be humanely euthanased.

M3 Baited wire cage traps targeting Quenda and other trappable fauna will be deployed across the site in suitable habitat for a period of 10 nights.

2.1.4 Active foraging

Terrestrial Ecosystems staff will undertake an active foraging program on-site in front of the vegetation clearing program to search for reptiles.

M4 Active foraging and searching will be undertaken by Terrestrial Ecosystems for reptiles prior to vegetation clearing and concurrently with the trapping program.

M5 The project area will be searched for Rainbow Bee-eater nest burrows during the breeding season. These nests will be carefully excavated, and the chicks given to a registered wildlife carer to raise and release when able to forage for themselves.

2.1.5 Cats and foxes

Targeted trapping for foxes and feral cats will not be undertaken.

Any cats caught in the Quenda trapping program will be checked for domestication such as a microchip, ear tattoo or collar. If a domestic cat is caught, then the City's ranger will be contacted to come and collect the cat. If the ranger is unavailable the cat will be taken to the Shenton Park Cat Haven. Feral cats and foxes will be humanely euthanased by firearm off-site and disposed of.

M6 Any domestic cats caught will be given to the City's ranger or taken to the Shenton Park Cat Haven.

M7 All feral cats and foxes caught will be humanely euthanased off-site by firearm.

2.1.6 Kangaroos and emus

There is a small number of kangaroos and emus that move in and out of the project area. These animals will be allowed to move into adjacent areas of the development site during vegetation clearing and will be actively managed during a future stage of vegetation clearing.

M8 Kangaroos and emus in the project area will be allowed to move into adjacent areas of the development site, without any active management.

2.1.7 Trap checking process for animal welfare

All cage traps in this relocation program will have a shade cloth cover and, where possible, be placed in the shade of a tree or shrub and all traps will remain open during the day as this will enhance the capture and relocation of diurnal vertebrate fauna (e.g. *Tiliqua rugosa*). Traps will be checked within four hours of sunrise.

M9 Traps will remain open each day. Daily trap checking will be completed within four hours of sunrise to minimise heat stress on nocturnal captured fauna.

2.1.8 Searches for active bird nests and tree hollows

It is unknown when the vegetation will be cleared but it is most likely to be in late autumn and winter 2021. If the vegetation clearing is undertaken in spring, then it could impact on nesting birds. If it is in summer, autumn and winter the project area is less likely to support active nests. All trees will be inspected by a zoologist during the trapping program and prior to vegetation clearing to determine if any have active birds' nests. Where practicable and when chicks have a good chance of survival and being released into bushland, they will be collected and given to a wildlife carer to raise.

All trees will be inspected from ground level to determine whether they contain suitable hollow(s) or active nest(s).

During vegetation clearing, all trees will be bumped or gently shaken by the machine operator to encourage birds and arboreal mammals (e.g. Brushtail Possums) to relocate prior to the tree being felled. Felled trees with hollows will be inspected and any vertebrate fauna caught and relocated, or where appropriate given to a wildlife carer to raise and subsequently release. Terrestrial Ecosystems on-site zoologist will decide whether the eggs and/or chicks should be euthanased or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.

Trees with suitable hollows for use by Black-Cockatoos will be inspected from ground level immediately prior to vegetation clearing and bumped by the machine operator immediately prior to being felled. If there is evidence to suggest a tree hollow supports an active Black-Cockatoo nest [i.e. has an egg(s) or chick(s)], then

that tree will not be cleared until a suitably qualified zoologist has inspected the tree to confirm there is no nest or that the Black-Cockatoo chick has fledged and left the nest.

All tree inspections will be completed within ten days of vegetation commencing.

M10 All trees will be inspected during the trapping program from ground level to determine whether they contain suitable hollow(s) or active nest(s). Terrestrial Ecosystems on-site zoologist will decide whether the captured fauna, eggs and/or chicks should be relocated, euthanased or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.

M11 If a tree contains an active Black Cockatoo nest, then the tree will not be cleared until a suitably qualified zoologist has confirmed that Black-Cockatoo chick(s) have fledged and left the nest.

2.1.9 Bees

During the trapping program, the project area will be searched for active beehives. Where beehives are identified, and considered to cause a hazard, then a bee collector-exterminator will be contacted to remove or kill the bees.

M12 During the trapping program, the site will be searched for active beehives, and if located and they are likely to be a hazard, then a bee collector-exterminator will be contacted to remove the bees.

2.1.10 Vegetation clearing procedure and induction

The on-site zoologist will be present for vegetation clearing but not the grubbing and pushing of vegetation into piles.

Clearing works will be conducted in a direction that enables mobile vertebrate fauna to escape the clearing process and move into adjacent bushland.

Terrestrial Ecosystems' on-site zoologist will provide the vegetation clearing machine operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna. This induction will include:

- positive communications between the clearing operator and the on-site zoologist before fauna is salvaged near active machinery;
- all trees (dead or alive) will be 'bumped' with machinery first, then lowered if no fauna is spotted;
- all vegetation clearing will be undertaken in a direction that enables vertebrate fauna to escape into adjacent bushland; and
- fauna observed by the machine operator will be communicated to the on-site zoologist to salvage if they haven't already been observed by the zoologist.

There will be one zoologist for each machine operator clearing the vegetation.

M13 Terrestrial Ecosystems on-site zoologist will work with each machine operator and provide the operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna.

2.1.11 During clearing

During vegetation clearing, a Terrestrial Ecosystems zoologist will be present on-site to ensure the clearing procedure is followed and all vertebrate fauna are caught and relocated or if injured or introduced species, then they will be humanely euthanased.

The project area is likely to support a range of vertebrate fauna, typical of what generally occurs in good to high quality fauna habitat in the region. This will include small reptiles and mammals. The commonly seen *T. rugosa* and *P. minor* are examples of fauna commonly caught and relocated during recent fauna relocation programs on the Swan Coastal Plain. There is a possibility that the area supports *P. affinis*, in which case they will be caught in a snake bag with a snake hook and relocated with the other fauna.

M14 A qualified zoologist from Terrestrial Ecosystems will be present to capture and relocate any fauna that are likely to be injured during the vegetation clearing. One zoologist will be available per machine that is undertaking vegetation clearing (but not grabbing and pushing the vegetation into piles).

2.1.12 Injured fauna

Large vertebrate fauna that are injured during the vegetation clearing process and that are assessed by the on-site zoologist as having a good chance of being satisfactorily rehabilitated will be given to a DBCA registered wildlife carer. The DBCA's Wild Care 24hr hotline number is (08) 9474 9055. Native Animal Rescue is a registered wildlife carer in Malaga. Native Animal Rescue's contact details are 9249 3434 and is situated at 170 Camboon Road, Malaga.

Fauna injured during the clearing process that have little possibility of being satisfactorily rehabilitated and released will be humanely euthanased.

M15 Injured fauna able to be successfully rehabilitated and subsequently released will be given to a registered wildlife carer.

M16 Injured fauna unlikely to be successfully rehabilitated and subsequently released will be humanely euthanased.

M17 The zoologist will determine if injured fauna are able to be treated, rehabilitated and released into bushland to subsequently survive. The zoologist will be responsible for taking injured fauna to an approved wildlife carer. If injured fauna are given to an approved wildlife carer, then the developer will provide funds to the wildlife carer to cover the cost of treating and rehabilitating injured fauna. Animals that cannot be treated, rehabilitated and released into bushland to subsequently survive will be humanely euthanased and this decision will be made by the on-site zoologist.

2.1.13 Reporting

Within 30 days of the conclusion of the vegetation clearing program, Terrestrial Ecosystems will provide a letter report detailing the relocation activities undertaken, the dates over which the relocation program operated, the number of each species relocated, the release locations and the details of any animals killed or injured (including disposal location) during that stage of clearing. This letter report will be satisfactory for submission to council.

A report will be provided to the DBCA within 30 days of the expiry date on the licence.

M18 Within 30 days of the conclusion of the vegetation clearing program a letter report outlining the vertebrate fauna caught and relocated will be prepared by Terrestrial Ecosystems. The City of Wanneroo is advised if fauna are relocated into a City's reserve.

M19 In accordance with the Regulation 28 license a return will be lodged with DBCA.

2.1.14 Adaptive Management

As with all similar wildlife protection plans, unexpected fauna may be on-site, circumstances change quickly, or action is required to protect the welfare of fauna and for the construction contractors and on-site zoologist to comply with the *Animal Welfare Act 2002*.

Terrestrial Ecosystems staff and the construction contractors will take whatever action is necessary and appropriate to maintain the welfare of vertebrate fauna on-site. Such action(s) might require deviation from this plan.

2.2 MANAGEMENT ACTION SUMMARY

Table 4 outlines the management actions to be implemented. These actions aim to avoid or reduce impacts to fauna and fauna habitat during vegetation clearing and construction, and the life of the development. A fauna trapping, salvage and relocation program is necessary to mitigate and minimise the potential impact on vertebrates in the project area.

3. REFERENCES

Aecom. 2016. Conservation Area Management Plan City of Wanneroo Landholdings - Meridian Business Park - Neerabup Industrial Area. Perth.

City of Wannneroo. 2020. Construction Environmental Management Plan Meridian Business Park - Neerabup Industrial Area.

Department of the Environment and Energy. 2019. Variation of Conditions Attached to Approval Meridian Business Park Industrial Development, Neerabup, WA (EPBC 2007/3479).

Ecoscape. 2021. Neerabup Industrial Area - Environmental Assessments (Fauna). Perth.

Government of Western Australia. 2015. Clearing Permit CPS 6359/3. Perth.

Table 4. Management actions

#	Management Actions	Performance Indicator	Timing	Responsibility
M1	A Regulation 28 License (issued by DBCA) to take, catch and relocate native fauna will be applied for by Terrestrial Ecosystems and all obligations under the license will be fulfilled.	A Regulation 28 licence is obtained prior to and maintained for the duration of the fauna management program	Prior to fauna management program	Specialist zoological consultant – Terrestrial Ecosystems
M2	Terrestrial Ecosystems has qualified and experienced zoologists that will implement the fauna management program.	Qualified staff are nominated on the licences and available on site	During fauna management program	Specialist zoological consultant – Terrestrial Ecosystems
M3	Baited wire cage traps targeting Quenda and other trappable fauna will be deployed across the site in suitable habitat for a period of 10 nights.	Trapping will be undertaken for 10 nights	The trapping program is to conclude within five days of vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M4	Active foraging and searching will be undertaken by Terrestrial Ecosystems for reptiles prior to vegetation clearing and concurrently with the trapping program.	Photographic records of active foraging and searching are provided in the close out report	Undertaken concurrent with the trapping program and within two weeks of the vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M5	The project area will be searched for Rainbow Bee-eater nest burrows during the breeding season. These nests will be carefully excavated, and the chicks given to a registered wildlife carer to raise and release when able to forage for themselves.	No active Rainbow Bee-eater nests are removed during the vegetation clearing process and any chicks are retrieved and given to a wildlife carer	Undertaken concurrently with the trapping program.	Specialist zoological consultant – Terrestrial Ecosystems
M6	Any domestic cats caught will be given to the City's ranger or taken to the Shenton Park Cat Haven.	No cats or foxes or their signs (i.e. scats or tracks) are observed during the vegetation clearing program	Prior to and during the vegetation clearing program	Specialist zoological consultant – Terrestrial Ecosystems
M7	All feral cats and foxes caught will be humanely euthanased off-site by firearm.	Animals are killed humanely	Prior to and during the vegetation clearing program	Specialist zoological consultant – Terrestrial Ecosystems
M8	Kangaroos and emus in the project area will be allowed to move into adjacent areas of the development site, without any active management.	Kangaroos and emus move out of the vegetation area prior to or during vegetation clearing.	Prior to or during vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems

#	Management Actions	Performance Indicator	Timing	Responsibility
M9	Traps will remain open each day. Daily trap checking will be completed within four hours of sunrise to minimise heat stress on nocturnal captured fauna.	Traps are checked at appropriate intervals to maintain animal welfare	The trapping program is to conclude within five days of vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M10	All trees will be inspected during the trapping program from ground level to determine whether they contain suitable hollow(s) or active nest(s). Terrestrial Ecosystems on-site zoologist will decide whether the captured fauna, eggs and/or chicks should be relocated, euthanased or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.	All trees are inspected from ground level and cleared of any live nesting birds or arboreal mammals	To be completed prior to vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M11	If a tree contains a Black Cockatoo nest the tree will not be cleared until a suitably qualified zoologist has confirmed that Black-Cockatoo chick(s) have fledged and left the nest.	No active Black-Cockatoo nests are disturbed during the vegetation clearing program.	Inspections are completed within five days of the commencement of the vegetation clearing program unless hollows are removed or blocked.	Specialist zoological consultant – Terrestrial Ecosystems
M12	During the trapping program, the site will be searched for active beehives, and if located and they are likely to be a hazard, then a bee collector-exterminator will be contacted to remove the bees.	No beehives are found during the vegetation clearing program.	Inspections are undertaken during the trapping program to determine whether beehives are present.	Specialist zoological consultant – Terrestrial Ecosystems
M13	Terrestrial Ecosystems on-site zoologist will work with each machine operator and provide the operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna.	Records of induction are kept and appended to the close out report	Prior to and during the vegetation clearing program.	Specialist zoological consultant – Terrestrial Ecosystems
M14	A qualified zoologist from Terrestrial Ecosystems will be present to capture and relocate any fauna that are likely to be injured during the vegetation clearing. One zoologist will be available per machine that is undertaking vegetation clearing	Vegetation clearing, or ground disturbance are not undertaken without the presence of a zoologist that has a Regulation 28 Licence	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems

#	Management Actions	Performance Indicator	Timing	Responsibility
	(but not grabbing and pushing the vegetation into piles).			
M15	Injured fauna able to be successfully rehabilitated and subsequently released will be given to a registered wildlife carer.	No fauna are not left to suffer longer than necessary	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M16	Injured fauna unlikely to be successfully rehabilitated and subsequently released will be humanely euthanased.	No fauna are not left to suffer longer than necessary	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M17	The zoologist will determine if injured fauna are able to be treated, rehabilitated and released into bushland to subsequently survive. The zoologist will be responsible for taking injured fauna to an approved wildlife carer. If injured fauna are given to an approved wildlife carer, then the developer will provide funds to the wildlife carer to cover the cost of treating and rehabilitating injured fauna. Animals that cannot be treated, rehabilitated and released into bushland to subsequently survive will be humanely euthanased and this decision will be made by the on-site zoologist.	Any injured fauna suitable for rehabilitation are taken to a wildlife carer. Injured fauna not suitable are euthanased by the on-site zoologist.	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M18	Within 30 days of the conclusion of the vegetation clearing program a letter report outlining the vertebrate fauna caught and relocated will be prepared by Terrestrial Ecosystems. The City of Wanneroo is advised if fauna are relocated into a City's reserve.	Close out report is provided within 30 days addressing each management action	Within 30 days of vegetation clearing concluding	Specialist zoological consultant – Terrestrial Ecosystems
M18	In accordance with the Regulation 28 license a return will be lodged with DBCA.	A licence return is submitted to the DBCA	Within 30 days of the expiry date	Specialist zoological consultant – Terrestrial Ecosystems

Figures

Native Vertebrate Fauna Management Plan
Lot 9003 Mather Drive, Neerabup, WA

Figure 1. Lot 9003 Mather Drive, Neerabup


DETECTION DOG

TERRESTRIAL ECOSYSTEMS

2021-0033-004-jms V1

29 July 2021

Stephen Elliot
Urban Resources
33 Cocos Drive,
Bibra Lake WA. 6163

Re: Lot 9003 Mather Drive, Neerabup - fauna management program

Dear Stephen

Terrestrial Ecosystems is pleased to provide the results of the vertebrate fauna trapping, salvage and management program prior to and during the vegetation clearing for Stage 1, Lot 9003 Mather Drive, Neerabup.

Terrestrial Ecosystems undertook a progressive trapping program before vegetation clearing commenced. A total of 313 trapping sites were utilised over the fauna management program area. All traps were checked and cleared daily from first light and all fauna were caught and relocated under a Department of Biodiversity, Conservation and Attractions, Regulation 28 licence #FR28000199-3.

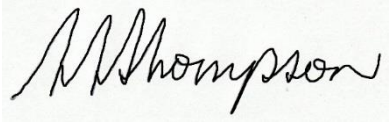
Table 1 provides the dates for trapping and vegetation clearing. A combination of staff including John-Michael Stuart, Georgia Ford, Michael Walsh, Ella Carstens, Dr Scott Thompson and Will Purser completed the trapping and fauna management program. Table 2 provides a summary of the recorded fauna for each section and Plates 1-14 show images of some of the vegetation clearing and fauna caught and relocated.

Table 1 – Fauna management timeline

Stage	Section	Sub section	Traps opened	Traps closed	Hand captures
1	1	A	27/05/2021	6/06/2021	28 - 31 May; 1, 4, 6, 10, 11, 14, 15 June
1	2	A	14/06/2021	17/06/2021	6, 14-19, 21-25 June
1	2	B	14/06/2021	20/06/2021	
1	2	C	14/06/2021	23/06/2021	
1	3	A	16/06/2021	26/06/2021	18 - 30 June, 1, 2, 5, 6, 8 July
1	3	B	19/06/2021	29/06/2021	
1	3	C	20/06/2021	30/06/2021	

Please do not hesitate to contact the undersigned on 0407 38 239 or Dr Graham Thompson (0438 491 227) should you have any queries.

Yours faithfully



Dr Scott Thompson
Principal Zoologist and Partner

Table 2. Recorded fauna in each section

Species	Section 1 trapping	Section 2 trapping	Section 3 trapping	Section 1 clearing	Section 2 clearing	Section 3 clearing	Total
Coturnix pectoralis			3				3
Cryptoblepharus buchananii				1	2	3	6
Ctenotus australis				2	2	5	9
Ctenotus fallens				2	5	5	12
Cyclodomorphus celatus				2	2	7	11
Delma grayii						1	1
Echiopsis curta					1	1	2
Hemiergis quadrilineata				3	13	22	38
Isoodon fusciventer	7		20				27
Lerista distinguenda				1	5	2	8
Lerista praepedita				1	14	7	22
Lialis burtonis				3	2	2	7
Menetia greyii				2	8	3	13
Morethia obscura					2		2
Mus musculus	3	5	10				18
Neelaps bimaculatus					1		1
Parasuta gouldii				1		1	2
Podargus strigoides						1	1
Pogona minor				1			1
Pseudonaja affinis						1	1
Simoselaps bertholdi				1		3	4
Strophurus spinigerus						2	2
Tiliqua rugosa	1				2	9	12
Total	11	5	33	20	59	75	203

Plate 1. ***Simoselaps bertholdi*** **(Jan's Banded Snake)**

Plate 2. ***Parasuta gouldii*** **(Gould's Hooded Snake)**

Plate 3. ***Neelaps bimaculatus*** **(Black-naped Snake)**

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Disclaimer

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Native Vertebrate Fauna Management Plan

Mather Drive Road Reserve (CPS 9267-1), Neerabup

Prepared for: Urban Resources

Version 1. August, 2021

RECORD OF DISTRIBUTION

No. of copies	Report File Name	Report Status	Date	Prepared for:	Initials
Electronic	2021-0095-002-GT V1.DOCX	DRAFT	5 August 2021	Urban Resources	ST

Suggested Citation: Terrestrial Ecosystems 2021 *Native Vertebrate Fauna Management Plan for the Mather Drive Road Reserves (CPS 9267-1), Neerabup*, Unpublished report for Urban Resources, Perth

Prepared For:
Urban Resources
33 Cocos Drive
Bibra Lake DC,
WA 6965

Prepared By:
Terrestrial Ecosystems
10 Houston Place
Mt Claremont WA 6010
Phone: 08 9385 2398, 0407 385 289
Website: www.terrestrialecosystems.com
ABN: 40921131346

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EXECUTIVE SUMMARY

This native vertebrate fauna management plan describes the project area, fauna habitats in the project area, vertebrate fauna potentially in the project area and management strategies that will be implemented to minimise and mitigate potential impacts on native vertebrate fauna for the Mather Drive Road Reserve, Neerabup vegetation clearing program.

1. INTRODUCTION

1.1 BACKGROUND

Urban Resources is intending to clear and develop the Mather Drive Road Reserve, Neerabup (project area: Figure 1). Figure 1 shows the area proposed for clearing (purple) and the overall road alignment (red). All areas highlighted in green in Figure 1 have been cleared already resulting in a very small habitat fragment.

The proposed vegetation clearing has been assessed and authorised under a Native Vegetation Clearing Permit (i.e. CPS 9267/1) has now been obtained for this area. The vegetation clearing will also be conducted in accordance with the Construction Environmental Management Plan (CEMP) and EPBC Act conditions.

The EPBC Act approval stated that the CEMP must include, but not be limited to:

a) avoidance and mitigation measures to prevent impacts to black cockatoos following the commencement of the action;

b) measures to physically delineate areas that will be within the Conservation Area;

c) management measures to control site access, weeds, Phytophthora dieback, erosion and dust;;

d) details of monitoring, reporting and contingency measures if performance indicators are not met;

e) timeframes for the implementation of the above measures; and

f) descriptions of the roles and responsibilities of personnel associated with implementing each of the above measures.

There are no conditions in the Clearing Permit pertaining to the management of vertebrate fauna.

The Construction Environmental Management Plan (City of Wanneroo 2020) has the following conditions relevant to fauna:

a) Clearing of native vegetation for resource extraction and industrial development will be staged and will not exceed 130.7ha of Carnaby's Black-Cockatoo foraging habitat;

b) Ensure no new informal tracks arise and all vehicle and personnel movement is limited to the approved project boundary;

c) Display contact information for Wildcare Hotline and fauna handler on the Health, Safety and Environment noticeboard;

d) Inspect the site for the presence of foraging Carnaby's Black-Cockatoo;

e) A qualified fauna handler is to be on-call during all site activities;

f) Prohibit pets or domesticated animals on-site;

g) Prohibit personnel feeding or interacting with fauna (native or feral);

h) No firearms are permitted on site; and

i) Erect fencing around the site perimeter with signage indicating restricted access.

Table 1. Contingency and corrective actions (from CEMP)

Incident or Consequence	Corrective Action	Responsibility
Carnaby's Black-Cockatoo foraging on vegetation within or adjacent to site during construction	Report as an incident	EM
	Halt adjacent construction activities until birds move on of their own accord; or on advice of EM if activities are deemed to not be interrupting foraging activities.	EMR
Native fauna present onsite during construction	Report as an incident (no investigation required).	EMR
	If animal is not at risk of being impacted (not in proximity to moving equipment or plant etc.) allow to move on in own time.	EMR
	If animal is at risk of being impacted, halt construction until fauna have moved on or are removed by a qualified fauna handler.	EMR
Injured fauna present onsite	Report and investigate as an incident.	EMR
	If animal is at further risk, contact Wildcare or Department of Biodiversity, Conservation and Attractions.	EMR
Feral fauna present onsite	Notify EM of sighting.	EMR

1.1.1 Fauna habitats

Ecoscape (2021) reported the following two fauna habitats in the project area:

- Woodlands (Tuart, Jarrah, Marri, Banksia, Coastal Blackbutt); and
- Degraded grassland.

Descriptions of these two fauna habitat types area as follows:

Woodland: Open woodland over low open shrubland on grey sandy flats. Habitat is suitable for expected suite of small reptiles, mammals, and woodland birds. Breeding, foraging and roosting habitat for Black Cockatoo species.

Degraded grassland: Grassland of veldt grass with scattered shrubs. Habitat is suitable for Western Grey Kangaroos and rabbits for foraging and small reptiles; generally unsuitable for remaining species.

1.1.2 Relevant legislation

The protection of fauna and their habitat is the subject of several Acts listed in Table 2.

Table 2. Commonwealth and State legislation relevant to this management plan

Legislation	Application
Environmental Protection Act 1986	State environmental impact assessment and Ministerial approval process
WA *Biodiversity and Conservation Act 2016*	State legislation that regulates and controls native fauna capture and relocation programs

Legislation	Application
WA *Biosecurity and Agricultural Management Act 2007*	State Act that controls the management of vertebrate pest fauna
Environment Protection and Biodiversity Conservation Act 1999	Federal process that assesses the conservation significance of fauna species and forms the framework for protection of significant species

1.1.3 Fauna species

Ecoscape (2021) reported the following conservation significant species potentially in the project area.

Species	Common name
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo
Calyptorhynchus latirostris	Carnaby's Black-Cockatoo
Calyptorhynchus baudinii	Baudin's Black-Cockatoo
Falco peregrinus	Peregrine Falcon
Hylaeus globuliferus	Woolybush Bee
Idiosoma sigillatum	Swan Coastal Plain Shield-backed Trapdoor Spider
Isoodon fusciventer	Quenda
Neelaps calonotos	Black-striped Snake
Notamacropus irma	Western Brush Wallaby
Synemon gratiosa	Graceful Sunmoth

Fauna species caught during the previous fauna management undertaken in immediately adjacent areas are shown in Table 3.

Table 3. Fauna caught during the previous fauna relocation program

Species	Species	Species
Coturnix pectoralis	***Isoodon fusciventer***	***Parasuta gouldii***
Cryptoblepharus buchananii	***Lerista distinguenda***	***Podargus strigoides***
Ctenotus australis	***Lerista praepedita***	***Pogona minor***
Ctenotus fallens	***Lialis burtonis***	***Pseudonaja affinis***
Cyclodomorphus celatus	***Menetia greyii***	***Simoselaps bertholdi***
Delma grayii	***Morethia obscura***	***Strophurus spinigerus***
Echiopsis curta	***Mus musculus***	***Tiliqua rugosa***
Hemiergis quadrilineata	***Neelaps bimaculatus***	

1.2 POTENTIAL IMPACTS ON NATIVE FAUNA

Vegetation clearing can directly impact native fauna through several threatening processes. Some relevant processes include:

- loss of fauna habitat;
- habitat fragmentation;
- increased access for feral predators; and
- injury or mortality during the clearing process.

These threats are described below.

1.2.1 Loss of fauna habitat and habitat fragmentation

Loss of habitat can adversely affect fauna survival through fragmentation, which can isolate or restrict movement of fauna populations and individuals within vegetation remnants from the wider area. This small area of vegetation is a habitat fragment left behind after vegetation clearing in adjacent areas.

Vegetation clearing will not impact on the availability of regional habitat linkages but will reduce the availability of overall habitat in the region.

1.2.2 Predation by feral and domestic animals

Introduced animals, including feral cats and foxes can adversely impact native species, particularly in remnant vegetation. The clearing of vegetation will have a very minor impact on some feral fauna (e.g. cats, foxes, and rabbits) that currently inhabit the region. No feral fauna are likely to rely on this small fragment.

1.2.3 Displacement of fauna into adjacent areas

Vegetation clearing programs often encourage the movement of large snakes, mice, and rats into adjacent and nearby areas, which in this case is mostly into similar adjacent bushland or a couple of industrial sites. An on-site zoologist will catch and relocate any snakes that are seen during the vegetation clearing program and humanely euthanase any non-native rats and mice that are caught.

1.2.4 Clearing of vegetation

It is inevitable that some vertebrate fauna will be lost or injured during the vegetation clearing process and occasionally birds will be nesting in trees that will be impacted by vegetation clearing. With appropriate management it is possible to catch and relocate some of these terrestrial fauna to suitable habitat. Adult birds will almost certainly move before trees are felled, but eggs and young chicks seldom survive. Some chicks found in tree hollows and nests may be suitable for rehabilitation with a wildlife carer. Some birds breed all year round, however, many species on the Swan Coastal Plain breed through spring, so clearing vegetation in summer, autumn and winter will have little impact on nesting birds.

Checking tree hollows for chicks and mammals once trees have been felled and catching and relocating animals will reduce potential impacts on native fauna that utilise tree hollows.

1.3 EXPECTED FAUNA IN THE PROJECT AREA

Terrestrial fauna species likely to be in the project area and vicinity of the project area that will be readily observed or caught and relocated or euthanased are shown in Table 4. Given the very small area of fauna habitat this list is an overestimate of the actual fauna which will rely on the habitat fragment.

Table 4. Species expected in the project area (from Ecoscape 2021, Terrestrial Ecosystems 2021)

Species	Common Name
Mammals	
***Canis familiaris**	Dog
***Felis catus**	Cat
Isoodon fusciventer	Quenda
Macropus fuliginosus	Western Grey Kangaroo
***Oryctolagus cuniculus**	Rabbit
Birds	
Anthochaera carunculate	Red Wattlebird
Artamus cyanopterus	Dusky Woodswallow
Cacatua roseicapilla	Galah
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo
Calyptorhynchus latirostris	Carnaby's Cockatoo
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Corvus coronoides	Australian Raven
Cracticus tibicen	Australian Magpie
Dacelo novaeguineae	Laughing Kookaburra
Falco berigora	Brown Falcon
Gavicalis virescens	Singing Honeyeater
Lichmera indistincta	Brown Honeyeater
Malurus splendens	Splendid Fairy-wren
Merops ornatus	Rainbow Bee-eater
Petroica boodang	Scarlet Robin
Phylidonyris novaehollandiae	New Holland Honeyeater
Platycercus spurius	Red-capped Parrot
Platycercus zonarius	Australian Ringneck
Rhipidura leucophrys	Willie Wagtail
Threskiornis spinicollis	Straw-necked Ibis
Todiramphus sanctus	Sacred Kingfisher

Species	Common Name
Reptiles	
Tiliqua rugosa	Bobtail Lizard
Varanus gouldii	Bungarra or Sand Monitor
Cryptoblepharus buchananii	Buchanan's Snake-eyed Skink
Ctenotus australis	Western Limestone Ctenotus
Ctenotus fallens	West-coast Laterite Ctenotus
Cyclodomorphus celatus	Western Slender Blue-tongue
Delma grayii	Side-barred Delma
Echiopsis curta	Bardick
Hemiergis quadrilineata	Two-toed Earless Skink
Lerista distinguenda	South-west Orange-tailed Slider
Lerista praepedita	Blunt-tailed West-coast Slider
Lialis burtonis	Burton's Legless Lizard
Menetia greyii	Common Dwarf Skink
Morethia obscura	Shrubland Morethia Skink
Neelaps bimaculatus	Black-naped Snake
Parasuta gouldii	Gould's Hooded Snake
Pogona minor	Western Bearded Dragon
Pseudonaja affinis	Dugite
Simoselaps bertholdi	Jan's Banded Snake
Strophurus spinigerus	Soft Spiny-tailed Gecko

* introduced species

1.3.1 Nesting birds and arboreal fauna

All trees will be inspected from ground level prior to vegetation clearing to locate active bird nests and tree hollows or retreats for mammals (e.g. Brushtail Possums). Where practical, trees with nests that contain chicks will be slowly lowered to the ground so that the chicks might be retrieved and given to wildlife carers.

Trees providing suitable hollows as retreats for arboreal mammals will be inspected on the ground to determine whether vertebrate fauna are present, and if so, they will be captured and released elsewhere. In some cases, this will require sections of the tree to be cut and removed with a chainsaw until a person can gain access to the animal.

If vegetation clearing is to be undertaken during October to December, then open areas will be searched for the ground nesting sites of the Rainbow Bee-eater (*Merops ornatus*). If active nest sites are located, then an effort will be made to protect these nests until the chicks have fledged. If this is not possible, chicks will be dug out and retrieved. These chicks will be assessed by the onsite zoologist and if assessed as suitable, given to a registered wildlife carer to raise and release.

1.3.2 Quenda

The project area may support a small population of Quenda. Prior to the adjacent areas being cleared of vegetation the project area and the adjacent areas were trapped for 10 days. A much less intense trapping program is therefore required. Baited wire cage traps will therefore be set for a period of three nights and four days, targeting Quenda prior to vegetation clearing.

1.3.3 Other vertebrate fauna

The project area is likely to support a depleted range of vertebrate fauna typically found in the sandy plain areas on the Swan Coastal Plain. It is inevitable that some of these will be lost during the vegetation clearing process. The presence of a zoologist on-site during the clearing program to catch and relocate animals that flee from the vegetation clearing will reduce the number of animals that are lost. The commonly seen Bobtail (*Tiliqua rugosa*) and Bearded Dragon (*Pogona minor*) are examples of fauna regularly caught and relocated during similar activities. House Mice (*Mus musculus*) are also often abundant in these locations and are regularly caught in trapping programs designed to catch Quenda. All House Mice caught in the project area will be humanely euthanased.

1.3.4 Kangaroos and emus

The project area is very small and unlikely to support kangaroos and emus. No active management of kangaroos and emus is proposed, however, if they are present on the day of vegetation clearing, the machinery will not start clearing until they have had a chance to move away.

2. MANAGEMENT ACTIONS AND IMPLEMENTATION

2.1 FAUNA RELOCATION LICENSE

The trapping program requires a Regulation 28 License to catch and relocate native vertebrate fauna.

M1 Terrestrial Ecosystems have a Regulation 28 License to take, catch and relocate native fauna from the project area and all obligations under the license will be fulfilled.

2.2 CONTRACTOR

The fauna management program will be implemented by Terrestrial Ecosystems. Terrestrial Ecosystems is a specialist consultant that use qualified and experienced staff and can complete all components of this plan.

M2 Terrestrial Ecosystems has qualified and experienced zoologists that will implement the fauna management program.

2.3 TRAPPING PROGRAM

Prior to vegetation clearing the project area will be trapped targeting Quenda, arboreal mammals, and some of the larger reptiles (e.g. Bobtails). Baited wire cage traps will be set for three nights to catch Quenda, Brushtail Possums and Bobtails.

Trapping will be concluded within one week of the commencement of vegetation clearing.

All traps will be left open 24hrs per day to ensure that diurnal fauna such as Bobtails are also caught.

Any other vertebrate fauna caught in the traps that are not an introduced species will be relocated. Introduced species (e.g. House Mouse, Black Rat, Rabbit, etc) will be humanely euthanased.

M3 Baited wire cage traps targeting Quenda and other trappable fauna will be deployed across the site in suitable habitat for a period of three nights.

2.4 ACTIVE FORAGING

Terrestrial Ecosystems staff will undertake an active foraging program on-site in front of the vegetation clearing program to search for reptiles.

M4 Active foraging and searching will be undertaken by Terrestrial Ecosystems for reptiles prior to vegetation clearing and concurrently with the trapping program.

M5 The project area will be searched for Rainbow Bee-eater nest burrows during the breeding season. These nests will be carefully excavated, and the chicks given to a registered wildlife carer to raise and release when able to forage for themselves.

2.5 CATS AND FOXES

Targeted trapping for foxes and feral cats will not be undertaken.

Any cats caught in the Quenda trapping program will be checked for domestication such as a microchip, ear tattoo or collar. If a domestic cat is caught, then the City's ranger will be contacted to come and collect the cat.

If the ranger is unavailable the cat will be taken to the Shenton Park Cat Haven. Feral cats and foxes will be humanely euthanased by firearm off-site and disposed of.

M6 Any domestic cats caught will be given to the City's ranger or taken to the Shenton Park Cat Haven.

M7 All feral cats and foxes caught will be humanely euthanased off-site by firearm.

2.6 KANGAROOS AND EMUS

The area is probably too small to contain a resident population of kangaroos and emus. If they are, however, in the habitat fragment on the morning of vegetation clearing, the machinery will wait until they have moved out of the area before it starts clearing vegetation. No active management of kangaroos or emails will occur.

M8 Kangaroos and emus in the project area will be allowed to move into adjacent areas of the development site, without any active management.

2.7 TRAP CHECKING PROCESS FOR ANIMAL WELFARE

All cage traps in this relocation program will have a shade cloth cover and, where possible, be placed in the shade of a tree or shrub and all traps will remain open during the day as this will enhance the capture and relocation of diurnal vertebrate fauna (e.g. *Tiliqua rugosa*). Traps will be checked within four hours of sunrise.

M9 Traps will remain open each day. Daily trap checking will be completed within four hours of sunrise to minimise heat stress on nocturnal captured fauna.

2.8 SEARCHES FOR ACTIVE BIRD NESTS AND TREE HOLLOWS

It is unknown when the vegetation will be cleared but it is most likely to be in late winter 2021. If the vegetation clearing is undertaken in spring, then it could impact on nesting birds. If it is in summer, autumn and winter the project area is less likely to support active nests. All trees will be inspected by a zoologist during the trapping program and prior to vegetation clearing to determine if any have active birds' nests. Where practicable and when chicks have a good chance of survival and being released into bushland, they will be collected and given to a wildlife carer to raise.

All trees will be inspected from ground level to determine whether they contain suitable hollow(s) or active nest(s).

During vegetation clearing, all trees will be bumped or gently shaken by the machine operator to encourage birds and arboreal mammals (e.g. Brushtail Possums) to relocate prior to the tree being felled. Felled trees with hollows will be inspected and any vertebrate fauna caught and relocated, or where appropriate given to a wildlife carer to raise and subsequently release. Terrestrial Ecosystems on-site zoologist will decide whether the eggs and/or chicks should be euthanased or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.

Trees with suitable hollows for use by Black-Cockatoos will be inspected from ground level immediately prior to vegetation clearing and bumped by the machine operator immediately prior to being felled. If there is evidence to suggest a tree hollow supports an active Black-Cockatoo nest [i.e. has an egg(s) or chick(s)], then that tree will not be cleared until a suitably qualified zoologist has inspected the tree to confirm there is no nest or that the Black-Cockatoo chick has fledged and left the nest.

All tree inspections will be completed immediately prior to vegetation clearing.

M10 All trees will be inspected during the trapping program from ground level to determine whether they contain suitable hollow(s) or active nest(s). Terrestrial Ecosystems on-site zoologist will decide whether the captured fauna, eggs and/or chicks should be relocated, euthanased, or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.

M11 If a tree contains an active Black Cockatoo nest, then the tree will not be cleared until a suitably qualified zoologist has confirmed that Black-Cockatoo chick(s) have fledged and left the nest.

2.9 BEES

During the trapping program, the project area will be searched for active beehives. Where beehives are identified, and considered to cause a hazard, then a bee collector-exterminator will be contacted to remove or kill the bees.

M12 During the trapping program, the site will be searched for active beehives, and if located and they are likely to be a hazard, then a bee collector-exterminator will be contacted to remove the bees.

2.10 VEGETATION CLEARING PROCEDURE AND INDUCTION

The on-site zoologist will be present for vegetation clearing but not the grubbing and pushing of vegetation into piles.

Clearing works will be conducted in a direction that enables mobile vertebrate fauna to escape the clearing process and move into regional bushland.

Terrestrial Ecosystems' on-site zoologist will provide the vegetation clearing machine operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna. This induction will include:

- positive communications between the clearing operator and the on-site zoologist before fauna is salvaged near active machinery;
- all trees (dead or alive) will be 'bumped' with machinery first, then lowered if no fauna is spotted;
- all vegetation clearing will be undertaken in a direction that enables vertebrate fauna to escape into adjacent bushland; and
- fauna observed by the machine operator will be communicated to the on-site zoologist to salvage if they haven't already been observed by the zoologist.

There will be one zoologist for each machine operator clearing the vegetation.

M13 Terrestrial Ecosystems on-site zoologist will work with each machine operator and provide the operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna.

2.11 DURING CLEARING

During vegetation clearing, a Terrestrial Ecosystems zoologist will be present on-site to ensure the clearing procedure is followed and all vertebrate fauna are caught and relocated or if injured or introduced species, then they will be humanely euthanased.

The project area is likely to support a range of vertebrate fauna, typical of what generally occurs in good to high quality fauna habitat in the region. This will include small reptiles and mammals. The commonly seen *T. rugosa* and *P. minor* are examples of fauna commonly caught and relocated during recent fauna relocation programs on the Swan Coastal Plain. There is a possibility that the area supports *P. affinis*, in which case they will be caught in a snake bag with a snake hook and relocated with the other fauna.

M14 A qualified zoologist from Terrestrial Ecosystems will be present to capture and relocate any fauna that are likely to be injured during the vegetation clearing. One zoologist will be available per machine that is undertaking vegetation clearing (but not grabbing and pushing the vegetation into piles).

2.12 INJURED FAUNA

Large vertebrate fauna that are injured during the vegetation clearing process and that are assessed by the on-site zoologist as having a good chance of being satisfactorily rehabilitated will be given to a DBCA registered wildlife carer. The DBCA's Wild Care 24hr hotline number is (08) 9474 9055. Native Animal Rescue is a registered wildlife carer in Malaga. Native Animal Rescue's contact details are 9249 3434 and is situated at 170 Camboon Road, Malaga.

Fauna injured during the clearing process that have little possibility of being satisfactorily rehabilitated and released will be humanely euthanased.

M15 Injured fauna able to be successfully rehabilitated and subsequently released will be given to a registered wildlife carer.

M16 Injured fauna unlikely to be successfully rehabilitated and subsequently released will be humanely euthanased.

M17 The zoologist will determine if injured fauna are able to be treated, rehabilitated and released into bushland to subsequently survive. The zoologist will be responsible for taking injured fauna to an approved wildlife carer. If injured fauna are given to an approved wildlife carer, then the developer will provide funds to the wildlife carer to cover the cost of treating and rehabilitating injured fauna. Animals that cannot be treated, rehabilitated, and released into bushland to subsequently survive will be humanely euthanased and this decision will be made by the on-site zoologist.

2.13 REPORTING

Within 30 days of the conclusion of the vegetation clearing program, Terrestrial Ecosystems will provide a letter report detailing the relocation activities undertaken, the dates over which the relocation program operated, the number of each species relocated, the release locations and the details of any animals killed or injured (including disposal location) during that stage of clearing. This letter report will be satisfactory for submission to council.

A report will be provided to the DBCA within 30 days of the expiry date on the licence.

M18 Within 30 days of the conclusion of the vegetation clearing program a letter report outlining the vertebrate fauna caught and relocated will be prepared by Terrestrial Ecosystems.

M19 In accordance with the Regulation 28 license a return will be lodged with DBCA.

2.14 ADAPTIVE MANAGEMENT

As with all similar wildlife protection plans, unexpected fauna may be on-site, circumstances change quickly, or action is required to protect the welfare of fauna and for the construction contractors and on-site zoologist to comply with the *Animal Welfare Act 2002*.

Terrestrial Ecosystems staff and the construction contractors will take whatever action is necessary and appropriate to maintain the welfare of vertebrate fauna on-site. Such action(s) might require deviation from this plan.

2.15 MANAGEMENT ACTION SUMMARY

Table 5 outlines the management actions to be implemented. These actions aim to avoid or reduce impacts to fauna and fauna habitat during vegetation clearing and construction, and the life of the development. A fauna trapping, salvage and relocation program is necessary to mitigate and minimise the potential impact on vertebrates in the project area.

3. REFERENCES

City of Wanneroo. 2020. Construction Environmental Management Plan Meridian Business Park - Neerabup Industrial Area.

Ecoscape. 2021. Neerabup Industrial Area - Environmental Assessments (Fauna). Perth.

Terrestrial Ecosystems. 2021. Lot 9003 Mather Drive, Neerabup - fauna management program Perth.

Table 5. Management actions

#	Management Actions	Performance Indicator	Timing	Responsibility
M1	Terrestrial Ecosystems have a Regulation 28 License to take, catch and relocate native fauna from the project area and all obligations under the license will be fulfilled.	A Regulation 28 licence is obtained prior to and maintained for the duration of the fauna management program	Prior to fauna management program	Specialist zoological consultant – Terrestrial Ecosystems
M2	Terrestrial Ecosystems has qualified and experienced zoologists that will implement the fauna management program.	Qualified staff are nominated on the licences and available on site	During fauna management program	Specialist zoological consultant – Terrestrial Ecosystems
M3	Baited wire cage traps targeting Quenda and other trappable fauna will be deployed across the site in suitable habitat for a period of three nights.	Trapping will be undertaken for 10 nights	The trapping program is to conclude within five days of vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M4	Active foraging and searching will be undertaken by Terrestrial Ecosystems for reptiles prior to vegetation clearing and concurrently with the trapping program.	Photographic records of active foraging and searching are provided in the close out report	Undertaken concurrent with the trapping program and within two weeks of the vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M5	The project area will be searched for Rainbow Bee-eater nest burrows during the breeding season. These nests will be carefully excavated, and the chicks given to a registered wildlife carer to raise and release when able to forage for themselves.	No active Rainbow Bee-eater nests are removed during the vegetation clearing process and any chicks are retrieved and given to a wildlife carer	Undertaken concurrently with the trapping program.	Specialist zoological consultant – Terrestrial Ecosystems
M6	Any domestic cats caught will be given to the City's ranger or taken to the Shenton Park Cat Haven.	No cats or foxes or their signs (i.e. scats or tracks) are observed during the vegetation clearing program	Prior to and during the vegetation clearing program	Specialist zoological consultant – Terrestrial Ecosystems
M7	All feral cats and foxes caught will be humanely euthanased off-site by firearm.	Animals are killed humanely	Prior to and during the vegetation clearing program	Specialist zoological consultant – Terrestrial Ecosystems
M8	Kangaroos and emus in the project area will be allowed to move into adjacent areas of the development site, without any active management.	Kangaroos and emus move out of the vegetation area prior to or during vegetation clearing.	Prior to or during vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems

#	Management Actions	Performance Indicator	Timing	Responsibility
M9	Traps will remain open each day. Daily trap checking will be completed within four hours of sunrise to minimise heat stress on nocturnal captured fauna.	Traps are checked at appropriate intervals to maintain animal welfare	The trapping program is to conclude within five days of vegetation clearing commencing	Specialist zoological consultant – Terrestrial Ecosystems
M10	All trees will be inspected during the trapping program from ground level to determine whether they contain suitable hollow(s) or active nest(s). Terrestrial Ecosystems on-site zoologist will decide whether the captured fauna, eggs and/or chicks should be relocated, euthanased, or given to a wildlife carer, based on the potential for the animal surviving and subsequently being released.	All trees are inspected from ground level and cleared of any live nesting birds or arboreal mammals	To be completed prior to vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M11	If a tree contains a Black Cockatoo nest the tree will not be cleared until a suitably qualified zoologist has confirmed that Black-Cockatoo chick(s) have fledged and left the nest.	No active Black-Cockatoo nests are disturbed during the vegetation clearing program.	Inspections are completed within five days of the commencement of the vegetation clearing program unless hollows are removed or blocked.	Specialist zoological consultant – Terrestrial Ecosystems
M12	During the trapping program, the site will be searched for active beehives, and if located and they are likely to be a hazard, then a bee collector-exterminator will be contacted to remove the bees.	No beehives are found during the vegetation clearing program.	Inspections are undertaken during the trapping program to determine whether beehives are present.	Specialist zoological consultant – Terrestrial Ecosystems
M13	Terrestrial Ecosystems on-site zoologist will work with each machine operator and provide the operator with a brief induction on procedures that will minimise the potential to injure vertebrate fauna.	Records of induction are kept and appended to the close out report	Prior to and during the vegetation clearing program.	Specialist zoological consultant – Terrestrial Ecosystems
M14	A qualified zoologist from Terrestrial Ecosystems will be present to capture and relocate any fauna that are likely to be injured during the vegetation clearing. One zoologist will be available per machine that is undertaking vegetation clearing	Vegetation clearing, or ground disturbance are not undertaken without the presence of a zoologist that has a Regulation 28 Licence	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems

#	Management Actions	Performance Indicator	Timing	Responsibility
	(but not grabbing and pushing the vegetation into piles).			
M15	Injured fauna able to be successfully rehabilitated and subsequently released will be given to a registered wildlife carer.	No fauna are not left to suffer longer than necessary	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M16	Injured fauna unlikely to be successfully rehabilitated and subsequently released will be humanely euthanased.	No fauna are not left to suffer longer than necessary	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M17	The zoologist will determine if injured fauna are able to be treated, rehabilitated and released into bushland to subsequently survive. The zoologist will be responsible for taking injured fauna to an approved wildlife carer. If injured fauna are given to an approved wildlife carer, then the developer will provide funds to the wildlife carer to cover the cost of treating and rehabilitating injured fauna. Animals that cannot be treated, rehabilitated, and released into bushland to subsequently survive will be humanely euthanased and this decision will be made by the on-site zoologist.	Any injured fauna suitable for rehabilitation are taken to a wildlife carer. Injured fauna not suitable are euthanased by the on-site zoologist.	During vegetation clearing	Specialist zoological consultant – Terrestrial Ecosystems
M18	Within 30 days of the conclusion of the vegetation clearing program a letter report outlining the vertebrate fauna caught and relocated will be prepared by Terrestrial Ecosystems.	Close out report is provided within 30 days addressing each management action	Within 30 days of vegetation clearing concluding	Specialist zoological consultant – Terrestrial Ecosystems
M18	In accordance with the Regulation 28 license a return will be lodged with DBCA.	A licence return is submitted to the DBCA	Within 30 days of the expiry date	Specialist zoological consultant – Terrestrial Ecosystems

Figures

Native Vertebrate Fauna Management Plan
Mather Drive Road Reserve (CPS 9267-1), Neerabup

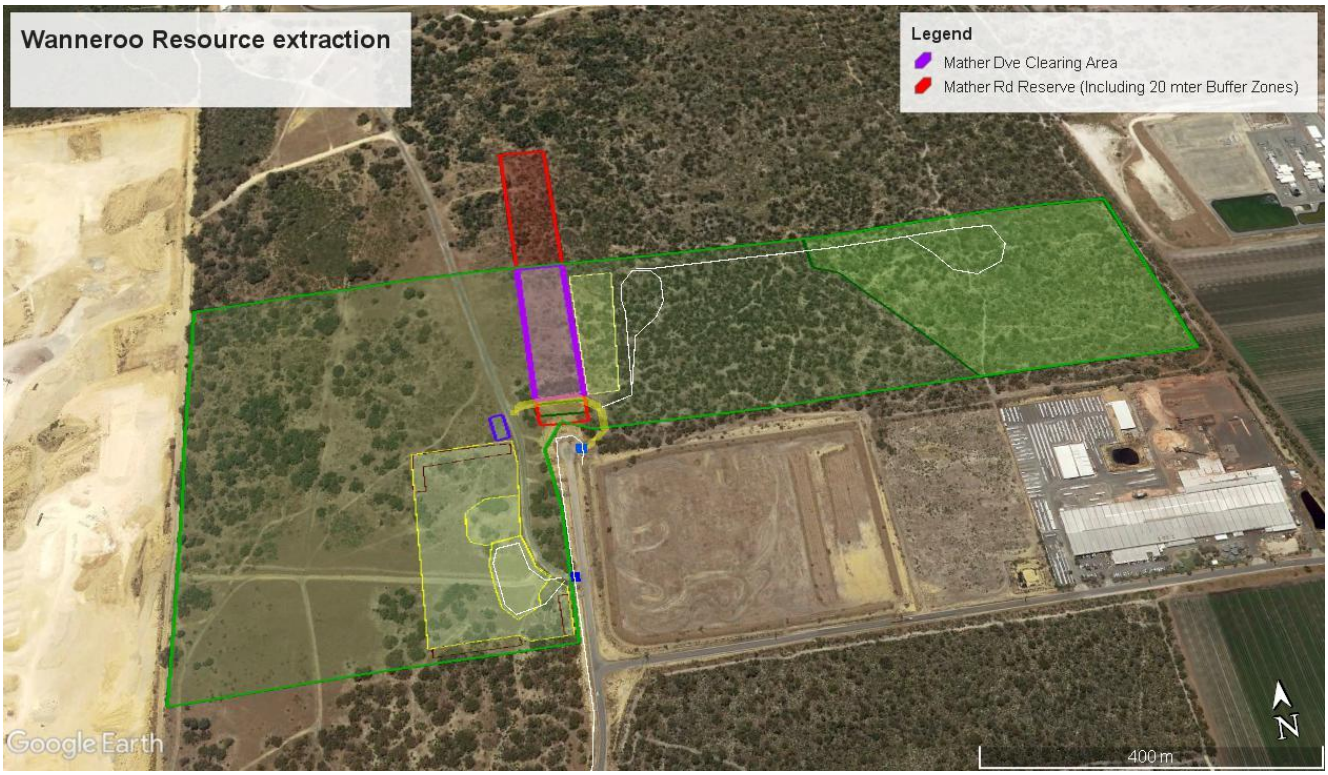


Figure 1. Project area (purple) within Lot 9003 Mather Drive, Neerabup


DETECTION DOG

2021-0095-003-gf

15 September 2021

Stephen Elliot
Urban Resources
33 Cocos Drive,
Bibra Lake WA. 6163

Re: Fauna management for Mather Drive Road Reserve, Neerabup

Dear Stephen

Terrestrial Ecosystems is pleased to provide the results of the fauna trapping and salvage program for Mather Drive Road Reserve, Neerabup.

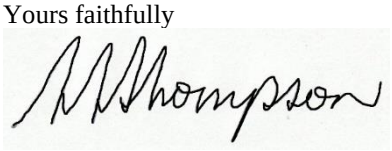
We undertook a three night trapping program to capture and relocate Quenda and other trappable fauna (e.g. *Tiliqua rugosa*) before vegetation clearing commenced. The trapping program utilised 45 cage traps and all traps were checked and cleared daily from first light. All fauna were caught and relocated under a Department of Biodiversity, Conservation and Attractions, Regulation 28 licence # FR28000199-3.

The trapping was undertaken between 6-9 September 2021. Vegetation clearing was undertaken on 9 September 2021. Georgia Ford completed the trapping and fauna salvage during the vegetation clearing program.

Fauna caught and relocated are shown in Table 1 and images of some of these animals and the vegetation clearing program are provided below.

Please do not hesitate to contact the undersigned on 0407 385 239 or Dr Graham Thompson (0438 491 227) should you have any queries.

Yours faithfully



Dr Scott Thompson
Principal Zoologist and Partner

Table 1. Fauna captures

Species	Common Name	Total # individuals
Anilios australis	Southern Blind Snake	1
Cracticus tibicen	Australian Magpie	1
Cryptoblepharus buchananii	Fence Skink	2
Ctenotus fallens	West-coast Ctenotus	1
Cyclodomorphus celatus	Western Slender Bluetongue	1
Delma grayii	Side-barred Delma	1
Echiopsis curta	Bardick	1
Hemiergis quadrilineata	Two-toed Earless Skink	2
Isoodon fusciventer	Quenda	3
Lerista elegans	Elegant Slider	1
Lerista praepedita	Blunt-tailed West-coast Slider	3
Menetia greyii	Common Dwarf Skink	1
Strophurus spinigerus	South-western Spiny-tailed Gecko	1
Tiliqua occipitalis	Western Bluetongue	1
Tiliqua rugosa	Bobtail	5
Total		**25**

Plate 1. ***Ctenotus fallens***

Plate 2. ***Delma grayii***

Plate 3. *Tiliqua occipitalis*

Plate 4. *Tiliqua rugosa*

Plate 5. Vegetation clearing

Plate 6. Vegetation clearing

APPENDIX 7

CAMP Quadrat Monitoring

Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
042	ZAMIACEAE		Macrozamia	fraseri			Cycad							30	0.1											
109	COLCHICACEAE		Burchardia	congesta			Forb	40	0.1			30	<1	4	0.3	50	2					20	1	40	0.1	
115	ORCHIDACEAE		Caladenia	arenicola			Forb																			
115	ORCHIDACEAE		Caladenia	flava	subsp.	flava	Forb							10	0.1	15	1					15	0.1	15	0.1	
115	ORCHIDACEAE	*	Disa	bracteata			Forb																			
115	ORCHIDACEAE		Diuris	magnifica			Forb	25	0.1					35	0.1											
115	ORCHIDACEAE		Drakaea	glyptodon			Forb							1	0.1											
115	ORCHIDACEAE		Elythranthera	brunonis			Forb							10	0.1							XX	XX			
115	ORCHIDACEAE		Eriochilus	dilatatus	subsp.	? (sterile)	Forb																			
115	ORCHIDACEAE		Leporella	fimbriata			Forb							2	0.1											
115	ORCHIDACEAE		Microtis	media	subsp.	densiflora	Forb																			
115	ORCHIDACEAE		Pterostylis	recurva			Forb															40	0.1			
115	ORCHIDACEAE		Pterostylis	sp. (sterile)('nana' group)			Forb																			
115	ORCHIDACEAE		Pterostylis	vittata			Forb							30	0.1	30	0.1									
115	ORCHIDACEAE		Pterostylis	vittata/sanguinea (senescent)			Forb																			
115	ORCHIDACEAE		Pyrorchis	nigricans			Forb																			
115	ORCHIDACEAE		Thelymitra	campanulata			Forb																	25	0.1	
124	IRIDACEAE	*	Gladiolus	caryophyllaceus			Forb			60	<1	50	<1	100	0.2	60	2	60	<1	60	<1	90	0.5	60	0.1	80
124	IRIDACEAE		Patersonia	occidentalis	var.	occidentalis	Forb					60	<1	45	0.2							30	0.1	50	0.1	
124	IRIDACEAE	*	Romulea	rosea			Forb							10	0.1											
126	XANTHORRHOEACEAE		Xanthorrhoea	brunonis	subsp.	brunonis	Grasstree							150	9											
126	XANTHORRHOEACEAE		Xanthorrhoea	preissii			Grasstree	110	10	1	25	100	25	120	1							100	0.5	170	25	150
128	ASPARAGACEAE		Laxmannia	squarrosa			Forb																			
128	ASPARAGACEAE		Lomandra	caespitosa			Forb																			
128	ASPARAGACEAE		Lomandra	hermaphrodita			Forb							20	0.2							20	0.3			
128	ASPARAGACEAE		Lomandra	micrantha	subsp.	micrantha	Forb																	30	0.1	
128	ASPARAGACEAE		Lomandra	nigricans			Forb							40	0.1							40	0.1			
128	ASPARAGACEAE		Lomandra	preissii			Forb							30	0.2							40	0.1			
128	ASPARAGACEAE		Lomandra	sericea			Forb																			
128	ASPARAGACEAE		Lomandra	suaveolens			Forb							15	0.3							10	0.1			

XX = outside but within 10m of quadrat

Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
128	ASPARAGACEAE		Sowerbaea	laxiflora			Forb																			
128	ASPARAGACEAE		Thysanotus	arbuscula			Forb			50	<1	20	<1					20	<1							
128	ASPARAGACEAE		Thysanotus	sparteus			Forb							70	0.1							70	0.1			
128	ASPARAGACEAE		Thysanotus	thyrsoideus			Forb	30	1					30	0.3	30	0.1					40	0.3			
128	ASPARAGACEAE		Tricoryne	elatior			Forb															45	1			
128	ASPARAGACEAE		Tricoryne	tenella			Forb																			
130	HEMEROCALLIDACEAE		Arnocrinum	preissii			Forb																			
130	HEMEROCALLIDACEAE		Caesia	micrantha			Forb							20	0.3	60	0.1					50	1			
130	HEMEROCALLIDACEAE		Corynotheca	micrantha	var.	micrantha	Forb																			
130	HEMEROCALLIDACEAE		Dianella	revoluta	var.	divaricata	Forb			20	<1											60	0.1			
138	HAEMODORACEAE		Anigozanthos	humilis	subsp.	humilis	Forb															15	0.1			
138	HAEMODORACEAE		Anigozanthos	manglesii	subsp.	manglesii	Forb					30	<1							30	<1					
138	HAEMODORACEAE		Conostylis	aculeata	subsp.	cygnorum	Forb	30	2	40	<1	20	<1	30	1	30	0.1	40	<1	??	<1	30	0.4			
138	HAEMODORACEAE		Conostylis	aurea			Forb																			
138	HAEMODORACEAE		Conostylis	juncea			Forb																			
138	HAEMODORACEAE		Conostylis	setigera	subsp.	setigera	Forb							15	0.1	10	2					10	1	10	0.1	
138	HAEMODORACEAE		Haemodorum	laxum			Forb							80	0.5							70	1	50	0.1	
138	HAEMODORACEAE		Haemodorum	spicatum			Forb			150	2	20	<1	100	0.2			80	<1	20	<1					60
138	HAEMODORACEAE		Phlebocarya	ciliata			Forb																			
147	DASYPOGONACEAE		Calectasia	narragara			Shrub	40	0.1					30	0.3									20	0.1	
147	DASYPOGONACEAE		Dasypogon	bromeliifolius			Forb															35	0.1			
156	CYPERACEAE		Isolepis	marginata			Sedge																			
156	CYPERACEAE		Lepidosperma	calcicola			Sedge			20	<1	60	<1	35	0.2			30	<1			50	0.2			
156	CYPERACEAE		Lepidosperma	scabrum			Sedge															40	0.1			
156	CYPERACEAE		Mesomelaena	pseudostygia			Sedge	50	10	40	3	20	5	50	5	50	5	100	<1	30	2	70	5	40	3	40
156	CYPERACEAE		Schoenus	curvifolius			Sedge																			
156	CYPERACEAE		Tetraria	octandra			Sedge	30	0.1	30	<1	20	<1	30	2									20	0.1	
158	CENTROLEPIDACEAE		Centrolepis	drummondiana			Sedge																			
158	CENTROLEPIDACEAE		Centrolepis	inconspicua			Sedge															5	0.1			
159	RESTIONACEAE		Alexgeorgea	nitens			Rush	20	1					15	1	10	5					10	1	15	2	

XX = outside but within 10m of quadrat

Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
159	RESTIONACEAE		Desmocladus	asper			Rush							20	2											
159	RESTIONACEAE		Desmocladus	flexuosus			Rush			10	1	50	<1	30	4			10	2	40	<1	50	3			10
159	RESTIONACEAE		Hypolaena	exsulca			Rush																	30	0.1	
159	RESTIONACEAE		Lepidobolus	preissianus	subsp.	preissianus	Rush									20	0.1									
159	RESTIONACEAE		Lyginia	barbata			Rush															70	2			
159	RESTIONACEAE		Lyginia	imberbis			Rush																			70
163	POACEAE	*	Aira	caryophyllea			Tussock Grass							10	0.1							10	0.2			
163	POACEAE		Amphipogon	turbinatus			Tussock Grass			50	<1	50	<1	40	1	15	8	20	<1			60	3			
163	POACEAE		Austrostipa	compressa			Tussock Grass																			
163	POACEAE	*	Avena	barbata			Tussock Grass									10	0.1	60	<1					10	0.1	20
163	POACEAE	*	Briza	maxima			Tussock Grass			10	<1			20	0.1							40	0.5			10
163	POACEAE	*	Ehrharta	calycina			Grass	50	1	80	<1	50	<1	90	0.3											
163	POACEAE	*	Ehrharta	longiflora			Grass																			
163	POACEAE	*	Eragrostis	curvula			Grass																			
163	POACEAE		Microlaena	stipoides	var.	stipoides	Tussock Grass																			
163	POACEAE	*	Rostraria	cristata			Tussock Grass																			
163	POACEAE		Rytidosperma	occidentale			Tussock Grass							50	0.1							50	0.3			
163	POACEAE		Rytidosperma	sp.			Tussock Grass					50	<1							50	<1					
163	POACEAE	*	Vulpia	myuros	forma.	megalura	Tussock Grass																			
166	PAPAVERACEAE	*	Fumaria	capreolata			Forb																			
175	PROTEACEAE		Adenanthos	cygnorum	subsp.	cygnorum	Shrub			10	<1							20	<1			60	1			
175	PROTEACEAE		Banksia	attenuata			Tree									600	15	600	15	600	15	600	15	350	2	500
175	PROTEACEAE		Banksia	dallanneyi	var.	dallanneyi	Shrub																			
175	PROTEACEAE		Banksia	menziesii			Tree							OH	0.1	400	1	400	2	400	5	400	2	500	13	300
175	PROTEACEAE		Banksia	sessilis	var.	cygnorum	Shrub															XX	XX			
175	PROTEACEAE		Conospermum	stoechadis			Shrub																			
175	PROTEACEAE		Petrophile	linearis			Shrub			20	<1	50	1	60	0.5			80	1	20	<1	50	0.5			30
175	PROTEACEAE		Petrophile	macrostachya			Shrub																			40
175	PROTEACEAE		Stirlingia	latifolia			Shrub	40	3	80	<1	50	1	70	1	60	5	50	4	50	4	60	5	130	5	70
181	DILLENIACEAE		Hibbertia	hypericoides	subsp.	hypericoides	Shrub	30	10	40	6	50	10	45	8	40	5	50	6	50	6	40	6	50	30	50

XX = outside but within 10m of quadrat

Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
181	DILLENIACEAE		Hibbertia	racemosa			Shrub	30	5					40	0.2	30	1					40	0.5			
181	DILLENIACEAE		Hibbertia	striata			Shrub							20	0.1							25	0.1	15	0.1	50
192	CRASSULACEAE		Crassula	colorata	var.	colorata	Forb							3	0.1	10	0.1	5	<1			3	0.2			
201	FABACEAE		Acacia	applanata			Shrub															40	0.3			
201	FABACEAE	*	Acacia	iteaphylla			Shrub																			
201	FABACEAE		Acacia	pulchella	var.	glaberrima	Shrub																			
201	FABACEAE		Acacia	sessilis			Shrub							50	0.1											
201	FABACEAE		Bossiaea	eriocarpa			Shrub	30	0.1	40	1	30	3	30	3			20	<1	50	1	20	1			60
201	FABACEAE		Daviesia	divaricata	supsp.	divaricata	Shrub	60	1					XX	XX	60	2					100	2			
201	FABACEAE		Daviesia	nudiflora	subsp.	nudiflora	Shrub									50	0.1	80	<1	xx	<1	20	1			
201	FABACEAE		Daviesia	triflora			Shrub			60	<1			70	0.2	40	1	80	2	80	2	70	2	40	0.1	30
201	FABACEAE		Gastrolobium	linearifolium			Shrub			50	<1			40	0.3			50	<1	50	<1	60	2			
201	FABACEAE		Gompholobium	confertum			Shrub																			
201	FABACEAE		Gompholobium	tomentosum			Shrub	50	2	20	<1	20	<1	40	3	50	5	40	<1			30	2			
201	FABACEAE		Hardenbergia	comptoniana			Vine	cl	0.1	30	<1			30	0.1											
201	FABACEAE		Hovea	stricta			Shrub	30	10							40	5							30	0.1	
201	FABACEAE		Hovea	trisperma			Shrub	30	0.1					40	0.2	30	5					30	0.1			
201	FABACEAE		Isotropis	cuneifolia	subsp.	cuneifolia	Forb																	10	0.1	
201	FABACEAE		Jacksonia	furcellata			Shrub									400	2					220	1			
201	FABACEAE		Jacksonia	sternbergiana			Shrub																			
201	FABACEAE		Kennedia	prostrata			Vine																			
201	FABACEAE	*	Lupinus	costenii			Forb																			
201	FABACEAE	*	Trifolium	campestre	var.	campestre	Forb																			
201	FABACEAE	*	Vicia	sativa			Forb																			
203	POLYGALACEAE		Comesperma	calymega			Shrub							35	0.1			5	<1			40	0.2			10
217	CASUARINACEAE		Allocasuarina	fraseriana			Tree							OH	0.1	500	2	300	1	300	2	600	2			
232	OXALIDACEAE	*	Oxalis	pes-caprae			Forb																			
242	EUPHORBIACEAE	*	Euphorbia	terracina			Forb																			
242	EUPHORBIACEAE		Monotaxis	grandiflora	var.	grandiflora	Shrub	30	0.1	30	<1	20	<1	20	0.2	10	2			10	<1	15	1			10
247	PHYLLANTHACEAE		Poranthera	microphylla			Forb							5	0.1											

XX = outside but within 10m of quadrat

Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
247	PHYLLANTHACEAE		Poranthera	moorokatta P2			Forb															1	0.1			
261	VIOLACEAE		Hybanthus	calycinus			Shrub	20	0.1					30	0.1	25	1					40	0.2	30	1	
274	GERANIACEAE	*	?Pelargonium	capitatum (immat.)			Shrub															1	0.1			
274	GERANIACEAE	*	Pelargonium	capitatum			Shrub							40	0.1											
281	MYRTACEAE		Beaufortia	elegans			Shrub																			
281	MYRTACEAE		Calothamnus	sanguineus			Shrub																			
281	MYRTACEAE		Calytrix	flavescens			Shrub																			
281	MYRTACEAE		Calytrix	fraseri			Shrub																			
281	MYRTACEAE		Eremaea	pauciflora	var.	pauciflora	Shrub																			
281	MYRTACEAE		Eucalyptus	marginata	subsp.	marginata	Tree	700	30	700	35	700	30	800	30							XX	XX			
281	MYRTACEAE	*	Eucalyptus	sp. (introduced)			Tree																			
281	MYRTACEAE		Hypocalymma	robustum			Shrub	60	5	60	1	50	2	80	0.5	40	3	60	<1	50	<1	100	1			30
281	MYRTACEAE		Kunzea	glabrescens			Shrub																			
300	RUTACEAE		Philotheca	spicata			Shrub	40	1					50	1											
311	THYMELAEACEAE		Pimelea	ferruginea			Shrub	30	0.1																	
311	THYMELAEACEAE		Pimelea	leucantha			Shrub															40	0.1			
311	THYMELAEACEAE		Pimelea	suaveolens			Shrub																			
311	THYMELAEACEAE		Pimelea	sulphurea			Shrub					20	<1	20	0.1									40	0.1	20
332	BRASSICACEAE	*	Brassica	tournefortii			Forb																			
346	DROSERACEAE		Drosera	?pallida (sterile)			Forb/Vine																			
346	DROSERACEAE		Drosera	erythrorhiza			Forb	1	2					1	0.1	1	5					1	0.3	1	0.1	
346	DROSERACEAE		Drosera	macrantha			Forb/Vine	cl	0.1					20	0.1	cl	1							cl	0.1	
346	DROSERACEAE		Drosera	micrantha			Forb/Vine																			
346	DROSERACEAE		Drosera	pallida			Forb/Vine																			
346	DROSERACEAE		Drosera	sp. (sterile)(immat.)			Forb							1	0.1											
346	DROSERACEAE		Drosera	thyanosepala			Forb/Vine	cl	1													20	0.1			
355	CARYOPHYLLACEAE	*	Petrorhagia	dubia			Forb																			
355	CARYOPHYLLACEAE	*	Silene	gallica	var.	gallica	Forb							20	0.1											
357	AMARANTHACEAE		Ptilotus	manglesii			Forb			10	<1	20	<1	10	0.2	5	0.2	10	<1	20	<1					20
364	AIZOACEAE		Carpobrotus	sp. (sterile)(immat.)			Forb							3	0.1											

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
364	AIZOACEAE		Carpobrotus	virescens			Forb																			
368	MACARTHURIACEAE		Macarthuria	australis			Forb													30	<1	30	0.1			
374	MONTIACAEAE		Calandrinia	corrigioloides			Forb							10	0.1							XX	XX			
392	PRIMULACEAE	*	Lysimachia	arvensis			Forb																			
403	ERICACEAE		Brachyloma	preissii			Shrub																	100	1	50
403	ERICACEAE		Conostephium	pendulum			Shrub	40	10	20	1			20	2							50	0.5			60
409	RUBIACEAE		Opercularia	vaginata			Forb																			
411	LOGANIACEAE		Phyllangium	paradoxum			Forb															5	0.3			
417	SOLANACEAE	*	Solanum	nigrum			Forb																			
432	LAMIACEAE		Hemiandra	linearis			Shrub																			
450	CAMPANULACEAE		Lobelia	tenuior			Forb																			10
450	CAMPANULACEAE	*	Wahlenbergia	capensis			Forb																			
450	CAMPANULACEAE		Wahlenbergia	preissii			Forb															10	0.1			
452	STYLIDIACEAE		Levenhookia	stipitata			Forb															3	0.1			
452	STYLIDIACEAE		Stylidium	androsaceum			Forb							10	0.1							10	0.6	10	0.1	
452	STYLIDIACEAE		Stylidium	carnosum			Forb									10	0.1					5	0.1			
452	STYLIDIACEAE		Stylidium	cygnorum			Forb															10	1			
452	STYLIDIACEAE		Stylidium	piliferum			Forb									10	0.1			10	<1	20	0.3	25	0.1	10
452	STYLIDIACEAE		Stylidium	schoenoides			Forb							30	0.1											
458	GOODENIACEAE		Dampiera	linearis			Shrub	20	5	30	4	20	5	40	4	15	0.1	20	<1	30	1	35	0.1			20
458	GOODENIACEAE		Scaevola	repens	var.	angustifolia	Shrub					20	<1	10	0.3	10	2			20	<1	10	1	10	1	
460	ASTERACEAE	*	Arctotheca	calendula			Forb																			
460	ASTERACEAE	*	Daisy Weed (sterile)				Forb																			
460	ASTERACEAE		Hyalosperma	cotula			Forb							10	0.5	10	1					10	3	15	2	
460	ASTERACEAE	*	Hypochaeris	glabra			Forb	10	0.1					20	1							5	0.1	10	0.1	
460	ASTERACEAE		Lagenophora	huegelii			Forb																			
460	ASTERACEAE		Leptorhynchos	scaber			Forb																			
460	ASTERACEAE		Millotia	tenuiflora	var.	laevis	Forb															5	1.5			
460	ASTERACEAE	*	Monoculus	monstrosus			Forb	10	0.1																	
460	ASTERACEAE		Podotheca	angustifolia			Forb																			

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3
								25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	01-Oct-20	01-Oct-20	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
460	ASTERACEAE		Podotheca	chrysantha			Forb																			
460	ASTERACEAE		Podotheca	gnaphalioides			Forb							20	0.1							10	0.1	20	0.1	
460	ASTERACEAE		Quinetia	urvillei			Forb																			
460	ASTERACEAE	*	Sonchus	oleraceus			Forb							20	0.1							10	0.1			
460	ASTERACEAE	*	Urospermum	picroides			Forb							20	0.1											
460	ASTERACEAE	*	Ursinia	anthemoides	subsp.	anthemoides	Forb	20	0.1	10	<1	20	<1	20	2	20	2	10	1	10	<1	15	2	15	0.1	
460	ASTERACEAE		Waitzia	suaveolens	var.	suaveolens	Forb			10	<1	20	<1	10	0.1			10	1	10	<1	10	0.1			20
471	PITTOSPORACEAE		Billardiera	fraseri			Vine	cl	2	20	<1			30	0.1	cl	3	5	<1			70	1			
472	ARALIACEAE		Trachymene	pilosa			Forb							10	1							5	1			
474	APIACEAE		Daucus	glochidiatus			Forb	10	0.1							10	1							10	1	
474	APIACEAE		Homalosciadium	homalocarpum			Forb							3	0.1											
474	APIACEAE		Xanthosia	huegelii			Shrub	15	0.1					20	0.2	20	3					20	2			

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
042	ZAMIACEAE		Macrozamia	fraseri			Cycad				120	1																
109	COLCHICACEAE		Burchardia	congesta			Forb						30	0.1					30	0.1	140	0.1				
115	ORCHIDACEAE		Caladenia	arenicola			Forb																			
115	ORCHIDACEAE		Caladenia	flava	subsp.	flava	Forb				15	0.1							15	0.1	15	1				
115	ORCHIDACEAE	*	Disa	bracteata			Forb																			
115	ORCHIDACEAE		Diuris	magnifica			Forb																			
115	ORCHIDACEAE		Drakaea	glyptodon			Forb														5	0.1				
115	ORCHIDACEAE		Elythranthera	brunonis			Forb				15	0.1							10	0.1	20	0.1				
115	ORCHIDACEAE		Eriochilus	dilatatus	subsp.	? (sterile)	Forb				10	0.1							5	0.1						
115	ORCHIDACEAE		Leporella	fimbriata			Forb				3	0.1														
115	ORCHIDACEAE		Microtis	media	subsp.	densiflora	Forb																			
115	ORCHIDACEAE		Pterostylis	recurva			Forb																			
115	ORCHIDACEAE		Pterostylis	sp. (sterile)('nana' group)			Forb																			
115	ORCHIDACEAE		Pterostylis	vittata			Forb																			
115	ORCHIDACEAE		Pterostylis	vittata/sanguinea (senescent)			Forb				2	0.1							10	0.1						
115	ORCHIDACEAE		Pyrorchis	nigricans			Forb				XX	XX							3	0.1	1	0.1				
115	ORCHIDACEAE		Thelymitra	campanulata			Forb																			
124	IRIDACEAE	*	Gladiolus	caryophyllaceus			Forb	<1			90	0.2	100	0.1	80	<1	50	<1	120	0.2	100	0.1	50	<1	60	<1
124	IRIDACEAE		Patersonia	occidentalis	var.	occidentalis	Forb				50	1	30	0.1	60	<1	40	<1	50	0.5	40	1	60	<1	40	<1
124	IRIDACEAE	*	Romulea	rosea			Forb																			
126	XANTHORRHOEACEAE		Xanthorrhoea	brunonis	subsp.	brunonis	Grasstree				90	0.8														
126	XANTHORRHOEACEAE		Xanthorrhoea	preissii			Grasstree	20	150	25	170	12	170	10	200	9	150	8	150	8	150	10	200	12	200	9
128	ASPARAGACEAE		Laxmannia	squarrosa			Forb																			
128	ASPARAGACEAE		Lomandra	caespitosa			Forb				20	0.2														
128	ASPARAGACEAE		Lomandra	hermaphrodita			Forb				30	0.1							15	0.2						
128	ASPARAGACEAE		Lomandra	micrantha	subsp.	micrantha	Forb						40	0.1												
128	ASPARAGACEAE		Lomandra	nigricans			Forb																			
128	ASPARAGACEAE		Lomandra	preissii			Forb																			
128	ASPARAGACEAE		Lomandra	sericea			Forb				25	0.1							30	0.1						
128	ASPARAGACEAE		Lomandra	suaveolens			Forb				15	0.3							15	0.3						

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
128	ASPARAGACEAE		Sowerbaea	laxiflora			Forb														10	1				
128	ASPARAGACEAE		Thysanotus	arbuscula			Forb																			
128	ASPARAGACEAE		Thysanotus	sparteus			Forb				70	0.2							70	0.1						
128	ASPARAGACEAE		Thysanotus	thyrsoideus			Forb				50	0.2														
128	ASPARAGACEAE		Tricoryne	elatior			Forb		30	<1	50	0.2														
128	ASPARAGACEAE		Tricoryne	tenella			Forb																			
130	HEMEROCALLIDACEAE		Arnocrinum	preissii			Forb																			
130	HEMEROCALLIDACEAE		Caesia	micrantha			Forb																			
130	HEMEROCALLIDACEAE		Corynotheca	micrantha	var.	micrantha	Forb																			
130	HEMEROCALLIDACEAE		Dianella	revoluta	var.	divaricata	Forb								40	<1							50	<1	40	<1
138	HAEMODORACEAE		Anigozanthos	humilis	subsp.	humilis	Forb												10	0.1	15	0.1	30	<1		
138	HAEMODORACEAE		Anigozanthos	manglesii	subsp.	manglesii	Forb				20	0.1														
138	HAEMODORACEAE		Conostylis	aculeata	subsp.	cygnorum	Forb				40	0.1			xx	<1	20	<1	30	0.3	30	1	30	<1		
138	HAEMODORACEAE		Conostylis	aurea			Forb						15	0.1												
138	HAEMODORACEAE		Conostylis	juncea			Forb				20	0.1														
138	HAEMODORACEAE		Conostylis	setigera	subsp.	setigera	Forb		10	<1	10	0.1							10	0.3	15	0.1	10	<1		
138	HAEMODORACEAE		Haemodorum	laxum			Forb						50	0.1					50	0.3	60	0.1				
138	HAEMODORACEAE		Haemodorum	spicatum			Forb	<1	20	<1					50	<1	30	<1								
138	HAEMODORACEAE		Phlebocarya	ciliata			Forb																100	<1	40	<1
147	DASYPOGONACEAE		Calectasia	narragara			Shrub								??	<1										
147	DASYPOGONACEAE		Dasypogon	bromeliifolius			Forb														5	0.1				
156	CYPERACEAE		Isolepis	marginata			Sedge				5	0.2							5	0.1						
156	CYPERACEAE		Lepidosperma	calcicola			Sedge																			
156	CYPERACEAE		Lepidosperma	scabrum			Sedge				70	0.1							30	0.1						
156	CYPERACEAE		Mesomelaena	pseudostygia			Sedge	6	50	8	60	5	30	20	50	15	50	15	60	18	40	0.1			40	<1
156	CYPERACEAE		Schoenus	curvifolius			Sedge												30	0.1						
156	CYPERACEAE		Tetraria	octandra			Sedge				20	0.5	20	0.1					20	0.5	30	0.1				
158	CENTROLEPIDACEAE		Centrolepis	drummondiana			Sedge				10	0.2							6	0.1						
158	CENTROLEPIDACEAE		Centrolepis	inconspicua			Sedge				1	0.2														
159	RESTIONACEAE		Alexgeorgea	nitens			Rush				10	2	10	0.1					10	0.5	20	0.1				

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
159	RESTIONACEAE		Desmocladus	asper			Rush				10	0.2																
159	RESTIONACEAE		Desmocladus	flexuosus			Rush	<1	30	1	20	3			20	<1	40	1	20	0.5			20	<1	50	<1
159	RESTIONACEAE		Hypolaena	exsulca			Rush																xx	<1	80	<1
159	RESTIONACEAE		Lepidobolus	preissianus	subsp.	preissianus	Rush				40	0.8							50	1						
159	RESTIONACEAE		Lyginia	barbata			Rush																			
159	RESTIONACEAE		Lyginia	imberbis			Rush	<1	30	<1	50	0.1			60	<1										
163	POACEAE	*	Aira	caryophyllea			Tussock Grass				10	0.2							10	0.2					10	<1
163	POACEAE		Amphipogon	turbinatus			Tussock Grass								30	<1	20	3								
163	POACEAE		Austrostipa	compressa			Tussock Grass				20	0.1														
163	POACEAE	*	Avena	barbata			Tussock Grass	<1					15	0.1	30	<1					20	0.1	50	<1		
163	POACEAE	*	Briza	maxima			Tussock Grass	<1	20	<1	20	0.2							20	0.8					20	<1
163	POACEAE	*	Ehrharta	calycina			Grass		30	<1	70	0.2													20	<1
163	POACEAE	*	Ehrharta	longiflora			Grass																			
163	POACEAE	*	Eragrostis	curvula			Grass																			
163	POACEAE		Microlaena	stipoides	var.	stipoides	Tussock Grass																			
163	POACEAE	*	Rostraria	cristata			Tussock Grass																			
163	POACEAE		Rytidosperma	occidentale			Tussock Grass				5	0.1							40	0.2						
163	POACEAE		Rytidosperma	sp.			Tussock Grass		30	<1							30	<1							40	<1
163	POACEAE	*	Vulpia	myuros	forma.	megalura	Tussock Grass				15	0.2							20	0.2						
166	PAPAVERACEAE	*	Fumaria	capreolata			Forb																			
175	PROTEACEAE		Adenanthos	cygnorum	subsp.	cygnorum	Shrub								20	<1										
175	PROTEACEAE		Banksia	attenuata			Tree	3	500	4	500	4	450	10	5	12	500	13	800	20	500	12	500	10	500	11
175	PROTEACEAE		Banksia	dallanneyi	var.	dallanneyi	Shrub												XX	XX						
175	PROTEACEAE		Banksia	menziesii			Tree	15	300	15	600	10							XX	XX	350	1	400	2	400	2
175	PROTEACEAE		Banksia	sessilis	var.	cygnorum	Shrub																			
175	PROTEACEAE		Conospermum	stoechadis			Shrub																			
175	PROTEACEAE		Petrophile	linearis			Shrub	<1	20	<1	30	0.1	40	0.1	50	<1	30	<1	40	0.2	50	0.1			30	<1
175	PROTEACEAE		Petrophile	macrostachya			Shrub	<1	50	1									XX	XX						
175	PROTEACEAE		Stirlingia	latifolia			Shrub	5	50	6	70	3							50	0.6	130	10	80	12	80	14
181	DILLENIACEAE		Hibbertia	hypericoides	subsp.	hypericoides	Shrub	30	50	30	70	25	50	15	50	15	50	15	50	15	50	12	50	10	50	9

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
181	DILLENIACEAE		Hibbertia	racemosa			Shrub																			
181	DILLENIACEAE		Hibbertia	striata			Shrub	<1			10	0.1	30	1	20	<1	50	2	30	0.5	20	1	?	<1	30	1
192	CRASSULACEAE		Crassula	colorata	var.	colorata	Forb				2	0.1							3	0.1	5	0.1	20	<1		
201	FABACEAE		Acacia	applanata			Shrub				20	0.1														
201	FABACEAE	*	Acacia	iteaphylla			Shrub																			
201	FABACEAE		Acacia	pulchella	var.	glaberrima	Shrub						150	0.1	150	2			120	0.5						
201	FABACEAE		Acacia	sessilis			Shrub																			
201	FABACEAE		Bossiaea	eriocarpa			Shrub	<1	30	<1	50	1	20	0.1	40	2	50	3	50	1	30	0.1	20	<1	50	1
201	FABACEAE		Daviesia	divaricata	supsp.	divaricata	Shrub																			
201	FABACEAE		Daviesia	nudiflora	subsp.	nudiflora	Shrub												XX	XX						
201	FABACEAE		Daviesia	triflora			Shrub	<1			50	1	40	0.1					50	1	40	0.1				
201	FABACEAE		Gastrolobium	linearifolium			Shrub				30	0.1	40	0.1					40	0.1						
201	FABACEAE		Gompholobium	confertum			Shrub																			
201	FABACEAE		Gompholobium	tomentosum			Shrub				20	0.1											40	<1	30	<1
201	FABACEAE		Hardenbergia	comptoniana			Vine																			
201	FABACEAE		Hovea	stricta			Shrub																			
201	FABACEAE		Hovea	trisperma			Shrub				20	0.1														
201	FABACEAE		Isotropis	cuneifolia	subsp.	cuneifolia	Forb				10	0.1	10	0.1					10	0.1						
201	FABACEAE		Jacksonia	furcellata			Shrub																			
201	FABACEAE		Jacksonia	sternbergiana			Shrub														30	0.1	100	<1	100	<1
201	FABACEAE		Kennedia	prostrata			Vine				5	0.1													10	<1
201	FABACEAE	*	Lupinus	costenii			Forb																			
201	FABACEAE	*	Trifolium	campestre	var.	campestre	Forb												10	0.1						
201	FABACEAE	*	Vicia	sativa			Forb																			
203	POLYGALACEAE		Comesperma	calymega			Shrub	<1							10	<1							10	<1	20	<1
217	CASUARINACEAE		Allocasuarina	fraseriana			Tree				700	2	400	0.1	400	2	400	2	500	3	600	2	600	3	600	2
232	OXALIDACEAE	*	Oxalis	pes-caprae			Forb																			
242	EUPHORBIACEAE	*	Euphorbia	terracina			Forb																			
242	EUPHORBIACEAE		Monotaxis	grandiflora	var.	grandiflora	Shrub	<1	30	<1																
247	PHYLLANTHACEAE		Poranthera	microphylla			Forb				6	0.1														

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
247	PHYLLANTHACEAE		Poranthera	moorokatta P2			Forb				1	0.1																
261	VIOLACEAE		Hybanthus	calycinus			Shrub				30	1											20	1				
274	GERANIACEAE	*	?Pelargonium	capitatum (immat.)			Shrub												5	0.1								
274	GERANIACEAE	*	Pelargonium	capitatum			Shrub																					
281	MYRTACEAE		Beaufortia	elegans			Shrub										50	<1	XX	XX								
281	MYRTACEAE		Calothamnus	sanguineus			Shrub																					
281	MYRTACEAE		Calytrix	flavescens			Shrub																					
281	MYRTACEAE		Calytrix	fraseri			Shrub																					
281	MYRTACEAE		Eremaea	pauciflora	var.	pauciflora	Shrub						60	15	50	20	50	25	70	15								
281	MYRTACEAE		Eucalyptus	marginata	subsp.	marginata	Tree				20	0.1							XX	XX								
281	MYRTACEAE	*	Eucalyptus	sp. (introduced)			Tree																					
281	MYRTACEAE		Hypocalymma	robustum			Shrub	<1	50	<1	60	0.2			50	<1	20	<1			90	1						
281	MYRTACEAE		Kunzea	glabrescens			Shrub				XX	XX							XX	XX								
300	RUTACEAE		Philotheca	spicata			Shrub				30	0.1							40	0.3								
311	THYMELAEACEAE		Pimelea	ferruginea			Shrub																					
311	THYMELAEACEAE		Pimelea	leucantha			Shrub																					
311	THYMELAEACEAE		Pimelea	suaveolens			Shrub						40	1							30	0.1						
311	THYMELAEACEAE		Pimelea	sulphurea			Shrub	<1	20	<1	70	0.1			xx	<1	20	<1	50	0.1								
332	BRASSICACEAE	*	Brassica	tournefortii			Forb																					
346	DROSERACEAE		Drosera	?pallida (sterile)			Forb/Vine												60	0.1								
346	DROSERACEAE		Drosera	erythrorhiza			Forb				1	0.3	1	1					1	0.3	1	1						
346	DROSERACEAE		Drosera	macrantha			Forb/Vine																					
346	DROSERACEAE		Drosera	micrantha			Forb/Vine																					
346	DROSERACEAE		Drosera	pallida			Forb/Vine																					
346	DROSERACEAE		Drosera	sp. (sterile)(immat.)			Forb																					
346	DROSERACEAE		Drosera	thyanosepala			Forb/Vine														cl	0.1						
355	CARYOPHYLLACEAE	*	Petrorhagia	dubia			Forb														20	0.1						
355	CARYOPHYLLACEAE	*	Silene	gallica	var.	gallica	Forb												XX	XX								
357	AMARANTHACEAE		Ptilotus	manglesii			Forb	<1	10	<1					20	<1	20	<1	1	0.1								
364	AIZOACEAE		Carpobrotus	sp. (sterile)(immat.)			Forb												5	0.1								

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
364	AIZOACEAE		Carpobrotus	virescens			Forb														10	0.1				
368	MACARTHURIACEAE		Macarthuria	australis			Forb																		10	<1
374	MONTIACAEAE		Calandrinia	corrigioloides			Forb																			
392	PRIMULACEAE	*	Lysimachia	arvensis			Forb												10	0.1						
403	ERICACEAE		Brachyloma	preissii			Shrub	<1			100	1	40	0.1	20	<1	60	<1	70	1			50	<1	40	<1
403	ERICACEAE		Conostephium	pendulum			Shrub	<1	30	<1	50	0.1														
409	RUBIACEAE		Opercularia	vaginata			Forb				20	0.2							20	0.1						
411	LOGANIACEAE		Phyllangium	paradoxum			Forb				5	0.2														
417	SOLANACEAE	*	Solanum	nigrum			Forb																			
432	LAMIACEAE		Hemiandra	linearis			Shrub																			
450	CAMPANULACEAE		Lobelia	tenuior			Forb	<1							50	<1										
450	CAMPANULACEAE	*	Wahlenbergia	capensis			Forb																			
450	CAMPANULACEAE		Wahlenbergia	preissii			Forb				10	0.1							5	0.1						
452	STYLIDIACEAE		Levenhookia	stipitata			Forb																			
452	STYLIDIACEAE		Stylidium	androsaceum			Forb				10	0.3							10	0.5						
452	STYLIDIACEAE		Stylidium	carnosum			Forb						10	1							5	1				
452	STYLIDIACEAE		Stylidium	cygnorum			Forb												5	0.1						
452	STYLIDIACEAE		Stylidium	piliferum			Forb	<1	20	<1	35	0.2	20	0.1	10	<1			20	0.2			30	<1	10	<1
452	STYLIDIACEAE		Stylidium	schoenoides			Forb				30	0.1														
458	GOODENIACEAE		Dampiera	linearis			Shrub	2	20	<1					1	<1	20	<1					40	<1	30	<1
458	GOODENIACEAE		Scaevola	repens	var.	angustifolia	Shrub		10	<1	10	2	10	2			20	<1	10	2	10	0.1			20	<1
460	ASTERACEAE	*	Arctotheca	calendula			Forb						10	0.1			20	<1								
460	ASTERACEAE	*	Daisy Weed (sterile)				Forb												10	0.1						
460	ASTERACEAE		Hyalosperma	cotula			Forb				10	2	10	2					10	2	10	5				
460	ASTERACEAE	*	Hypochaeris	glabra			Forb				15	0.1	10	2					10	0.2	5	3				
460	ASTERACEAE		Lagenophora	huegelii			Forb				XX	XX														
460	ASTERACEAE		Leptorhynchos	scaber			Forb						20	0.1							30	0.1				
460	ASTERACEAE		Millotia	tenuiflora	var.	laevis	Forb																			
460	ASTERACEAE	*	Monoculus	monstrosus			Forb																			
460	ASTERACEAE		Podotheca	angustifolia			Forb																			

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q3	Q3	Q3	Q3	Q3	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q5	Q5	Q5	Q5	Q5	Q5
								22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	30-Sep-20	30-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19
								%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%
460	ASTERACEAE		Podotheca	chrysantha			Forb				20	0.1															
460	ASTERACEAE		Podotheca	gnaphalioides			Forb						20	0.1					35	0.1	20	2				
460	ASTERACEAE		Quinetia	urvillei			Forb				10	0.2														
460	ASTERACEAE	*	Sonchus	oleraceus			Forb												10	0.2	15	0.1				
460	ASTERACEAE	*	Urospermum	picroides			Forb																			
460	ASTERACEAE	*	Ursinia	anthemoides	subsp.	anthemoides	Forb				20	0.2	30	1	5	<1	10	<1	20	1	30	3	5	<1	20	<1
460	ASTERACEAE		Waitzia	suaveolens	var.	suaveolens	Forb	<1	10	<1	15	0.1			10	<1	20	<1					10	<1	20	<1
471	PITTOSPORACEAE		Billardiera	fraseri			Vine																			
472	ARALIACEAE		Trachymene	pilosa			Forb				10	1							10	1						
474	APIACEAE		Daucus	glochidiatus			Forb						10	1							10	1				
474	APIACEAE		Homalosciadium	homalocarpum			Forb												3	0.1						
474	APIACEAE		Xanthosia	huegelii			Shrub				10	0.3							20	0.1						

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
042	ZAMIACEAE		Macrozamia	fraseri			Cycad																			
109	COLCHICACEAE		Burchardia	congesta			Forb	40	0.1					50	<1	40	0.1	40	0.1					40	0.1	
115	ORCHIDACEAE		Caladenia	arenicola			Forb																			
115	ORCHIDACEAE		Caladenia	flava	subsp.	flava	Forb	15	0.2	15	0.1					15	0.1	20	0.1					15	0.1	
115	ORCHIDACEAE	*	Disa	bracteata			Forb																			
115	ORCHIDACEAE		Diuris	magnifica			Forb																			
115	ORCHIDACEAE		Drakaea	glyptodon			Forb																			
115	ORCHIDACEAE		Elythranthera	brunonis			Forb	20	0.1	20	0.1					15	0.1	60	0.1					20	0.1	
115	ORCHIDACEAE		Eriochilus	dilatatus	subsp.	? (sterile)	Forb	2	0.1							5	0.1									
115	ORCHIDACEAE		Leporella	fimbriata			Forb	2	0.1							2	0.1									
115	ORCHIDACEAE		Microtis	media	subsp.	densiflora	Forb																			
115	ORCHIDACEAE		Pterostylis	recurva			Forb									10	0.1									
115	ORCHIDACEAE		Pterostylis	sp. (sterile)('nana' group)			Forb																			
115	ORCHIDACEAE		Pterostylis	vittata			Forb	40	0.1																	
115	ORCHIDACEAE		Pterostylis	vittata/sanguinea (senescent)			Forb																			
115	ORCHIDACEAE		Pyrorchis	nigricans			Forb	3	0.1																	
115	ORCHIDACEAE		Thelymitra	campanulata			Forb																			
124	IRIDACEAE	*	Gladiolus	caryophyllaceus			Forb	40	0.2	80	0.1	80	<1	70	<1	50	0.1					60	<1	50	0.1	80
124	IRIDACEAE		Patersonia	occidentalis	var.	occidentalis	Forb	40	1															20	0.1	60
124	IRIDACEAE	*	Romulea	rosea			Forb																			
126	XANTHORRHOEACEAE		Xanthorrhoea	brunonis	subsp.	brunonis	Grasstree	100	0.5							XX	XX									
126	XANTHORRHOEACEAE		Xanthorrhoea	preissii			Grasstree	150	6	180	10	190	10	180	8	200	8	180	8	200	9	200	8	170	20	180
128	ASPARAGACEAE		Laxmannia	squarrosa			Forb																			
128	ASPARAGACEAE		Lomandra	caespitosa			Forb	20	0.2																	
128	ASPARAGACEAE		Lomandra	hermaphrodita			Forb	20	0.1							20	0.2									
128	ASPARAGACEAE		Lomandra	micrantha	subsp.	micrantha	Forb			20	0.1													30	0.1	
128	ASPARAGACEAE		Lomandra	nigricans			Forb																			
128	ASPARAGACEAE		Lomandra	preissii			Forb																			
128	ASPARAGACEAE		Lomandra	sericea			Forb	40	0.1							40	0.3									
128	ASPARAGACEAE		Lomandra	suaveolens			Forb																			

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
128	ASPARAGACEAE		Sowerbaea	laxiflora			Forb	30	0.2	40	0.1					40	0.3									
128	ASPARAGACEAE		Thysanotus	arbuscula			Forb	50	0.1							60	0.1									
128	ASPARAGACEAE		Thysanotus	sparteus			Forb																			
128	ASPARAGACEAE		Thysanotus	thyrsoideus			Forb	30	0.1							30	0.1									
128	ASPARAGACEAE		Tricoryne	elatior			Forb																			
128	ASPARAGACEAE		Tricoryne	tenella			Forb																			
130	HEMEROCALLIDACEAE		Arnocrinum	preissii			Forb	20	0.1																	
130	HEMEROCALLIDACEAE		Caesia	micrantha			Forb																			
130	HEMEROCALLIDACEAE		Corynotheca	micrantha	var.	micrantha	Forb																			
130	HEMEROCALLIDACEAE		Dianella	revoluta	var.	divaricata	Forb	20	0.1									40	0.1	xx	<1	50	<1			
138	HAEMODORACEAE		Anigozanthos	humilis	subsp.	humilis	Forb	20	0.1																	
138	HAEMODORACEAE		Anigozanthos	manglesii	subsp.	manglesii	Forb	50	0.1	80	0.1															
138	HAEMODORACEAE		Conostylis	aculeata	subsp.	cygnorum	Forb	30	0.1			20	<1			20	0.1							30	0.1	20
138	HAEMODORACEAE		Conostylis	aurea			Forb																			
138	HAEMODORACEAE		Conostylis	juncea			Forb	20	0.1							20	0.1									
138	HAEMODORACEAE		Conostylis	setigera	subsp.	setigera	Forb	10	0.2	10	0.1	10	<1	20	<1	10	0.1			5	<1	30	<1	10	0.1	
138	HAEMODORACEAE		Haemodorum	laxum			Forb	120	0.3	80	0.1					70	0.5	80	1							
138	HAEMODORACEAE		Haemodorum	spicatum			Forb					80	<1	60	<1					50	<1	30	<1			
138	HAEMODORACEAE		Phlebocarya	ciliata			Forb	40	0.5																	
147	DASYPOGONACEAE		Calectasia	narragara			Shrub											20	0.1					30	1	10
147	DASYPOGONACEAE		Dasypogon	bromeliifolius			Forb	30	0.1															40	5	60
156	CYPERACEAE		Isolepis	marginata			Sedge	5	0.1							5	0.2									
156	CYPERACEAE		Lepidosperma	calcicola			Sedge	30	0.1							30	0.1									
156	CYPERACEAE		Lepidosperma	scabrum			Sedge	60	0.1							50	0.1									
156	CYPERACEAE		Mesomelaena	pseudostygia			Sedge	40	2	40	0.1	50	<1	30	<1	50	2	40	0.1	50	<1	40	<1	40	0.1	50
156	CYPERACEAE		Schoenus	curvifolius			Sedge	20	0.1																	
156	CYPERACEAE		Tetraria	octandra			Sedge	20	0.5	30	2					30	0.3	30	0.1					20	0.1	
158	CENTROLEPIDACEAE		Centrolepis	drummondiana			Sedge									5	1									
158	CENTROLEPIDACEAE		Centrolepis	inconspicua			Sedge									1	0.1									
159	RESTIONACEAE		Alexgeorgea	nitens			Rush	10	0.2							10	0.4	15	0.1					15	0.1	

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
159	RESTIONACEAE		Desmocladus	asper			Rush									10	0.2									
159	RESTIONACEAE		Desmocladus	flexuosus			Rush	20	1			20	<1	40	<1	30	1			20	<1	50	<1			
159	RESTIONACEAE		Hypolaena	exsulca			Rush	40	1							XX	XX			30	<1					30
159	RESTIONACEAE		Lepidobolus	preissianus	subsp.	preissianus	Rush			40	0.1															
159	RESTIONACEAE		Lyginia	barbata			Rush																			
159	RESTIONACEAE		Lyginia	imberbis			Rush	50	1			80	0.5	30	<1	50	1									50
163	POACEAE	*	Aira	caryophyllea			Tussock Grass	10	0.1							10	0.2									
163	POACEAE		Amphipogon	turbinatus			Tussock Grass											30	0.1					40	0.1	
163	POACEAE		Austrostipa	compressa			Tussock Grass	20	0.1							20	0.1									
163	POACEAE	*	Avena	barbata			Tussock Grass													20	<1	20	<1			40
163	POACEAE	*	Briza	maxima			Tussock Grass	30	0.2							20	0.2			20	<1	10	<1			10
163	POACEAE	*	Ehrharta	calycina			Grass	50	0.1							70	0.1							40	0.1	
163	POACEAE	*	Ehrharta	longiflora			Grass																			
163	POACEAE	*	Eragrostis	curvula			Grass																			
163	POACEAE		Microlaena	stipoides	var.	stipoides	Tussock Grass																			
163	POACEAE	*	Rostraria	cristata			Tussock Grass																			
163	POACEAE		Rytidosperma	occidentale			Tussock Grass									40	0.1									
163	POACEAE		Rytidosperma	sp.			Tussock Grass																			
163	POACEAE	*	Vulpia	myuros	forma.	megalura	Tussock Grass	30	0.1							10	0.1									
166	PAPAVERACEAE	*	Fumaria	capreolata			Forb																			
175	PROTEACEAE		Adenanthos	cygnorum	subsp.	cygnorum	Shrub																			
175	PROTEACEAE		Banksia	attenuata			Tree	500	8	50	0.1	200	<1	150	2	200	0.1	600	3	600	4	600	5	800	25	800
175	PROTEACEAE		Banksia	dallanneyi	var.	dallanneyi	Shrub																			
175	PROTEACEAE		Banksia	menziesii			Tree	400	3							300	1	600	6	600	5	600	5			
175	PROTEACEAE		Banksia	sessilis	var.	cygnorum	Shrub																			
175	PROTEACEAE		Conospermum	stoechadis			Shrub																			
175	PROTEACEAE		Petrophile	linearis			Shrub	40	0.2	30	0.1	80	<1	50	<1	50	0.1	30	0.1	50	<1	30	<1	30	0.1	20
175	PROTEACEAE		Petrophile	macrostachya			Shrub							20	<1	XX	XX	40	0.1	xx	<1	40	<1			
175	PROTEACEAE		Stirlingia	latifolia			Shrub	80	4	80	13	100	12	100	12	90	3	100	25	100	20	100	22	150	10	150
181	DILLENIACEAE		Hibbertia	hypericoides	subsp.	hypericoides	Shrub	80	12	50	17	80	16	80	15	90	15	70	30	50	25	100	25	70	20	50

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
181	DILLENIACEAE		Hibbertia	racemosa			Shrub											40	1							
181	DILLENIACEAE		Hibbertia	striata			Shrub	20	0.1									40	1	20	<1	40	<1	30	0.1	
192	CRASSULACEAE		Crassula	colorata	var.	colorata	Forb	5	0.2	5	0.1	10	<1	20	<1	3	0.2									
201	FABACEAE		Acacia	applanata			Shrub	20	0.1																	
201	FABACEAE	*	Acacia	iteaphylla			Shrub																			
201	FABACEAE		Acacia	pulchella	var.	glaberrima	Shrub																			
201	FABACEAE		Acacia	sessilis			Shrub	40	0.1																	
201	FABACEAE		Bossiaea	eriocarpa			Shrub	30	1	25	1	60	3	60	5	40	2	25	2	50	<1	50	1			10
201	FABACEAE		Daviesia	divaricata	supsp.	divaricata	Shrub																			
201	FABACEAE		Daviesia	nudiflora	subsp.	nudiflora	Shrub											50	0.1							
201	FABACEAE		Daviesia	triflora			Shrub	40	0.3							XX	XX	40	0.1							
201	FABACEAE		Gastrolobium	linearifolium			Shrub	30	0.1							40	0.2									
201	FABACEAE		Gompholobium	confertum			Shrub															30	<1			
201	FABACEAE		Gompholobium	tomentosum			Shrub	50	0.5							7	0.1			40	<1					60
201	FABACEAE		Hardenbergia	comptoniana			Vine																			
201	FABACEAE		Hovea	stricta			Shrub																	20	0.1	
201	FABACEAE		Hovea	trisperma			Shrub	30	0.1							20	0.1	30	0.1							
201	FABACEAE		Isotropis	cuneifolia	subsp.	cuneifolia	Forb																			
201	FABACEAE		Jacksonia	furcellata			Shrub																			
201	FABACEAE		Jacksonia	sternbergiana			Shrub	250	1									200	1							
201	FABACEAE		Kennedia	prostrata			Vine	10	0.1	pr	0.1	10	<1	10	<1	10	0.5									30
201	FABACEAE	*	Lupinus	costenii			Forb																			
201	FABACEAE	*	Trifolium	campestre	var.	campestre	Forb																			
201	FABACEAE	*	Vicia	sativa			Forb																			
203	POLYGALACEAE		Comesperma	calymega			Shrub	20	0.1																	
217	CASUARINACEAE		Allocasuarina	fraseriana			Tree	600	3	600	10	700	10	700	9	700	10	500	6	500	5	500	4	600	5	600
232	OXALIDACEAE	*	Oxalis	pes-caprae			Forb																			
242	EUPHORBIACEAE	*	Euphorbia	terracina			Forb																			
242	EUPHORBIACEAE		Monotaxis	grandiflora	var.	grandiflora	Shrub					10	<1													
247	PHYLLANTHACEAE		Poranthera	microphylla			Forb	5	0.1																	

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
247	PHYLLANTHACEAE		Poranthera	moorokatta P2			Forb	1	0.1																	
261	VIOLACEAE		Hybanthus	calycinus			Shrub	30	1									20	0.1							
274	GERANIACEAE	*	?Pelargonium	capitatum (immat.)			Shrub																			
274	GERANIACEAE	*	Pelargonium	capitatum			Shrub																			
281	MYRTACEAE		Beaufortia	elegans			Shrub																			
281	MYRTACEAE		Calothamnus	sanguineus			Shrub											30	0.1							
281	MYRTACEAE		Calytrix	flavescens			Shrub																			
281	MYRTACEAE		Calytrix	fraseri			Shrub																			
281	MYRTACEAE		Eremaea	pauciflora	var.	pauciflora	Shrub					40	<1	50	1	50	0.1	30	3	50	<1	80	3			
281	MYRTACEAE		Eucalyptus	marginata	subsp.	marginata	Tree	XX	XX	1000	10	1000	10	1000	10	1000	10									
281	MYRTACEAE	*	Eucalyptus	sp. (introduced)			Tree																			
281	MYRTACEAE		Hypocalymma	robustum			Shrub	90	1	30	0.1	60	<1	30	<1	30	0.2	40	1	50	1	60	2	30	1	xx
281	MYRTACEAE		Kunzea	glabrescens			Shrub																			
300	RUTACEAE		Philotheca	spicata			Shrub	40	0.1							30	0.1	15	0.1							
311	THYMELAEACEAE		Pimelea	ferruginea			Shrub																			
311	THYMELAEACEAE		Pimelea	leucantha			Shrub																			
311	THYMELAEACEAE		Pimelea	suaveolens			Shrub	20	0.2															30	0.1	
311	THYMELAEACEAE		Pimelea	sulphurea			Shrub									20	0.1									30
332	BRASSICACEAE	*	Brassica	tournefortii			Forb																			
346	DROSERACEAE		Drosera	?pallida (sterile)			Forb/Vine	30	0.1																	
346	DROSERACEAE		Drosera	erythrorhiza			Forb	0.1	0.2	1	0.1					1	0.2	1	1					1	0.1	
346	DROSERACEAE		Drosera	macrantha			Forb/Vine																	cl	0.1	
346	DROSERACEAE		Drosera	micrantha			Forb/Vine	1	0.1																	
346	DROSERACEAE		Drosera	pallida			Forb/Vine	70	0.1							70	0.1									
346	DROSERACEAE		Drosera	sp. (sterile)(immat.)			Forb																			
346	DROSERACEAE		Drosera	thyanosepala			Forb/Vine			cl	0.1															
355	CARYOPHYLLACEAE	*	Petrorhagia	dubia			Forb																			
355	CARYOPHYLLACEAE	*	Silene	gallica	var.	gallica	Forb																			
357	AMARANTHACEAE		Ptilotus	manglesii			Forb					10	<1	30	<1					xx	<1	20	<1			
364	AIZOACEAE		Carpobrotus	sp. (sterile)(immat.)			Forb																			

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
364	AIZOACEAE		Carpobrotus	virescens			Forb	10	0.1									10	0.1							
368	MACARTHURIACEAE		Macarthuria	australis			Forb	40	1																	
374	MONTIACAEAE		Calandrinia	corrigioloides			Forb																			
392	PRIMULACEAE	*	Lysimachia	arvensis			Forb																			
403	ERICACEAE		Brachyloma	preissii			Shrub	40	0.2									20	0.1					120	3	20
403	ERICACEAE		Conostephium	pendulum			Shrub									20	0.1			??	3	50	4			60
409	RUBIACEAE		Opercularia	vaginata			Forb	30	0.2							20	0.2							20	0.1	xx
411	LOGANIACEAE		Phyllangium	paradoxum			Forb	5	0.1							5	0.2									
417	SOLANACEAE	*	Solanum	nigrum			Forb																			
432	LAMIACEAE		Hemiandra	linearis			Shrub																			
450	CAMPANULACEAE		Lobelia	tenuior			Forb					5	<1													
450	CAMPANULACEAE	*	Wahlenbergia	capensis			Forb																			
450	CAMPANULACEAE		Wahlenbergia	preissii			Forb	20	0.1							10	0.3									
452	STYLIDIACEAE		Levenhookia	stipitata			Forb																			
452	STYLIDIACEAE		Stylidium	androsaceum			Forb	10	0.3							10	0.3									
452	STYLIDIACEAE		Stylidium	carnosum			Forb			5	0.1													10	0.1	
452	STYLIDIACEAE		Stylidium	cygnorum			Forb																			
452	STYLIDIACEAE		Stylidium	piliferum			Forb	5	0.1									30	0.1							
452	STYLIDIACEAE		Stylidium	schoenoides			Forb									20	0.1									
458	GOODENIACEAE		Dampiera	linearis			Shrub	40	0.2							10	0.1	30	0.1			30	<1			30
458	GOODENIACEAE		Scaevola	repens	var.	angustifolia	Shrub	10	0.1													20	<1	10	2	
460	ASTERACEAE	*	Arctotheca	calendula			Forb																			
460	ASTERACEAE	*	Daisy Weed (sterile)				Forb																			
460	ASTERACEAE		Hyalosperma	cotula			Forb	10	0.3	10	0.1					10	1	10	1					10	1	
460	ASTERACEAE	*	Hypochaeris	glabra			Forb	5	0.3							10	0.2	5	0.1							
460	ASTERACEAE		Lagenophora	huegelii			Forb			10	0.1					10	0.1									
460	ASTERACEAE		Leptorhynchos	scaber			Forb											30	0.1							
460	ASTERACEAE		Millotia	tenuiflora	var.	laevis	Forb									10	0.3							2	0.1	
460	ASTERACEAE	*	Monoculus	monstrosus			Forb																			
460	ASTERACEAE		Podotheca	angustifolia			Forb	5	0.1							10	0.1									

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q5	Q5	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q6	Q7	Q7	Q7	Q7	Q7	Q7	Q8	Q8	Q8
								29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	29-Sep-20	29-Sep-20	25-Sep-16	25-Sep-16	22-Nov-18	22-Nov-18	12-Nov-19	12-Nov-19	25-Sep-16	25-Sep-16	22-Nov-18
								cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm	%	cm
460	ASTERACEAE		Podotheca	chrysantha			Forb									20	0.1									
460	ASTERACEAE		Podotheca	gnaphalioides			Forb	30	0.2	10	0.1					30	0.1	30	0.1					20	1	
460	ASTERACEAE		Quinetia	urvillei			Forb	5	0.1																	
460	ASTERACEAE	*	Sonchus	oleraceus			Forb	2	0.1							3	0.1									
460	ASTERACEAE	*	Urospermum	picroides			Forb																			
460	ASTERACEAE	*	Ursinia	anthemoides	subsp.	anthemoides	Forb	20	1.5	30	0.1	30	<1	20	<1	20	0.3	40	0.1			10	<1	30	0.1	
460	ASTERACEAE		Waitzia	suaveolens	var.	suaveolens	Forb					20	<1	10	<1							20	<1			10
471	PITTOSPORACEAE		Billardiera	fraseri			Vine									40	0.1									10
472	ARALIACEAE		Trachymene	pilosa			Forb	10	0.5							10	0.3									
474	APIACEAE		Daucus	glochidiatus			Forb			10	2							15	0.1					10	1	
474	APIACEAE		Homalosciadium	homalocarpum			Forb																			
474	APIACEAE		Xanthosia	huegelii			Shrub	20	0.2									10	0.1							

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q8 22-Nov-18 %	Q8 12-Nov-19 cm	Q8 12-Nov-19 %	Q8 30-Sep-20 cm	Q8 30-Sep-20 %	Q9 29-Sep-20 cm	Q9 29-Sep-20 %	Notes
042	ZAMIACEAE		Macrozamia	fraseri			Cycad						XX	XX	
109	COLCHICACEAE		Burchardia	congesta			Forb				40	0.1	35	0.1	
115	ORCHIDACEAE		Caladenia	arenicola			Forb				40	0.1			
115	ORCHIDACEAE		Caladenia	flava	subsp.	flava	Forb				15	0.1	15	0.2	Caladenia flava (2016)(2018)(2019)
115	ORCHIDACEAE	*	Disa	bracteata			Forb						10	0.1	
115	ORCHIDACEAE		Diuris	magnifica			Forb						50	0.3	
115	ORCHIDACEAE		Drakaea	glyptodon			Forb				1	0.1			
115	ORCHIDACEAE		Elythranthera	brunonis			Forb				20	0.1	20	0.1	
115	ORCHIDACEAE		Eriochilus	dilatatus	subsp.	? (sterile)	Forb				5	0.1	10	0.1	
115	ORCHIDACEAE		Leporella	fimbriata			Forb						10	0.1	
115	ORCHIDACEAE		Microtis	media	subsp.	densiflora	Forb				40	0.1	30	0.1	
115	ORCHIDACEAE		Pterostylis	recurva			Forb								
115	ORCHIDACEAE		Pterostylis	sp. (sterile)('nana' group)			Forb						10	0.1	
115	ORCHIDACEAE		Pterostylis	vittata			Forb								
115	ORCHIDACEAE		Pterostylis	vittata/sanguinea (senescent)			Forb				1	0.1			
115	ORCHIDACEAE		Pyrorchis	nigricans			Forb								
115	ORCHIDACEAE		Thelymitra	campanulata			Forb								
124	IRIDACEAE	*	Gladiolus	caryophyllaceus			Forb	<1	60	<1	120	0.2	60	0.2	
124	IRIDACEAE		Patersonia	occidentalis	var.	occidentalis	Forb	<1	20	<1	50	0.3			Patersonia occidentalis (2016)(2018)(2019).
124	IRIDACEAE	*	Romulea	rosea			Forb								
126	XANTHORRHOEACEAE		Xanthorrhoea	brunonis	subsp.	brunonis	Grasstree						90	0.2	
126	XANTHORRHOEACEAE		Xanthorrhoea	preissii			Grasstree	18	180	25	180	5	160	7	
128	ASPARAGACEAE		Laxmannia	squarrosa			Forb								
128	ASPARAGACEAE		Lomandra	caespitosa			Forb								
128	ASPARAGACEAE		Lomandra	hermaphrodita			Forb				20	0.2	25	0.2	
128	ASPARAGACEAE		Lomandra	micrantha	subsp.	micrantha	Forb								
128	ASPARAGACEAE		Lomandra	nigricans			Forb								
128	ASPARAGACEAE		Lomandra	preissii			Forb								
128	ASPARAGACEAE		Lomandra	sericea			Forb				30	0.1	30	0.3	
128	ASPARAGACEAE		Lomandra	suaveolens			Forb				15	0.2	20	0.1	

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q8 22-Nov-18 %	Q8 12-Nov-19 cm	Q8 12-Nov-19 %	Q8 30-Sep-20 cm	Q8 30-Sep-20 %	Q9 29-Sep-20 cm	Q9 29-Sep-20 %	Notes
128	ASPARAGACEAE		Sowerbaea	laxiflora			Forb				50	0.1	30	0.2	
128	ASPARAGACEAE		Thysanotus	arbuscula			Forb		30	<1			60	0.1	
128	ASPARAGACEAE		Thysanotus	sparteus			Forb				70	0.2			
128	ASPARAGACEAE		Thysanotus	thyrsoideus			Forb				20	0.5	50	0.3	
128	ASPARAGACEAE		Tricoryne	elatior			Forb								
128	ASPARAGACEAE		Tricoryne	tenella			Forb						XX	XX	
130	HEMEROCALLIDACEAE		Arnocrinum	preissii			Forb						40	0.1	
130	HEMEROCALLIDACEAE		Caesia	micrantha			Forb								
130	HEMEROCALLIDACEAE		Corynotheca	micrantha	var.	micrantha	Forb						XX	XX	Corynotheca micrantha
130	HEMEROCALLIDACEAE		Dianella	revoluta	var.	divaricata	Forb								Dianella revoluta (2016)(2018)(2019).
138	HAEMODORACEAE		Anigozanthos	humilis	subsp.	humilis	Forb						XX	XX	Anigozanthos humilis (2016)(2018).
138	HAEMODORACEAE		Anigozanthos	manglesii	subsp.	manglesii	Forb				10	0.1	25	0.1	Anigozanthos manglesii (2016)(2019).
138	HAEMODORACEAE		Conostylis	aculeata	subsp.	cygnorum	Forb	<1	30	<1	30	0.1	25	0.3	C. bracteata (2016)(2018). C. aculeata (2019)
138	HAEMODORACEAE		Conostylis	aurea			Forb								
138	HAEMODORACEAE		Conostylis	juncea			Forb				20	0.1	20	0.1	
138	HAEMODORACEAE		Conostylis	setigera	subsp.	setigera	Forb		10	<1	10	0.1	15	0.2	
138	HAEMODORACEAE		Haemodorum	laxum			Forb				60	0.3	70	0.5	
138	HAEMODORACEAE		Haemodorum	spicatum			Forb						80	0.1	Haemodorum ?spicatum (2018)
138	HAEMODORACEAE		Phlebocarya	ciliata			Forb								
147	DASYPOGONACEAE		Calectasia	narragara			Shrub	<1	60	<1	30	0.2	30	0.1	
147	DASYPOGONACEAE		Dasypogon	bromeliifolius			Forb	2	20	1	30	1	25	0.3	
156	CYPERACEAE		Isolepis	marginata			Sedge				3	0.1	7	0.2	
156	CYPERACEAE		Lepidosperma	calcicola			Sedge				35	0.1	25	0.1	
156	CYPERACEAE		Lepidosperma	scabrum			Sedge				50	0.1	35	0.1	
156	CYPERACEAE		Mesomelaena	pseudostygia			Sedge	2	50	2	50	3	50	2	
156	CYPERACEAE		Schoenus	curvifolius			Sedge						20	0.2	
156	CYPERACEAE		Tetraria	octandra			Sedge				30	1	35	1	
158	CENTROLEPIDACEAE		Centrolepis	drummondiana			Sedge				5	0.2			
158	CENTROLEPIDACEAE		Centrolepis	inconspicua			Sedge				1	0.1	1	0.1	
159	RESTIONACEAE		Alexgeorgea	nitens			Rush				10	0.1	10	0.5	

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Family Number	Family	Introduced Flora	Genus	Species	Infra-Rank	Infra-Species	NVIS Lifeform	Q8 22-Nov-18 %	Q8 12-Nov-19 cm	Q8 12-Nov-19 %	Q8 30-Sep-20 cm	Q8 30-Sep-20 %	Q9 29-Sep-20 cm	Q9 29-Sep-20 %	Notes
159	RESTIONACEAE		Desmocladus	asper			Rush				10	0.2	15	2	
159	RESTIONACEAE		Desmocladus	flexuosus			Rush				20	0.5	40	4	
159	RESTIONACEAE		Hypolaena	exsulca			Rush	<1	20	<1			50	0.5	
159	RESTIONACEAE		Lepidobolus	preissianus	subsp.	preissianus	Rush								Lepidobolus preissianus (2016)
159	RESTIONACEAE		Lyginia	barbata			Rush								
159	RESTIONACEAE		Lyginia	imberbis			Rush	<1			60	1	60	1.5	
163	POACEAE	*	Aira	caryophyllea			Tussock Grass						10	0.1	
163	POACEAE		Amphipogon	turbinatus			Tussock Grass								
163	POACEAE		Austrostipa	compressa			Tussock Grass				20	0.1			
163	POACEAE	*	Avena	barbata			Tussock Grass	<1	30	<1					Mather Gate WP668. Mary St WP689
163	POACEAE	*	Briza	maxima			Tussock Grass	<1	10	<1	15	0.2	20	0.5	
163	POACEAE	*	Ehrharta	calycina			Grass						70	0.3	
163	POACEAE	*	Ehrharta	longiflora			Grass								Mary St WP684
163	POACEAE	*	Eragrostis	curvula			Grass								Mather Gate WP668
163	POACEAE		Microlaena	stipoides	var.	stipoides	Tussock Grass				15	0.1			
163	POACEAE	*	Rostraria	cristata			Tussock Grass						10	0.1	
163	POACEAE		Rytidosperma	occidentale			Tussock Grass						35	0.2	
163	POACEAE		Rytidosperma	sp.			Tussock Grass								Presumably equals R. occidentale.
163	POACEAE	*	Vulpia	myuros	forma.	megalura	Tussock Grass						20	0.2	
166	PAPAVERACEAE	*	Fumaria	capreolata			Forb								Mary St WP680-682
175	PROTEACEAE		Adenanthos	cygnorum	subsp.	cygnorum	Shrub								
175	PROTEACEAE		Banksia	attenuata			Tree	20	800	25	800	25	350	1	
175	PROTEACEAE		Banksia	dallanneyi	var.	dallanneyi	Shrub						25	0.2	
175	PROTEACEAE		Banksia	menziesii			Tree				XX	XX	400	2	
175	PROTEACEAE		Banksia	sessilis	var.	cygnorum	Shrub								
175	PROTEACEAE		Conospermum	stoechadis			Shrub								
175	PROTEACEAE		Petrophile	linearis			Shrub	<1	30	<1	40	0.2	50	1	
175	PROTEACEAE		Petrophile	macrostachya			Shrub						XX	XX	
175	PROTEACEAE		Stirlingia	latifolia			Shrub	12	50	12	90	8	120	2	
181	DILLENIACEAE		Hibbertia	hypericoides	subsp.	hypericoides	Shrub	20	50	18	70	18	70	25	Hibbertia hypericoides (2016)(2018)(2019).

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181	DILLENIACEAE		Hibbertia	racemosa			Shrub								
181	DILLENIACEAE		Hibbertia	striata			Shrub				30	0.2	20	1	Hibbertia huegelii (2016)
192	CRASSULACEAE		Crassula	colorata	var.	colorata	Forb				3	0.1	3	0.4	C. colorata (2016-2019)
201	FABACEAE		Acacia	applanata			Shrub				40	0.1	30	0.1	
201	FABACEAE	*	Acacia	iteaphylla			Shrub								Mary St WP678
201	FABACEAE		Acacia	pulchella	var.	glaberrima	Shrub						XX	XX	A. pulchella var. goadbyi (2016), A. pulchella (
201	FABACEAE		Acacia	sessilis			Shrub				30	0.1			
201	FABACEAE		Bossiaea	eriocarpa			Shrub	<1	30	1	30	0.5	50	2.3	
201	FABACEAE		Daviesia	divaricata	supsp.	divaricata	Shrub								Daviesia divaricata (2016)
201	FABACEAE		Daviesia	nudiflora	subsp.	nudiflora	Shrub						40	0.1	Daviesia nudiflora (2016)
201	FABACEAE		Daviesia	triflora			Shrub				60	0.5	60	2	
201	FABACEAE		Gastrolobium	linearifolium			Shrub								
201	FABACEAE		Gompholobium	confertum			Shrub						60	0.3	
201	FABACEAE		Gompholobium	tomentosum			Shrub	<1	10	<1	70	1			
201	FABACEAE		Hardenbergia	comptoniana			Vine				10	0.1			
201	FABACEAE		Hovea	stricta			Shrub								Not seen 2020. Distribution means this unlikel
201	FABACEAE		Hovea	trisperma			Shrub				10	0.1	30	0.2	
201	FABACEAE		Isotropis	cuneifolia	subsp.	cuneifolia	Forb								
201	FABACEAE		Jacksonia	furcellata			Shrub								
201	FABACEAE		Jacksonia	sternbergiana			Shrub								
201	FABACEAE		Kennedia	prostrata			Vine	<1	20	<1	10	0.1			
201	FABACEAE	*	Lupinus	costenii			Forb								Mary St WP688
201	FABACEAE	*	Trifolium	campestre	var.	campestre	Forb								
201	FABACEAE	*	Vicia	sativa			Forb								Mary St WP686
203	POLYGALACEAE		Comesperma	calymega			Shrub				40	0.1			Comesperma sp. (2018)
217	CASUARINACEAE		Allocasuarina	fraseriana			Tree	8	600	10	700	10	180	1	
232	OXALIDACEAE	*	Oxalis	pes-caprae			Forb								Mary St WP682
242	EUPHORBIACEAE	*	Euphorbia	terracina			Forb								Mather Gate WP668. Mary St WP682.
242	EUPHORBIACEAE		Monotaxis	grandiflora	var.	grandiflora	Shrub								Monotaxis grandiflora (2016)(2018)(2019).
247	PHYLLANTHACEAE		Poranthera	microphylla			Forb						5	0.1	

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247	PHYLLANTHACEAE		Poranthera	moorokatta P2			Forb				1	0.1			
261	VIOLACEAE		Hybanthus	calycinus			Shrub						40	0.3	
274	GERANIACEAE	*	?Pelargonium	capitatum (immat.)			Shrub				3	0.1			
274	GERANIACEAE	*	Pelargonium	capitatum			Shrub								Mather Gate WP668. Mary St WP687.
281	MYRTACEAE		Beaufortia	elegans			Shrub								
281	MYRTACEAE		Calothamnus	sanguineus			Shrub								
281	MYRTACEAE		Calytrix	flavescens			Shrub						30	0.2	
281	MYRTACEAE		Calytrix	fraseri			Shrub								
281	MYRTACEAE		Eremaea	pauciflora	var.	pauciflora	Shrub						XX	XX	
281	MYRTACEAE		Eucalyptus	marginata	subsp.	marginata	Tree				5	0.1	90	0.2	Eucalyptus marginata (2016)(2018)(2019).
281	MYRTACEAE	*	Eucalyptus	sp. (introduced)			Tree								Mary Street near N entry.
281	MYRTACEAE		Hypocalymma	robustum			Shrub	<1	20	<1			50	0.5	
281	MYRTACEAE		Kunzea	glabrescens			Shrub				XX	XX			
300	RUTACEAE		Philotheca	spicata			Shrub				30	0.1	35	0.2	
311	THYMELAEACEAE		Pimelea	ferruginea			Shrub								
311	THYMELAEACEAE		Pimelea	leucantha			Shrub								
311	THYMELAEACEAE		Pimelea	suaveolens			Shrub								
311	THYMELAEACEAE		Pimelea	sulphurea			Shrub	<1	20	<1	20	0.1	30	0.1	
332	BRASSICACEAE	*	Brassica	tournefortii			Forb								Mary St WP685
346	DROSERACEAE		Drosera	?pallida (sterile)			Forb/Vine								
346	DROSERACEAE		Drosera	erythrorhiza			Forb				1	0.3	1	0.3	
346	DROSERACEAE		Drosera	macrantha			Forb/Vine				60	0.1			Drosera macrantha subsp. macrantha (2016).
346	DROSERACEAE		Drosera	micrantha			Forb/Vine								Poorly collected.
346	DROSERACEAE		Drosera	pallida			Forb/Vine								
346	DROSERACEAE		Drosera	sp. (sterile)(immat.)			Forb								D. ramellosa/D. glanduligera?
346	DROSERACEAE		Drosera	thyanosepala			Forb/Vine				20	0.1	40	0.1	Drosera menziesii (2016)
355	CARYOPHYLLACEAE	*	Petrorhagia	dubia			Forb								
355	CARYOPHYLLACEAE	*	Silene	gallica	var.	gallica	Forb								
357	AMARANTHACEAE		Ptilotus	manglesii			Forb								
364	AIZOACEAE		Carpobrotus	sp. (sterile)(immat.)			Forb						3	0.1	

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364	AIZOACEAE		Carpobrotus	virescens			Forb								
368	MACARTHURIACEAE		Macarthuria	australis			Forb								
374	MONTIACAEAE		Calandrinia	corrigioloides			Forb								
392	PRIMULACEAE	*	Lysimachia	arvensis			Forb								Mary St WP686
403	ERICACEAE		Brachyloma	preissii			Shrub	<1	30	<1	120	1	50	0.5	
403	ERICACEAE		Conostephium	pendulum			Shrub	<1	30	<1			30	0.5	
409	RUBIACEAE		Opercularia	vaginata			Forb	<1			30	1			
411	LOGANIACEAE		Phyllangium	paradoxum			Forb				5	0.5	5	0.3	
417	SOLANACEAE	*	Solanum	nigrum			Forb								Mather WP644 WP660
432	LAMIACEAE		Hemiandra	linearis			Shrub				15	0.1			
450	CAMPANULACEAE		Lobelia	tenuior			Forb								
450	CAMPANULACEAE	*	Wahlenbergia	capensis			Forb						20	0.1	
450	CAMPANULACEAE		Wahlenbergia	preissii			Forb				20	0.1	15	0.2	
452	STYLIDIACEAE		Levenhookia	stipitata			Forb								
452	STYLIDIACEAE		Stylidium	androsaceum			Forb				10	0.5	15	0.3	
452	STYLIDIACEAE		Stylidium	carnosum			Forb								
452	STYLIDIACEAE		Stylidium	cygnorum			Forb						5	0.1	
452	STYLIDIACEAE		Stylidium	piliferum			Forb				30	0.1	25	0.2	
452	STYLIDIACEAE		Stylidium	schoenoides			Forb								
458	GOODENIACEAE		Dampiera	linearis			Shrub	<1	20	<1	20	0.1	30	0.2	
458	GOODENIACEAE		Scaevola	repens	var.	angustifolia	Shrub		10	<1	10	2			
460	ASTERACEAE	*	Arctotheca	calendula			Forb								Mary St WP682
460	ASTERACEAE	*	Daisy Weed (sterile)				Forb								
460	ASTERACEAE		Hyalosperma	cotula			Forb						10	1	
460	ASTERACEAE	*	Hypochaeris	glabra			Forb				1	0.1	10	0.2	Mary St WP686
460	ASTERACEAE		Lagenophora	huegelii			Forb								
460	ASTERACEAE		Leptorhynchos	scaber			Forb								Not seen 2020.
460	ASTERACEAE		Millotia	tenuiflora	var.	laevis	Forb				5	0.1			Millotia tenuiflora (2016)
460	ASTERACEAE	*	Monoculus	monstrosus			Forb								
460	ASTERACEAE		Podotheca	angustifolia			Forb								

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460	ASTERACEAE		Podotheca	chrysantha			Forb				20	0.1	20	0.1	
460	ASTERACEAE		Podotheca	gnaphalioides			Forb								
460	ASTERACEAE		Quinetia	urvillei			Forb								
460	ASTERACEAE	*	Sonchus	oleraceus			Forb								Mary St WP686
460	ASTERACEAE	*	Urospermum	picroides			Forb								
460	ASTERACEAE	*	Ursinia	anthemoides	subsp.	anthemoides	Forb				10	0.1	20	1	
460	ASTERACEAE		Waitzia	suaveolens	var.	suaveolens	Forb	<1	20	<1	10	0.1			Waitsia suaveolens (2016)(2018)(2019).
471	PITTOSPORACEAE		Billardiera	fraseri			Vine	<1							Billardiera sp. 2018
472	ARALIACEAE		Trachymene	pilosa			Forb				5	0.5	10	2	
474	APIACEAE		Daucus	glochidiatus			Forb								Not seen 2020, likely to be Trachymene pilosa
474	APIACEAE		Homalosciadium	homalocarpum			Forb				3	0.1			
474	APIACEAE		Xanthosia	huegelii			Shrub				15	0.2			