

# 5. Appendices

## Appendix A

Wildlife Online Search

*Nature Conservation Act 1992*

# Appendix A

Wildlife Online Search

*Nature Conservation Act 1992*



# Queensland Government

## Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: Rare and threatened species

Records: All

Date: All

Latitude: -27.7401

Longitude: 152.9975

Distance: 10

Email: keiragrundy@saundershavill.com

Date submitted: Wednesday 14 Feb 2018 16:50:28

Date extracted: Wednesday 14 Feb 2018 17:00:02

The number of records retrieved = 13

### Disclaimer

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog		V		3
animals	amphibians	Myobatrachidae	<i>Crinia tinnula</i>	wallum froglet		V		3/3
animals	birds	Cacatuidae	<i>Calyptrorhynchus lathamii lathamii</i>	glossy black-cockatoo (eastern)		V		3
animals	birds	Falconidae	<i>Falco hypoleucos</i>	grey falcon		V		1
animals	birds	Psittacidae	<i>Lathamus discolor</i>	swift parrot		E	CE	1
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl		V		5
animals	mammals	Dasyuridae	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)		V	E	15
animals	mammals	Macropodidae	<i>Petrogale pericillata</i>	brush-tailed rock-wallaby		V	V	2
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		V	V	515
animals	mammals	Pseudocheiridae	<i>Petauroides volans volans</i>	southern greater glider		V	V	12/2
plants	higher dicots	Apocynaceae	<i>Marsdenia coronata</i>	slender milkvine		V		2/2
plants	higher dicots	Lamiaceae	<i>Plectranthus habrophyllus</i>			E	E	6/6
plants	higher dicots	Myrtaceae	<i>Melaleuca iibyana</i>			E		7/6

#### CODES

- I - Y indicates that the taxon is introduced to Queensland and has naturalised.
- Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).
- A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).
- Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens). This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon. This number is output as 999 if it equals or exceeds this value.



# Appendix C

## Declared Area Map



Derived Reference Points for GPS  
 Projection: UTM (MGA Zone 56)  
 Datum: GDA94

Point	Easting	Northing	Point	Easting	Northing
1	500604	6931430	54	500530	6931398
2	500607	6931426	55	500534	6931398
3	500609	6931423	56	500538	6931398
4	500610	6931419	57	500546	6931403
5	500606	6931418	58	500549	6931407
6	500603	6931415	59	500550	6931409
7	500602	6931412	60	500550	6931412
8	500597	6931409	61	500552	6931414
9	500593	6931406	62	500554	6931415
10	500591	6931405	63	500556	6931412
11	500586	6931403	64	500556	6931405
12	500582	6931401	65	500558	6931403
13	500579	6931400	66	500561	6931404
14	500576	6931399	67	500567	6931407
15	500572	6931397	68	500570	6931409
16	500572	6931392	69	500573	6931415
17	500574	6931389	70	500572	6931421
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19	500584	6931381	72	500578	6931427
20	500584	6931378	73	500583	6931428
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22	500571	6931378	75	500594	6931431
23	500563	6931379	76	500598	6931431
24	500560	6931378	77	500623	6931412
25	500557	6931375	78	500627	6931411
26	500555	6931373	79	500630	6931409
27	500552	6931372	80	500633	6931402
28	500549	6931371	81	500631	6931391
29	500546	6931367	82	500632	6931389
30	500546	6931363	83	500632	6931386
31	500545	6931359	84	500634	6931381
32	500545	6931355	85	500630	6931376
33	500541	6931352	86	500626	6931375
34	500537	6931352	87	500623	6931376
35	500526	6931358	88	500620	6931377
36	500516	6931362	89	500617	6931376
37	500509	6931365	90	500614	6931373
38	500504	6931369	91	500611	6931369
39	500498	6931369	92	500607	6931371
40	500493	6931371	93	500606	6931374
41	500484	6931374	94	500605	6931376
42	500483	6931376	95	500601	6931379
43	500483	6931380	96	500597	6931381
44	500484	6931384	97	500594	6931386
45	500487	6931390	98	500593	6931388
46	500487	6931394	99	500597	6931392
47	500489	6931398	100	500601	6931395
48	500495	6931402	101	500604	6931397
49	500500	6931402	102	500609	6931400
50	500506	6931401	103	500613	6931406
51	500512	6931401	104	500616	6931408
52	500518	6931401	105	500620	6931410
53	500524	6931402			



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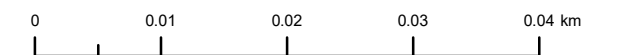
## Declared Area Map 2019/002656 - Sheet 2 of 2

Lot on Plan: 1/SP297192  
 Local Government: Logan City  
 Centre: Toowoomba  
 Region: South  
 Map Reference: -

Satellite Image: Logan 2017 10cm SISP  
 Prepared By: JDC  
 Map Date: 9 October 2019  
 File Reference: -

### Legend

- Derived Reference Points for GPS
- Declared Area
- Property boundary
- QLD DCDB



### NON-STANDARD MAP

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Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94 MGA Zone 56)  
 Cadastral data provided with the permission of the Department of Natural Resources and Mines  
 Property boundaries shown on this map are provided as a locational aid only. DCDB boundaries do not represent legal cadastral boundaries.





# Appendix D

Wildlife Online Search

*Nature Conservation Act 1992*



# Queensland Government

## Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: Plants (including other non-animals such as fungi and protists)

Type: All

Status: Rare and threatened species

Records: All

Date: All

Latitude: -27.737

Longitude: 152.995

Distance: 10

Email: keiragrundy@saundershavill.com

Date submitted: Wednesday 08 Jul 2020 12:17:20

Date extracted: Wednesday 08 Jul 2020 12:20:02

The number of records retrieved = 3

### Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Apocynaceae	<i>Marsdenia coronata</i>	slender milkvine		V		6/2
plants	land plants	Lamiaceae	<i>Coleus habrophyllus</i>			E	E	8/8
plants	land plants	Myrtaceae	<i>Melaleuca irbyana</i>			E		6/4

#### CODES

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- Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).
- A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).
- Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).  
 This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.  
 This number is output as 999 if it equals or exceeds this value.

# Appendix C

## Declared Area Map








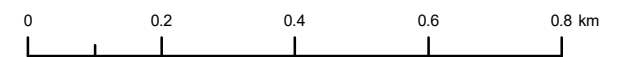
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## Declared Area Map 2019/002656 - Sheet 1 of 2

Lot on Plan: 1/SP297192	Local Government: Logan City	Satellite Image: Prepared By: Map Date: File Reference:	Logan 2017 10cm SISF JDC 9 October 2019 -
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### Legend

-  Declared Area
-  Property boundary
-  QLD DCDB



### NON-STANDARD MAP

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Derived Reference Points for GPS  
 Projection: UTM (MGA Zone 56)  
 Datum: GDA94

Point	Easting	Northing	Point	Easting	Northing
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11	500586	6931403	64	500556	6931405
12	500582	6931401	65	500558	6931403
13	500579	6931400	66	500561	6931404
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15	500572	6931397	68	500570	6931409
16	500572	6931392	69	500573	6931415
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42	500483	6931376	95	500601	6931379
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46	500487	6931394	99	500597	6931392
47	500489	6931398	100	500601	6931395
48	500495	6931402	101	500604	6931397
49	500500	6931402	102	500609	6931400
50	500506	6931401	103	500613	6931406
51	500512	6931401	104	500616	6931408
52	500518	6931401	105	500620	6931410
53	500524	6931402			



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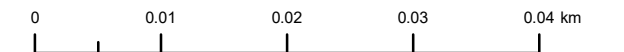
### Declared Area Map 2019/002656 - Sheet 2 of 2

Lot on Plan: 1/SP297192  
 Local Government: Logan City  
 Centre: Toowoomba  
 Region: South  
 Map Reference: -

Satellite Image: Logan 2017 10cm SISP  
 Prepared By: JDC  
 Map Date: 9 October 2019  
 File Reference: -

#### Legend

- Derived Reference Points for GPS
- Declared Area
- Property boundary
- QLD DCDB



#### NON-STANDARD MAP

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# Appendix D

Wildlife Online Search

*Nature Conservation Act 1992*



# Queensland Government

## WildNet species list

Search Criteria: Species List for a Specified Point

Species: Plants (including other non-animals such as fungi and protists)

Type: Native

Queensland status: Rare and threatened species

Records: All

Date: Since 1980

Latitude: -27.7395

Longitude: 152.9989

Distance: 5

Email: laurathorley@saundershavill.com

Date submitted: Tuesday 05 Jul 2022 09:17:22

Date extracted: Tuesday 05 Jul 2022 09:20:03

The number of records retrieved = 1

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Myrtaceae	<i>Melaleuca ibyana</i>			E		10/1

#### CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

# Appendix E







*Melaleuca irbyana* Declared Area  
Rehabilitation Plan

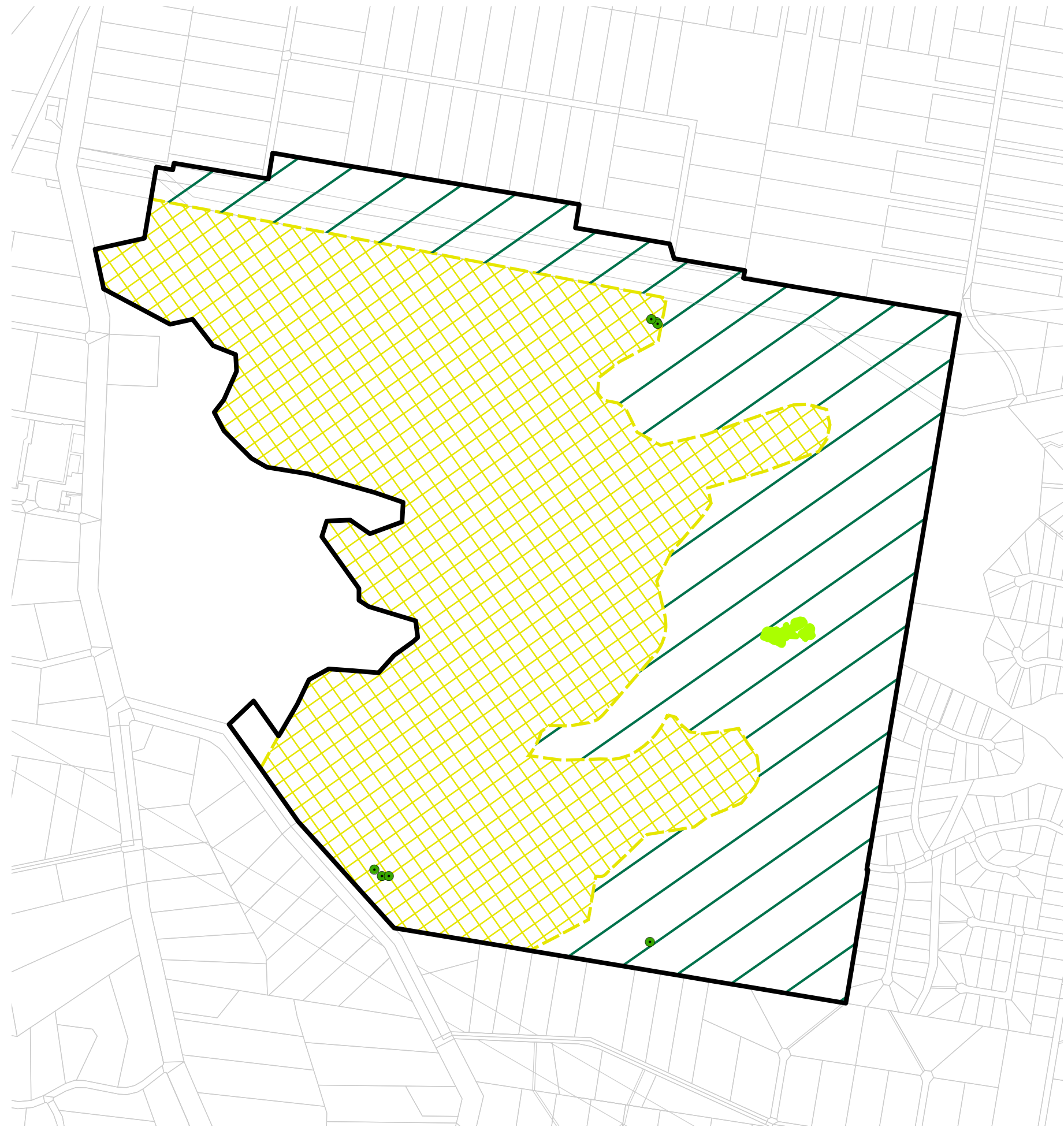
# Everleigh, Greenbank

## VOLUNTARY DECLARATION REHABILITATION PLAN

PLAN SET				
SHEET NO.	TITLE	DESCRIPTION	ISSUE	DATE
1	7598 E 01 VDEC RMP B	Cover sheet	B	23/05/2019
2	7598 E 02 VDEC RMP A	Details sheet	A	15/04/2019
3	7598 E 03 VDEC RMP B	Introduction / Weed management	B	23/05/2019
4	7598 E 04 VDEC RMP A	Planting, fauna, responsibilities	A	15/04/2019
5	7598 E 05 VDEC RMP B	Maintenance and monitoring	B	23/05/2019
6	7598 E 06 VDEC RMP A	Monitoring photo plan - Pre-works/Maintenance	A	15/04/2019
7-9	7598 E A01-A03 V-DEC RMP A	Appendix A - Weed treatment & Removal	A	15/04/2019

### Legend

-  *Melaleuca irbyana* patch
-  Declared Area
-  Conservation area
-  Urban Area
-  Project site
-  QLD DCDB



CLIENT:



Everleigh

DISCLAIMER:

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 CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND DO NOT SCALE FROM THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETRES. ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH SAUNDERS HAVILL GROUP PRIOR TO THE COMMENCEMENT OF WORK.  
 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERGROUND SERVICES AND OTHER UTILITIES OF ALL SERVICES.



AMENDMENTS:

Issue	Date	Description	Checked
B	24/05/2019	Client Amendments	AD

PROJECT:

423 - 520 Greenbank Road,  
Greenbank (1/SP297192)

1:13,000 @ A3

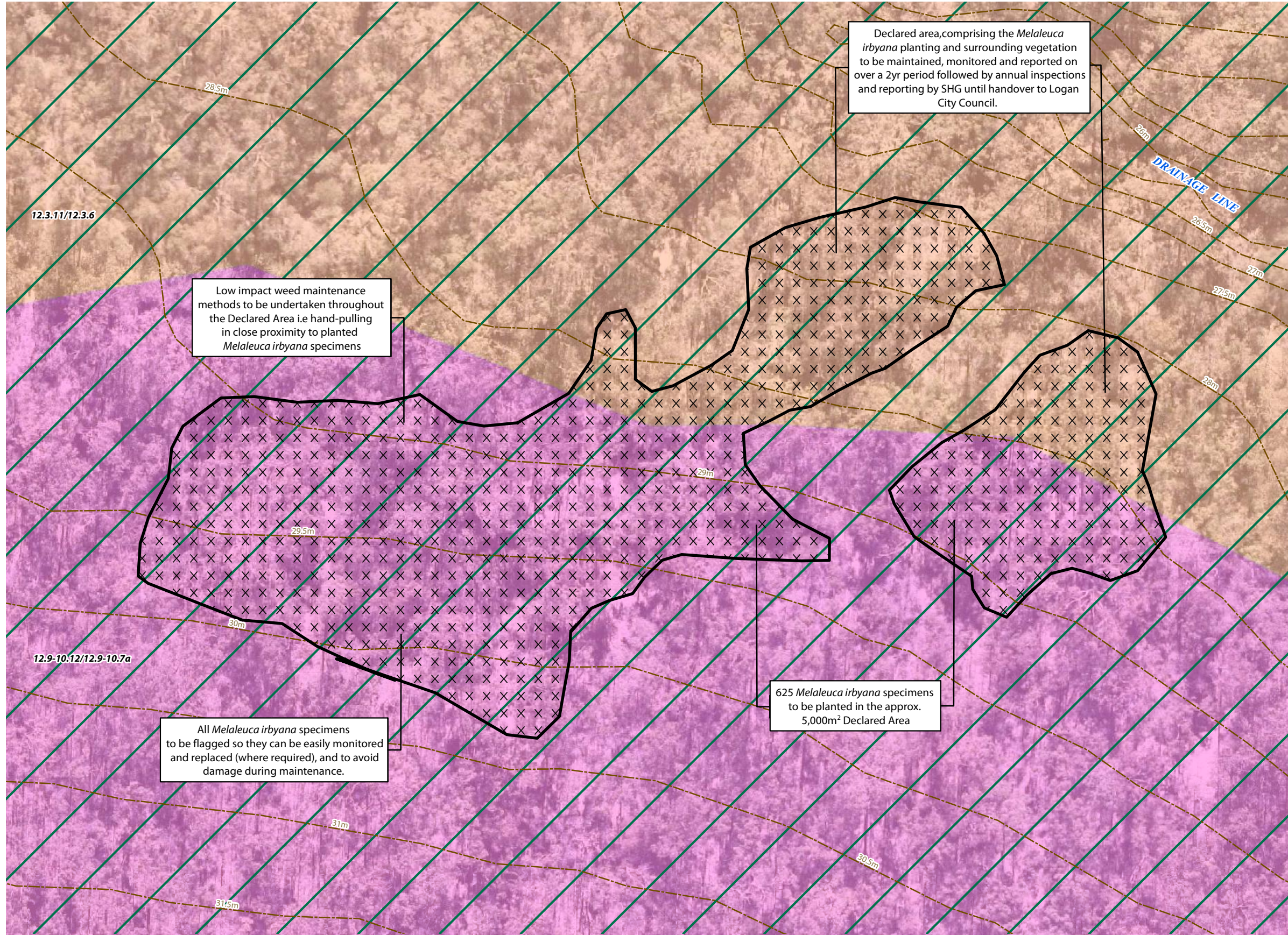
environmental management

PLAN OF:  
Rehabilitation Plan  
Cover Sheet






DATE:	24/05/2019	CHECKED:	AD
CLIENT REF:	JOB NO.	DRAWN:	MC
DRAWING No.:	7598 E 01 VDEC RMP B		



# VOLUNTARY DECLARATION REHABILITATION PLAN - DETAIL SHEET



## LEGEND

-  Management Zone 1: Melaleuca Irbyana planting and rehabilitation site (Approx. 5,000m<sup>2</sup>)
  -  Conservation area
  -  Contours (0.5m)
- VM regional ecosystem map - v11**
-  Category A or B area containing endangered regional ecosystems
  -  Category A or B area containing of concern regional ecosystems




DISCLAIMER:

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CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND DO NOT SCALE FROM THE DRAWINGS. ALL DIMENSIONS ARE IN METRES. ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH SAUNDERS HAVILL GROUP PRIOR TO THE COMMENCEMENT OF WORK.

PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER GUIDANCE SERVICES AND OBTAIN LICENSING OF ALL SERVICES.

REFERENCES:



AMENDMENTS:

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD

0 10 20 40 m

1:600 @ A3

PROJECT:

423 - 520 Greenbank Road,  
Greenbank (1/SP297192)

environmental management

PLAN OF:

Detail Sheet

DATE:	15/04/2019	CHECKED:	AD
CLIENT REF:	7598	DRAWN:	MC
DRAWING No.:	7598 E 02 VDEC RMP A		



# Everleigh, Greenbank

## VOLUNTARY DECLARATION REHABILITATION PLAN

### INTRODUCTION

Saunders Havill Group (SHG) was engaged by MIRVAC to prepare a Voluntary Declaration Rehabilitation Plan (VDRP) for the clearing of 140 *Melaleuca irbyana* (Swamp Tree Tree) specimens. The replacement plants will be located in a Declared Area within the approved conservation area of the Everleigh project. The clearing works, current and future will facilitate the creation of residential lots, a school, and internal roads for the site's ultimate development layout.

The rehabilitation proposal for the clearing of 140 *Melaleuca Irbyana* is the planting of more than four (4) advanced tube stock specimens of *Melaleuca Irbyana* per tree cleared. A total of 625 (560+65 additional) *Melaleuca Irbyana* will be planted as a result. The Declared planting area is proposed within the site's conservation zone (refer Plan 2) and will cover 5,000 m<sup>2</sup>. The specific location of the planting area was determined onsite by Ecologists from SHG. The percentage of existing canopy cover and the land zone features were taken into consideration when determining the optimal location for planting. Although it is expected that these plantings will take approximately four (4) years to reach the size of the impacted matter, they will be planted in a thicket to replicate as close to natural conditions for a *Melaleuca Irbyana* ecological community as possible and maintained as part of the rehabilitation works for the conservation zones. The area of planting of this thicket is centralised within the conservation zone and adjacent the waterway corridor, as stipulated by the EDQ approved NESS, and not within 100m of future development areas.

This Rehabilitation Plan is drafted to identify and manage the site disturbances for the planting of the 625 *Melaleuca Irbyana* specimens within a 5,000m<sup>2</sup>. The planting will involve low impact weed removal and the retention of any existing native vegetation in the immediate area. The planting will be succeeded by a two (2) year period of maintenance, monitoring and reporting, then annual inspections and reporting by SHG until handover to Logan City Council.

### REHABILITATION - APPROACHES

Ecologists from SHG have assessed the site's vegetation. Broadly, it was determined that a hybrid of infill planting and minor reconstruction approaches will be used on site. This approach is described below:

ECOLOGICAL RESTORATION APPROACH	
INFILL PLANTING / MINOR RECONSTRUCTION	
Applies:	To natural areas where the native plant community is largely healthy and functioning. Where area retains canopy trees, few T2 layer trees but with largely bare shrub and ground cover layers. Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. When the main management issue is weed infestation and/or historical land use practices is causing ground and shrub layers to be absent from the area.
Role of planting:	Infill planting is to assist the existing natural area reach the intended composition through planting specific species.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.

*Note: Table adapted from Gold Coast City Council's Guideline for the preparation of a Rehabilitation Plan'*

### WEED MANAGEMENT

Rehabilitation treatment is to generally include the following points:

- A number of weeds are recorded for removal within shrub & ground layer
- Weed removal and management will utilise low impact methods to minimise impacts on planted *Melaleuca Irbyana* specimens

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes. Weed

Management to be undertaken in accordance with SEQERF Primary, Follow-up and Maintenance works notes (adjacent).

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation:

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works.

This may include occupational Health and Safety laws as well as environmental and heritage protection legislation. Bush regenerators must comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991. Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966.

In addition to the above, contractors should also be familiar with local government body requirements (e.g. Pest Management Plans, Local Codes, Policies and Guidelines) and Classifications of weeds. Refer to adjacent schedules for classification of weeds under the Biosecurity Act 2014).

RESTRICTED MATTERS (BIOSECURITY ACT 2014)	
Category	Description
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.
2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the <i>Biosecurity Act 2014</i> or another Act. includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weather loach, climbing perch and gambusia

Plant Identification Skills:

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tubestock. If contractor is unsure of species, advise should be sought by botanist,

specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Knowledge of Different Weed Management Techniques:

A range of weed management techniques are available to combat varying weed species and scenarios. Refer to adjacent schedules and Appendix A for an indication of weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	DESCRIPTION
Herbicide	The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.
Cut - Scrape - Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet ( <i>Ligustrum sinense</i> ), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate-/ metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped, and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
oll-hang	Vines such as mile-a-minute ( <i>Ipomoea cairica</i> ) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cutscrape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus ( <i>Protasparagus plumosus</i> ). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.

WEED MANAGEMENT TECHNIQUES	
METHOD	DESCRIPTION
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Stem Injection	Large woody weeds such as camphor laurel, coral trees ( <i>Erythrina</i> spp, Privet <i>Ligustrum</i> spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of steminjection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals, and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The hand-held container can leak and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	Mechanical weed control involves the use of powered and non-powered equipment such as brushcutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercourses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brushcutter, chainsaw, slasher, dozer, excavator). Suitable for large infestations and weed trees. Initially cost-effective, but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

*Note: Table adapted from a table in SEQERF*



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PRIOR TO ANY DEMOLITION, DESTRUCTION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERSTANDING SERVICES AND/OR BIDDING LOCATIONS OF ALL SERVICES.

**REFERENCES:**  
South East Queensland Ecological Restoration Framework (2012)  
Guideline for the preparation of a Rehabilitation Plan (GCC)

AMENDMENTS:			
Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD
B	24/05/2019	Client Amendments	AD

**PROJECT:**  
423 - 520 Greenbank Road,  
Greenbank (1/SP297192)

**environmental management**

PLAN OF: Rehabilitation Plan Notes

DATE:	24/05/2019	CHECKED:	AD
CLIENT REF:	7598	DRAWN:	MC
DRAWING No.:	7598 E 03 VDEC RMP B		

# Everleigh, Greenbank

## VOLUNTARY DECLARATION REHABILITATION PLAN

### PLANTING

Prior to undertaking planting installation, the following general items should be considered:

- Sourcing plant material
- Timing of planting
- Site preparation
- Planting density
- Planting installation

Sourcing Plant Material:

There are a number of options for sourcing plant material for revegetation purposes. Propagation from site seed is a good outcome however is often limited by required timing of works. Sourcing planting from local nurseries is the commonly chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

For threatened species, it is recommended to source seed from stock of local provenance, as close to the receiving site as possible—to maintain the genetic signature of the local population. Furthermore, seed should be sourced randomly from as many individuals as possible across the population—to ensure a representative range of genetic material is collected and to minimise potential for inbreeding.

Timing of Planting:

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Despite this, it is understood planting may occur at various times within the rehabilitation areas due to development timing needs.

Site Preparation:

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required)
- Pre-spraying of exotic grasses and other weeds to planting areas
- Consideration of source of water for new planting (access tracks, temporary irrigation)
- Arranging delivery of mulch, jute netting and treeguards (if required)
- Treatment of heavily compacted soils by ripping and/or application of gypsum
- Soil amelioration as required

Planting Density:

The planting will provide a net benefit of greater than 4 to 1 in an area protected under the NESS. Planting of the 625 specimens will be planted at approximately 1 per 8m<sup>2</sup> to form a *Melaleuca lrblyana* thicket.

### PLANTING INSTALLATION

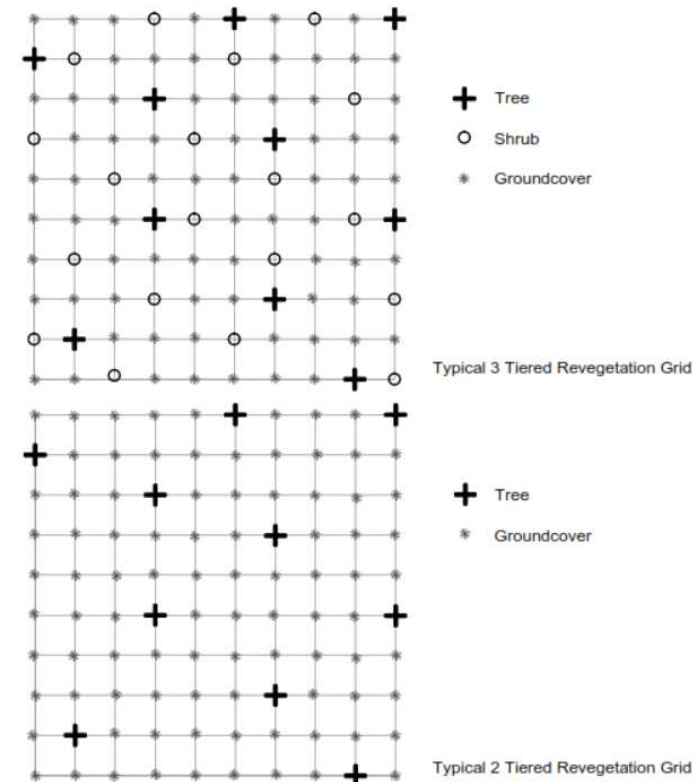
The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified bush regenerator. All works shall be in accordance with the provisions of this sheet, local government policies and Australian Standards. Plant installation methods shall include:

- Plants are to be vigorous, well established, hardened off, consistent with species or variety, free from disease and insect pests, with large root systems and no evidence of having been restricted or damaged.
- Plants are to be planted immediately after delivery to the planting site. If not possible, they should be stored in the shade and watered sufficiently during the day.
- Planting is to be undertaken in accordance with the planting grid contained within this drawing sheet.

- Excavate planting medium to a depth suitable for the installation of tube or pot specimens. In areas where planting substrate is deemed to be very poor (compacted, nutrient depauperate, hydrophobic etc.) and above areas of potential frequent inundation and water flow, topsoil may be used or the ground mechanically ripped where access is feasible.
- Pre-water plant hole, if soil is dry, to decrease root stress upon planting and assess the infiltration of water through the soil
- Incorporate into the planting substrate the appropriate quantity of prepared water crystals or other suitable hydrating product such as Hortex 'Rainsaver' or 'Moisturaid'.
- Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in any less than 10mm or any more than 20mm of planting medium
- Plants are to be watered thoroughly immediately after planting (ensure deep irrigation) and thereafter as required during the construction phase of the development depending on climatic conditions. Creation of a concave hollow around the base of each plant will aid water infiltration to the plant roots.
- A complete, slow release fertiliser is recommended, and is to be administered appropriately during planting. Top dressing with slow release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.
- To ensure successful establishment, all planting surfaces must be covered in:
  - 100mm layer of high-quality weed-free composted chip mulch (site mulch) - Note: to avoid possible stem rot in some 'drier' species ensure mulch is 'dished' and not covering plant stem by more than 200mm
  - suitable individual anchored natural fibre weed mat; or
  - As presented within other section, where available mulch material will be sourced from cleared vegetation material if adequately seasoned.
- A long-term slow release fertiliser, such as Nutricote or similar product should be used for all plantings after initial plant establishment.
- Seedlings and saplings are to be encouraged and maintained throughout the establishment period.

### PLANTING SET OUT

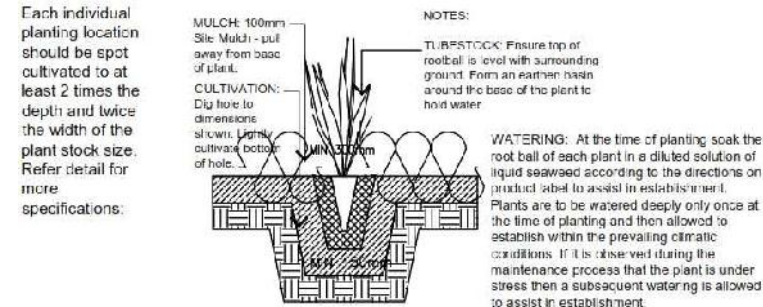
Revegetation planting locations shall be generally set out in accordance with a typical random grid pattern as shown below.



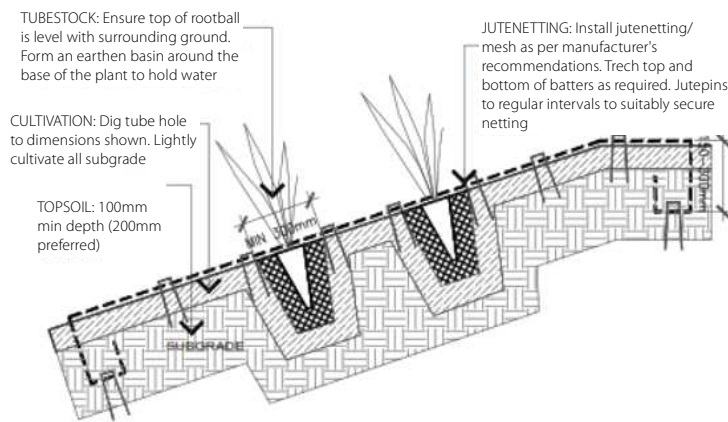
### MULCH / JUTE MATTING

Areas to be blanket mulched to a minimum depth of 100mm leaving a 50mm gap surrounding the trunk of planted stock. Areas which are too steep or where overland flows may occur, a combination of mulch and Jute mat and/or suitably anchored natural fibre weed mat installed to manufactures specifications have been specified.

Typical planting details as below for standard medium mulch installation and jute netting. Refer to manufacturer's recommendations for detailed jute netting installation including pinning, etc.



Where evidence of plant damage is occurring i.e. Kangaroo or wallaby grazing, tree guards grow tubes to be installed as required.



Jute netting mesh to be installed as per manufacturer's recommendations. Indicative detail shown only.

### FAUNA CONSIDERATIONS

Consideration for fauna habitat and values should be given during rehabilitation site works and should seek to enhance and restore the existing native vegetation areas and promote safe fauna movement throughout the site and into the larger greenspace corridors where possible. It is assumed properties adjacent to the rehabilitation scope of works will undertake individual site analysis, fauna investigations, and implement future measures as required. As part of these rehabilitation works, basic fauna works will be undertaken. These treatments will primarily involve:

- Fauna Habitat Value and Protection
- Increased fauna habitat value within the rehabilitation areas.

Rehabilitation Areas to include reuse of site fallen hollow logs and site rock to create fauna safe havens and cover from predators for small fauna. This approach coupled with additional revegetation works allows greater fauna security and movement within the rehabilitation areas. Consideration for bushfire requirements should be reviewed to confirm no conflict in both the fauna and rehabilitation approaches. Refer indicative images below.



### RESPONSIBILITIES

It is also critical for all parties to understand their responsibilities as part of the overall rehabilitation 'team'.

REHABILITATION TEAM RESPONSIBILITIES	
PARTY	DESCRIPTION
Proponent	<ul style="list-style-type: none"> <li>Ensure all consultants, contractors, sub-contractors or others utilizing the area are aware of the Rehabilitation Plan.</li> <li>Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by the Assessment Manager.</li> <li>Provide security via an uncompleted works bond and maintenance bond for the cost of works if required.</li> <li>Cover the costs of all necessary resources to ensure works are completed as per the approved documents.</li> </ul>
Consultants	<ul style="list-style-type: none"> <li>Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Plan.</li> <li>Attend pre-start and compliance (on and off maintenance) inspections.</li> <li>Undertake monitoring and reporting to the Assessment Manager as set up by this document.</li> <li>Be available to respond to technical queries to the approved documentation when on-site conditions require changes.</li> <li>Liaise with the Assessment Manager throughout all stages of approval, initial works and maintenance of works.</li> </ul>
Assessment Manager	<ul style="list-style-type: none"> <li>Provide technical expertise via commentary on the approval of documentation.</li> <li>Attend pre-start and compliance (on and off maintenance) inspections.</li> <li>Reduce and release securities held against works at the completion of successful milestone inspections.</li> <li>Be available to respond to technical queries to the approved documentation when on-site conditions require changes.</li> <li>Accept and review maintenance reports as dictated (if required) in this document.</li> </ul>
Contractor	<ul style="list-style-type: none"> <li>Complete works in strict accordance with the documentation.</li> <li>Attend pre-start and compliance (on and off maintenance) inspections.</li> <li>Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines.</li> <li>Recommend changes to the documentation when specific experience or on-site conditions require so.</li> </ul>



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REFERENCES:  
 South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS:

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD

PROJECT:  
 423 - 520 Greenbank Road,  
 Greenbank (1/SP297192)

environmental management

PLAN OF:  
 Planting, fauna, responsibilities

DATE:	15/04/2019	CHECKED:	AD
CLIENT REF:	7598	DRAWN:	MC
DRAWING No.: 7598 E 04 VDEC RMP A			



# Everleigh, Greenbank

## VOLUNTARY DECLARATION REHABILITATION PLAN

### MAINTENANCE

The planting will be followed up by a two (2) year period of maintenance, monitoring and reporting to ensure benchmarks for plant survival and weed management are obtained. Further annual inspections and reporting will be undertaken by SHG until handover to Logan City Council.

Maintenance, as with all ecological restoration work, is fundamental in ensuring project success. Maintenance of the planting includes tasks such as:

- Herbicide spraying to control competing weeds.
- Watering while plants are establishing. This is often highly variable and depends on the suite of species planted, weather conditions and time of year when planted. A watering schedule may consist of watering every day for week 1, twice per week for weeks 2-6 and then weekly from weeks 6-12.
- Repair of tree guards if they become damaged.
- Replenishment of mulch.
- Maintaining exclusion fencing; and
- Additional planting may be required to replace plants that do not survive (e.g. to meet survival rate requirements, or to fill gaps).

Maintenance is required following installation of the plants, although if maintenance is regular and thorough during the first year, maintenance requirements are likely to taper off significantly in the following years. The utilisation of benchmark criteria helps to determine rehabilitation

success during the maintenance period and assists in prompting when additional maintenance activities are required. Typically accepted benchmarks or performance indicators for dedicated or open space rehabilitation works include:

- Compliance 'On Maintenance' requirements:
  - All required planting completed.
  - 98% plant survival.
  - 98% kill rate of declared environmental weeds.
- Ongoing 'Off Maintenance' requirements:
  - 98% plant survival.
  - Tree guards, stakes and general rubbish removed.
  - No remaining eroded or degraded areas.
  - 98% kill rate of declared environmental weeds.

The desired end-product is a fully-functioning system that can support itself in perpetuity, with minimal maintenance and input required.

### MONITORING

Informal monitoring will occur through ongoing site inspections, note taking and photo-monitoring for the duration of the maintenance / monitoring period (2 years) (Refer to tables below for frequency).

Informal monitoring notes and photos (to address accepted benchmarks above) are to be submitted to SHG and DNRME under the Voluntary Declaration. Notes should also be distributed to the rehabilitation team and rectification works completed against notes.

Monitoring of rehabilitation works is a method of determining ecological restoration success in conjunction with the adjacent benchmarks. Monitoring of the weed management and revegetation works allows for:

- Review of the pre-established performance indicators for measuring the success of the weed removal and control.
- Ensure level of protection for existing identified native vegetation inclusive of that which has naturally regenerated
- Review the rate of spread or contraction of weed infestation within the control program.
- Monitor the rate of assisted regeneration and revegetation of desirable native species promoted in areas where weeds have been removed.
- Identification of new weed threats or other factors that may be effecting areas designated for rehabilitation.

Monitoring timeframes may involve a series of key milestones:

- Prestart Inspection - On site meeting prior to the initial commencement of work. Typically involves Consultant, Contractor and Assessment Manager to work through rehabilitation areas and clarify any adjustments to scope against approved works.

- Compliance Inspections - At the completion of the Primary Site Works, a compliance inspection meeting will be held with the Consultant, Contractor and Assessment Manager to inspect the works on-site in relation to the approved plans and previously agreed benchmarks performance indicators. Should the rehabilitation be a dedicated asset (open space) to the assessment manager, this inspection is commonly referred to as 'on maintenance'. For dedicated assets, a secondary compliance inspection will be required (off maintenance).
- Ongoing Monitoring Inspections- Monitoring to occur on a regular basis as highlighted above. These inspections will generally occur throughout the process, specifically before, during and after relevant compliance inspections.

Photo-monitoring is required for submission over the duration of the monitoring period. Approximate photo-monitoring locations were determined by SHG during the preliminary approval process (refer *Sheet 6*) and are to be utilised for the remainder of the monitoring period

A permanent photo point can be set up using a star picket marked with fluorescent yellow safety cap or painted timber stakes, so that a photograph may be taken of the site at regular intervals as it is being restored. A time series of photographs from a degraded state prior to the commencement of restoration, through the transition stages and into the maintenance stage will assist in assessing the success of the ecological restoration process. Collected site data and photos should be compiled in a 'master' monitoring report for proper record keeping.

INDICATIVE SCHEDULE OF WORK ITEMS AND MAINTENANCE SEQUENCING FOR THE TWO (2) YEAR MAINTENANCE PERIOD

TIMING	SPRING			MILESTONE: COMPLIANCE / 'ON MAINTENANCE'	SUMMER			AUTUMN			WINTER			SPRING			SUMMER			AUTUMN			WINTER			SPRING			MILESTONE: COMPLIANCE / 'OFF MAINTENANCE'
	PRIMARY WORKS				FOLLOW-UP WORKS			FOLLOW-UP / MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			
	Month 1	Month 2	Month 3		Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	
WEEK 1	Pre-start meeting Council, Contractor and Superintendent	Weed management - "knockdown spray"	Mulch spreading and Jute-mat installation	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Monitoring and reporting (watering to replacement plants only)	Monitoring and reporting	Monitoring and reporting	Monitoring and reporting	Monitoring (watering to replacement plants only). Photomonitoring as required.	Informal monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.	Informal monitoring and reporting	Monitoring (watering to replacement plants only). Photomonitoring as required.	Informal monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.	Informal monitoring and reporting	Monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.	Informal monitoring and reporting	Informal monitoring and reporting	Mulch - top up depths to 100mm and replace / repair Jutematting as required	Informal monitoring and reporting. Photomonitoring as required.	Monitoring (watering to replacement plants only)				
WEEK 2	Initial weed management works - wood weed removal / "knockdown" spray	Soil Preparation and cultivation	Natural regeneration plants staking for identification	Weed management - "knockdown spray" in mulched areas	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Natural regeneration plants - weed management	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas					
WEEK 3	Weed management works - removal by hand	Soil Preparation and modification	Planting and Watering	Natural regeneration plants - weed management	Replacement of Failed Plants	Replacement of Failed Plants	Natural regeneration plants - weed management	Natural regeneration plants - weed management	Replacement of Failed Plants	Natural regeneration plants - weed management	Trees formative pruning	Replacement of Failed Plants	Natural regeneration plants - weed management	Trees formative pruning	Replacement of Failed Plants	Natural regeneration plants - weed management	Trees formative pruning	Replacement of Failed Plants	Natural regeneration plants - weed management	Trees formative pruning	Replacement of Failed Plants	Trees formative pruning	Replacement of Failed Plants	Replacement of Failed Plants	Natural regeneration plants - weed management				
WEEK 4	Weed Management - slashing of maintenance access paths	Mulch - stockpiled on site	Planting and Watering	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths			

INDICATIVE SCHEDULE OF MAINTENANCE AND MONITORING SEQUENCING UNTIL HANDOVER TO COUNCIL

ACTIVITY	INDICATIVE OCCURANCE - YEAR 0-2	INDICATIVE OCCURANCE - YEAR 2 UNTIL HANDOVER TO COUNCIL
<b>Cleaning Operations</b>		
Litter Collection (general landscape)	"As above"	Annually*
<b>Horticultural Environment</b>		
Planting of shrubs and trees (infill planting post initial works)	"As above"	Annually*
Care of existing trees and shrubs (inc. formative pruning)	"As above"	Annually*
Native bushland maintenance (inc. maintaining access paths, mulch, matting, etc.)	"As above"	Annually*
Pest control	"As above"	Annually*
Weed treatment	"As above"	Annually*
Watering	"As above"	Monitor*
Monitoring / Photo location	Quarterly	Annually
* Reactionary maintenance as required		



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 PRIOR TO ANY DEMOLITION, DEGRADATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERGROUND SERVICES AND/OR BUILT-UPWORK ON ALL SERVICES.

**REFERENCES:**  
 South East Queensland Ecological Restoration Framework (2012)

**AMENDMENTS:**

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD
B	24/05/2019	Client Amendments	AD

**PROJECT:**  
 423 - 520 Greenbank Road,  
 Greenbank (1/SP297192)

**environmental management**

PLAN OF: Maintenance & Monitoring

DATE: 24/05/2019	CHECKED: AD
CLIENT REF: 7598	DRAWN: MC
DRAWING No.: 7598 E 05 VDEC RMP B	



# VOLUNTARY DECLARATION REHABILITATION PLAN - APPROXIMATE PHOTO MONITORING LOCATIONS



1






2



3

**LEGEND**

-  Photo monitoring location (approximate)
-  Conservation area
-  Melaleuca Irbyana planting/rehab site (Approx. 5,000m<sup>2</sup>)



4



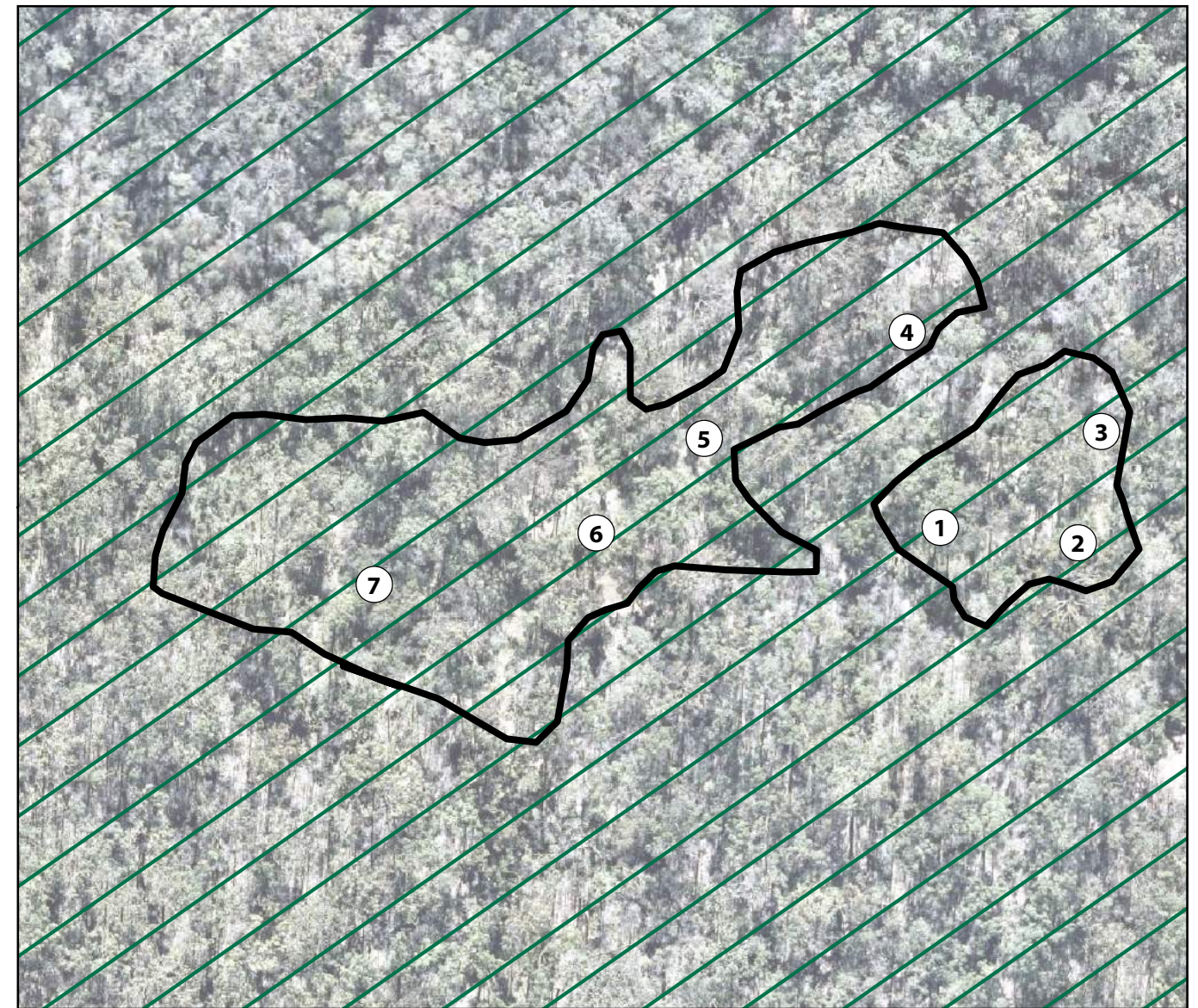
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6



7



**Everleigh**

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 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERGROUND SERVICES AND OBTAIN LOCATION OF ALL SERVICES.

**REFERENCES:**



**AMENDMENTS:**

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD

**PROJECT:**

423 - 520 Greenbank Road,  
 Greenbank (1/SP297192)

1:1,000 @ A3

**environmental management**

PLAN OF: Photo monitoring locations	
DATE: 15/04/2019	CHECKED: AD
CLIENT REF: 7598	DRAWN: MC
DRAWING No.: 7598 E 06 VDEC RMP A	



# VOLUNTARY DECLARATION REHABILITATION PLAN - WEED TREATMENT & REMOVAL (1)

## QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull	
2	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
3	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
4	Bignoniaceae	Macfadyena unguicati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
6	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	dig out roots and dispose of at local council landfill site. remove entire crown and underground stem to prevent regrowth	
7	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	remove when small, hand pull or dig out small seedlings. combine dozing, burning and controlled grazing for large infestations	
8	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull	
	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	
11	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
12	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
14	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull small infestations. Can be controlled by planting competitive native species.	
	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull	
16	Asteraceae	Sphagnetocola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
17	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
18	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control	
19	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A	
	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations	
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull	
22	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A	
23	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	dig out unwanted plants and dispose of at the appropriate council landfill. remove the entire crown of underground stem of plant to prevent regrowth	
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	

Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
25	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
27	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of-millions)	6	15	5	H/O	Hand pull and dispose	
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hang up to dry.	
29	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
30	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	
31	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.	
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
34	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
35	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1?	3	5	Ha/U	physical removal of plant should not be attempted	
37	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A	
38	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing	
39	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove	
40	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
42	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
43	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	hand pulling, cutting and digging with machines effective	
44	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
42	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
43	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	hand pulling, cutting and digging with machines effective	
44	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
45	Caesalpinaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	

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Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
46	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	hand pulling of small areas is not recommended	
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
50	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
51	Fabaceae	Macropitium atropurpureum (sirat)	8	39	4	V/A	N/A	
52	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	
53	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
56	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations	
57	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
58	Commelinaceae	Tradescantia fluminensis (Old use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
59	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
60	Caesalpinaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
61	Solanaceae	Solanum mauritanum (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
62	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
63	Passifloraceae	Passiflora subpellata (white passion flower)	10	60	4	V/O	Stems: Hand pull	
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
65	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing	
66	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.	
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull	
71	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
72	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up	

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 PRIOR TO ANY DEMOLITION, DESTRUCTION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERGROUND SERVICES AND/OR HAZARDOUS WASTE SERVICES.

REFERENCES:  
 Queensland Herbarium Invasive Naturalised Plants in South East Queensland

AMENDMENTS:

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD

PROJECT:  
 423 - 520 Greenbank Road,  
 Greenbank (1/SP297192)

environmental management

PLAN OF:  
 Weed Treatment & Removal

DATE:	15/04/2019	CHECKED:	AD
CLIENT REF.:	7598	DRAWN:	MC
DRAWING No.:	7598 E A07 VDEC RMP A		

# VOLUNTARY DECLARATION REHABILITATION PLAN - WEED TREATMENT & REMOVAL (2)

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND									
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
73	Poaceae	<i>Paspalum dilatatum</i> (paspalum grass)	10	30	4	H/A	Hand pull or dig up		
74	Ruppiaceae	<i>Ruppia maritima</i> (sea tassel)	2	8	4	Ha/F	Hand pull or dig up		
75	Arecaceae	<i>Syagrus romanzoffiana</i> (queen palm)	4?	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point		
76	Poaceae	<i>Hymenachne amplexicaulis</i> cv. Olive (hymenachne)	1?	1	4	Ha/A	a combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective		
77	Asteraceae	<i>Senecio tamoides</i> (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.		
78	Poaceae	<i>Cenchrus ciliaris</i> (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants		
79	Acanthaceae	<i>Thunbergia grandiflora</i> (thunbergia, blue thunbergia)	2	3	5?	V/O	N/A		
80	Cactaceae	<i>Opuntia tomentosa</i> (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.	
81	Euphorbiaceae	<i>Ricinus communis</i> (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull		
82	Asteraceae	<i>Senecio madagascariensis</i> (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.		
83	Cyperaceae	<i>Cyperus involucratus</i> (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.		
84	Asteraceae	<i>Tithonia diversifolia</i> (Mexican sunflower)	5	11	4	H/O	N/A		
85	Poaceae	<i>Setaria sphacelata</i> (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up		
86	Asclepiadaceae	<i>Gomphocarpus physocarpus</i> (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.		
87	Poaceae	<i>Digitaria didactyla</i> (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation		
88	Caesalpinaceae	<i>Gleditsia triacanthos</i> (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.		
89	Poaceae	<i>Paspalum notatum</i> (bahia grass)	4	10	4	H/A	Hand pull or dig up		
90	Cactaceae	<i>Opuntia monacantha</i> (drooping tree pear, syn. <i>O. vulgaris</i> )	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
91	Poaceae	<i>Paspalum conjugatum</i> (paspalum grass)	7	38	4	H/A	Cut below crown.		
92	Malpighiaceae	<i>Hiptage benghalensis</i> (hiptage)	3	5	4	S,V/O	Hand pull small infestations.		

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
93	Solanaceae	<i>Solanum torvum</i> (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
94	Caesalpinaceae	<i>Caesalpinia decapetala</i> (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
95	Poaceae	<i>Pennisetum alopecuroides</i> (swamp foxtail)	7	29	4	H/O	Hand Pull	
96	Verbenaceae	<i>Duranta erecta</i> (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
97	Brassicaceae	<i>Nasturtium officinale</i> (Old use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.	
98	Polygonaceae	<i>Acetosa sagittata</i> (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
99	Poaceae	<i>Cynodon dactylon</i> (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	
100	Bignoniaceae	<i>Tecoma stans</i> (yellow bells)	4	16	4	ST/O	N/A	
101	Rosaceae	<i>Rhaphiolepis indica</i> (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	
102	Mimosaceae	<i>Mimosa pudica</i> (common sensitive plant)	4	12	4	S/A	N/A	
103	Commelinaceae	<i>Callisia fragrans</i> (purple succulent)	3	9	4	H/O	N/A	
104	Scrophulariaceae	<i>Paulownia tomentosa</i> (paulownia)	3	5	4	T/AO	Seedlings: Hand pull	
105	Commelinaceae	<i>Tradescantia zibrina</i> (zebrina)	3	12	4	H/O	N/A	
106	Acanthaceae	<i>Ruellia malacosperma</i> (ruellia)	5	16	4	H/O	N/A	
107	Poaceae	<i>Pennisetum clandestinum</i> (kikuyu grass)	4	12	4	H/A	Hand Pull	
108	Liliaceae	<i>Lilium formosanum</i> (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose	
109	Asteraceae	<i>Sigesbeckia orientalis</i> (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
110	Asteraceae	<i>Bidens pilosa</i> (cobbler's pegs)	10	110	4	H/U	Hand pull or cultivation.	
111	Cactaceae	<i>Opuntia stricta</i> (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
112	Poaceae	<i>Eleusine indica</i> (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
113	Poaceae	<i>Axonopus compressus</i> (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
114	Lamiaceae	<i>Salvia coccinea</i> (red salvia)	9	46	4	H/O	remove small areas by hand or machine	
115	Asteraceae	<i>Ageratum houstonianum</i> (blue billygoat weed)	8	81	4	H/UO	N/A	
116	Myrtaceae	<i>Psidium guajava</i> and <i>P. guineense</i> (yellow guava and West Indies guava)	4	7	4	ST/AO	N/A	
117	Rosaceae	<i>Rubus bellobatus</i> (kittatiny blackberry)	5	22	4	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	
118	Myrtaceae	<i>Eugenia uniflora</i> (Brazilian cherry)	4	19	4	ST/O	N/A	
119	Oleaceae	<i>Olea europaea</i> (olive)	2	6	4?	T/A	Seedlings: Hand pull	
120	Poaceae	<i>Brachiaria decumbens</i> (signal grass)	4	14	4	H/A	Grazing	
121	Fabaceae	<i>Stylosanthes scabra</i> (shrubby stylo)	4	4	4.3?	H/A	N/A	

Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
122	Commelinaceae	<i>Commelina benghalensis</i> (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
123	Poaceae	<i>Pennisetum purpureum</i> (elephant grass)	2	9	4	H/O	Grazing or mechanical removal	
124	Zingiberaceae	<i>Hedychium coronarium</i> (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose	
125	Phytolaccaceae	<i>Phytolacca octandra</i> (inkweed)	10	50	3	H/O	Hand pull or crown	
126	Asclepiadaceae	<i>Asclepias curassavica</i> (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
127	Solanaceae	<i>Lycium ferocissimum</i> (African boxthorn)	1?	5	4.4?	S/O	N/A	
128	Mimosaceae	<i>Prosopis pallida</i> (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
129	Juncaceae	<i>Juncus articulatus</i> (jointed rush)	1	2	4	Ha/FO	Hand pull.	
130	Cactaceae	<i>Opuntia aurantiaca</i> (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
131	Poaceae	<i>Arundo donax</i> (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
132	Cactaceae	<i>Opuntia imbricata</i> (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
133	Bignoniaceae	<i>Pyrostegia venusta</i> (flame vine)	1	1	4	V/O	N/A	
134	Poaceae	<i>Cortaderia selloana</i> (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	
135	Solanaceae	<i>Solanum hispidum</i> (giant devil's fig)	5	23	4	S/O	Hand pull	
136	Agavaceae	<i>Furcraea foetida</i> (Cuban hemp)	3	4	4.3?	S/OA	Dig out by hand or machine	
137	Agavaceae	<i>Furcraea sellosa</i> (hemp)	1	2	4?	S/OA	Dig out by hand or machine	
138	Agavaceae	<i>Agave americana</i> (century plant)	4	9	4	S/OA	Dig out by hand or machine	
139	Rutaceae	<i>Murraya paniculata</i> cv. <i>Exotica</i> (murraya)	6	26	4	S/O	Seedlings: Hand pull	
140	Rosaceae	<i>Rubus discolor</i> (R. fruticosus complex, a blackberry)	4	10	4	S/OA	slashing hinders growth, giving some control if plants are slashed before they seed	
141	Brassicaceae	<i>Cakile edentula</i> (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
142	Balsaminaceae	<i>Impatiens walleriana</i> (balsam)	2	6	4	H/O	N/A	
143	Agavaceae	<i>Agave sisalana</i> (sisal)	2	4	4	S/OA	Dig out by hand or machine	
144	Agavaceae	<i>Agave vivipara</i> var. <i>vivipara</i> (sisal)	2	3	4	S/OA	Dig out by hand or machine	
145	Rosaceae	<i>Prunus munsoniana</i> (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull	
146	Poaceae	<i>Echinochloa crus-galli</i> (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	



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 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERSTANDING OF SERVICES AND/OR BUILDING APPROVALS OF ALL SERVICES.

REFERENCES:  
 Queensland Herbarium Invasive Naturalised Plants in South East Queensland

AMENDMENTS:

Issue	Date	Description	Checked
A	15/04/2019	Client Draft	AD

PROJECT:  
 423 - 520 Greenbank Road,  
 Greenbank (1/SP297192)

environmental management

PLAN OF:  
 Weed Treatment & Removal

DATE:	15/04/2019	CHECKED:	AD
CLIENT REF:	7598	DRAWN:	MC
DRAWING No.:	7598 E A08 VDEC RMP A		



# VOLUNTARY DECLARATION REHABILITATION PLAN - WEED TREATMENT & REMOVAL (3)

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND									
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
147	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4?	H/O	Hand pull and hang to dry.		Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site		
149	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.		
150	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.		
151	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A		
152	Euphorbiaceae	Jatropha gossypifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull		
153	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	69	4	S/U	Hand pull or dig out.		
154	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.		
155	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.		
156	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull		
157	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull small infestations. Can be controlled by planting competitive native species.		
158	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.		
159	Simaroubaceae	Ailanthus altissima (tree of heaven)	1?	3	4	T/O	Seedlings: Hand pull		
160	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations		
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.		

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
162	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A	
163	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
164	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
165	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
166	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
167	Cactaceae	Harrisia martinii (harrisia cactus)	2?	4	4	S/O	The use of the biological mealy-bug agent is recommended	
168	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
169	Fabaceae	Erythrina cristagalli (cockspur coral tree)	2?	4	4	T/O	N/A	
170	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1?	1	3.6?	T/O	Seedlings: Hand pull	
171	Zingiberaceae	Hedychium gardenianum (ginger lily)	1?	3	4	H/O	Small Plants: Hand pull and dispose	
172	Acanthaceae	Hypoestes phyllostachya (polka-dot plant)	3	5	4	H/O	Hand pull or crown and dispose	
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	
174	Asteraceae	Conyza sumatrensis (tall fleabane)	9	45	3	H/U	Hand or mechanical removal of small infestations	
175	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
176	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
177	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
178	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	55	3	H/U	Hand or mechanical removal of small infestations	
180	Euphorbiaceae	Euphorbia cyathophora (painted spurge)	8	20	3	H/O	Hand pull	
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
183	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
184	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull	
185	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
186	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
188	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infestations. Slashing can be used but should be followed up by herbicide application.	
189	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
190	Bignoniaceae	Spathodea campanulata (African tulip tree)	1?	1	3	T/O	N/A	
191	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A	
192	Iridaceae	Watsonia meriana var. bulbifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
193	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull	
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2?	7	3	H/O	Hand pull or dig up	
196	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
197	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
198	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
199	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4?	T/A	Mechanical or chain removal.	
200	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	

**Explanatory notes.**

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).  
 Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.  
 Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.  
 Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.  
 Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

**Abbreviations: Control Methods**

CS&P = cut scrape and paint  
 S&P = scrape and paint  
 C&P = cut and paint  
 F/I = frill or inject stem

**Abbreviations: Herbicides**

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo  
 MM = Metsulfuron methyl, eg. Brushoff  
 F = Fluroxypyr, eg. Starane

**Abbreviations: Herbicide Dilution Rates for High Concentration Applications**

GU = Glyphosate undiluted  
 G1 = 1 part water to 1 part glyphosate  
 G1.5 = 1.5 parts water to 1 part glyphosate  
 G4 = 4 parts water to 1 part glyphosate

**Abbreviations: Herbicide Spray Concentrations**

G100 = 100mL glyphosate per 10L of water + surfactant, eg 20mL LI 700 per 10L  
 G200 = 200mL glyphosate per 10L of water + surfactant, eg 50mL LI 700 per 10L  
 G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water  
 G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water  
 MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water  
 F100 = 100mL fluroxypyr per 10L water  
 F150 = 150mL fluroxypyr per 10L water

**Other Abbreviations**

# = Locally non-indigenous native species

- Ref 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'
- Ref 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants.'
- Ref 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.
- Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
- Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
- Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)
- Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.



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**REFERENCES:**

Queensland Herbarium Invasive Naturalised Plants in South East Queensland			
Issue	Date	Description	Checked
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**environmental management**

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# Appendix E

## Offset Area Management Report – Year 2



# Aroona Station Offset Area Management Report –Year 2

EPBC 2016/7817

V2 | February 2023

## Document Control

### Current document

Title	Aroona Station Offset Area Management Report Baseline Year 2 EPBC 2016/7817
Date	February 2023
Prepared by	Georgina Braun

### Document Issue

<i>Issue</i>	<i>Date</i>	<i>Prepared by</i>	<i>Checked by</i>
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Draft v1	18/01/2023	GB	Lisa van den Berg - General Manager, Operations Mark Clancy - Mirvac Pty Ltd
Final v2	06/02/2023	GB	Lisa van den Berg – General Manager, Operations

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## Reports and/or Plans by Others

Reports and/or plans by others may be included within this Offset Area Management Report to support the document.



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# CHAPTER 1: INTRODUCTION

The purpose of this document is to report on the management actions and outcomes required for the provision of koala (*Phascolarctos cinereus*) and grey-headed flying fox (GHFF) (*Pteropus poliocephalus*) habitat offset, by Approval EPBC 2016/7817 issued pursuant to sections 130 and 133 of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC 1999). The focus of the plan is on the protection and enhancement of the koala and GHFF habitat associated with the secured offset for the Mirvac Queensland Pty. Ltd. EPBC 2016/7817. This document will report in accordance with stipulations and requirements laid out in the Offset Area Management Plan.

The structure of the document reflects the requirements of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (previously DAWE) and details the key threatening processes which could impact on the existing koala population and GHFF forage habitat. The chapters that comprise the document report on the overall health of the koala population, GHFF forage habitat, vegetation composition, and actions to minimise threats to koalas and the GHFF. The management regime put in place by the Queensland Trust for Nature (QTFN) will enhance existing koala and GHFF habitat through the exclusion of land practices detrimental to the site and will track improvements and progress in the annual offset report over the active management period.

This report is the second submitted to date since the approval date for the offset (EPBC 2016/7817) on the 11<sup>th</sup> October 2019 and commencement of the action on the 18<sup>th</sup> November 2020. The past and future reporting requirements are listed below.

Milestone	Due Date	Status
Approval of EPBC 2016/7817	11 <sup>th</sup> October 2019	Completed
Legal Security	4 December 2020	Completed
Year 1 Annual Report + Baseline	4 December 2021 + 3 months	Submitted January 2022
Year 2 Annual Report	18 November 2022 + 3 months	Submitted February 2023
Year 3 Annual Report		
Year 4 Annual Report		
Year 5 – Intensive Review		
Year 6 -9 Annual Report		
Year 10 – Intensive Review		
Year 11 -14 Annual Report		
Year 15 – Intensive Review		
Year 16 -19 Annual Report		
Year 20 – Intensive Review		

## 1.1 SUMMARY OF COMPLIANCE

This document stands as a compliance report for the agreed upon management conditions (Table 1) outlined in the EPBC2016/7817 Offset Area Management Plan.

It is acknowledged that any non-compliance with the conditions must be reported by no later than 2 business days after becoming aware.

*Table 1. Compliance summary and checklist for all conditions relevant to this reporting interval under the OMP.*

Key Actions and Monitoring Requirements	Reporting Requirements	Compliance
<b>Management Action 1 – selective chemical/mechanical management</b>		
<ul style="list-style-type: none"> <li>Develop and implement a weed strategy, with a particular focus on weeds with particularly ability to impact on koala movement and structural vegetation composition (mainly <i>Lantana camara</i> and <i>Schinus terebinthifolius</i>), and under the Biosecurity Act 2014, to reduce weed cover to target thresholds.</li> <li>Undertake weed management according to principles outlined in section 7.1</li> </ul>	<p><i>Lantana camara</i> and <i>Schinus terebinthifolius</i> cover is reduced across the offset area, and weeds are not impacting on the movement of koalas across the site and not negatively impacting on recruitment of koala and GHFF food and shelter trees.</p> <p>Year 5, 10, 15 and 20 assessment unit Non-native Plant Cover KPIs achieved</p>	Yes Ongoing
<b>Management Action 2- ecological burns</b>		
<ul style="list-style-type: none"> <li>Develop and implement a Fire Management Strategy with particular focus on Regional Ecosystem burning intervals and property fire history.</li> <li>Undertake ecological burns in accordance with principles outlined in this section.</li> </ul>	<p>Year 5, 10, 15 and 20 assessment unit MHQA KPIs achieved for:</p> <ul style="list-style-type: none"> <li>Koala Site Condition</li> <li>GHFF Site Condition</li> <li>GHFF Species Stocking Rate</li> </ul>	Yes Ongoing
<b>Management Action 3 – wildfire hazard reduction</b>		
<ul style="list-style-type: none"> <li>Hazard reduction action will take place to reduce fuel loads based on Overall Fuel Hazard Assessment.</li> <li>Install firebreaks and fire trails (access tracks).</li> <li>Prescribed burning will be undertaken in consultation with, and under the guidance of the Queensland Rural Fire Brigade and in compliance with the Fire and Emergency Services Act 1990.</li> <li>Inspect firebreaks and access tracks, undertake any maintenance required to achieve compliance with Fire Management Plan.</li> </ul>	<p>No recorded high-intensity fires in the offset area.</p> <p>No recorded injury or death from fire.</p> <p>Implementation of Fire Management Plan reduces fuel levels.</p> <p>Vegetation composition not negatively affected by fire regime.</p> <p>Minimise the risk of koala and GHFF mortality within the offset area due to prescribed burning.</p> <p>Year 5, 10, 15 and 20 assessment unit MHQA KPIs achieved</p>	Yes Ongoing
<b>Management Action 4 – direct seeding where natural regeneration is lacking</b>		
<ul style="list-style-type: none"> <li>Conduct direct seeding of native species in areas where natural regeneration not occurring.</li> <li>Species mix to be representative of Preclear Regional Ecosystem</li> </ul>	<p>Year 5, 10, 15 and 20 assessment unit MHQA KPIs achieved for:</p> <ul style="list-style-type: none"> <li>Koala Site Condition</li> <li>GHFF Site Condition</li> <li>GHFF Species Stocking Rate</li> </ul> <p>Livestock are excluded from offset area other than for the purposes of hazard reduction actions.</p> <p>Large offset areas are legally secured.</p>	Yes Ongoing

**Management Action 5: Legal protection from incompatible land uses**

<ul style="list-style-type: none"> <li>Legally secure the offset area by way of voluntary declaration under the Vegetation Management Act 1999 prior to commencement of stage 2 of the action.</li> <li>The voluntary declaration will be in place for the duration of the impact, or until such time as another enduring protection mechanism (such as a Nature Refuge under the Nature Conservation Act 1992) has been formally registered on title and evidence of this has been provided to the Department.</li> </ul>	<p>Large offset areas for koala and GHFF habitat protected for the duration of the impact.</p>	<p>Yes 4/12/20</p>
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**Management action 6: Monitoring and control of introduced predators**

<ul style="list-style-type: none"> <li>Conduct a baseline survey to establish introduced predator abundance and location on the property. This can be undertaken through the use of remote motion-activated cameras and/or identification of scats.</li> <li>Establish a Relative Abundance Index and confidence intervals around associated population trends.</li> <li>Implement introduced predator control program. The control program and techniques (trapping, baiting, shooting) will be informed based on the results of the abundance surveys. Where practical, and to increase the effectiveness of a control program, the landholder will seek to coordinate control programs with comparable activities being undertaken by neighbouring landholders.</li> <li>Set-up a community engagement program including but not limited to interpretive signs, fact sheets and community presentations with the aim to raise community awareness and encourage responsible pet ownership.</li> <li>Directly input into the Little Liverpool Range Strategy for controlling introduced predators across the Range.</li> </ul>	<p>Relative abundance index does not increase from baseline for feral animal abundance</p> <p>Annual report to include all feral animal survey data.</p> <p>No recorded injury or death from introduced predator attacks within the offset area.</p>	<p>Yes Ongoing</p>
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**Management action 7: Revegetation**

<ul style="list-style-type: none"> <li>Implement a revegetation program in cleared areas using best practice techniques with tree and shrub species representative of the pre-clearance Regional Ecosystem including koala and GHFF food and shelter trees (see Appendix G for proposed species list). Revegetation details outlined in section 7.7.</li> <li>Exclude livestock from areas undergoing revegetation activities</li> <li>Legally secure the offset area</li> </ul>	<p>80% survival of seedlings.</p> <p>Year 5, 10, 15 and 20 assessment unit MHQA KPIs achieved for:</p> <ul style="list-style-type: none"> <li>Koala Site Condition</li> <li>GHFF Site Condition</li> <li>GHFF Species Stocking Rate</li> </ul> <p>Livestock are excluded from offset area other than for the purposes of hazard reduction actions (hazard reduction using livestock only to occur when OMU3 areas reach a height able to withstand the introduction of cattle).</p> <p>Large offset areas are legally secured</p>	<p>Yes Ongoing</p>
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<b>Management action 8: Koala Species Stocking Rate survey</b>		
<ul style="list-style-type: none"> <li>• Undertake koala density/occurrence surveys using SAT methodology (Phillips and Callaghan 2011) within the offset area</li> <li>• Repeated surveys to be undertaken at 5-year intervals.</li> <li>• Koala SAT surveys to be undertaken by a suitably qualified ecologist with extensive experience with koala surveys.</li> </ul>	<p>Year 5, 10, 15 and 20 assessment unit MHQA KPIs achieved for Koala Species Stocking Rate</p>	<p>Yes Ongoing</p>

<b>Management action 9: Cattle Grazing Management</b>		
<ul style="list-style-type: none"> <li>• Cattle grazing to be used only as a wildfire hazard fuel reduction tool in accordance with Management Action 3 – Wildfire hazard reduction.</li> <li>• Ensure that all livestock are excluded from planting/revegetation area (e.g. by fencing) for a minimum of 5 years, or until a suitably qualified independent expert has determined that planted koala and grey-headed flying-fox feed trees are of sufficient size to withstand impact from cattle. <ul style="list-style-type: none"> <li>▪ Provide the Department with a report from the suitably qualified independent expert verifying that planted koala and grey-headed flying-fox feed trees are of sufficient size to withstand impact from cattle.</li> </ul> </li> <li>• Ensure that any grazing is managed so as to prevent the risk of injury or mortality of Koalas.</li> </ul>	<p>No material adverse impacts to target habitat quality improvement outcomes.</p> <p>Vegetation composition not negatively affected by cattle grazing</p> <p>Year 5, 10, 15 and 20 MHQA KPIs achieved for:</p> <ul style="list-style-type: none"> <li>• Koala Site Condition</li> <li>• o GHFF Site Condition</li> </ul>	<p>Yes Ongoing</p>

## 1.2 SETTING AND LOCALITY

By way of Deed, Mirvac Queensland Pty. Ltd. secured delivery of an Offset Area Management Plan and registration of a Voluntary Declaration (under the Vegetation Management Act 1999 (QLD) (VMA) of an offset area imposed by EPBC Approval 2016/7817 as part of the offset for the Greenbank development.

The voluntary declaration was secured on the 4th of December 2020 and reporting for EPBC 2016/7817 will include information from 2021 onwards.

### 1.2.1 Aroona Station Locality

The offset area pertaining to EPBC 2016/7817 is managed as part of a larger conservation property located on Alpers Road, Mount Mort, Queensland comprised of multiple lots; Part of lot 54 on CC1018, Part lots 44 and 45 on CC32, Part of Lot 6 on RP21558, Part of lot 13 on RP21558, Part of lot 31 on CH312311, Part lot 216/CH311631, Part of 218 on CH311734, Part lot 222/CH311798, Part lot 30/CH312310, and Part lot 64/CC552, totalling approximately 686.44 ha (Map 1). The whole site, henceforth referred to as 'Aroona Station', was gifted to QTFN in 2015 with the wish to see the property managed for both its production and conservation value, under a variety of income initiatives.

The tenure of the site is freehold, wholly owned by QTFN. It is included within the Ipswich City Council and Lockyer Valley Regional Council Local Government Areas. On a regional scale, the site is part of the Little Liverpool Range, providing connectivity to Main Range National Park and the Great Eastern Ranges.

The Range stretches for 90km from Laidley, through Mount Mort to Thornton and Mulgowie, and encompasses 20,400ha of land. It is an important wildlife corridor, providing habitat for several vulnerable species including the glossy black-cockatoo (*Calyptorhynchus lathami*), powerful owl (*Ninox strenua*), grey-headed flying-fox (*Pteropus poliocephalus*) spotted-tailed quoll (*Dasyurus maculatus maculatus*), brush-tailed rock-wallaby (*Petrogale penicillata*) and koala (*Phascolarctos cinereus*).

Climate data for the area gives a mean maximum and minimum temperature of 26.9°C and 13.1°C respectively for 2022. The annual rainfall is 1509mm up to November 2022 (BoM 2022), with the wettest month in February and the driest month in August. The site contains six Regional Ecosystems (REs):

- 12.3.3 Endangered: *Eucalyptus tereticornis* woodland on Quaternary alluvium
- 12.3.7 Least Concern: *Eucalyptus tereticornis*, *Casuarina cunninghamiana* subsp. *cunninghamiana* +/- *Melaleuca* spp. fringing woodland
- 12.8.9 Least Concern: *Lophostemon confertus* open forest on Cainozoic igneous rocks
- 12.8.16 Least Concern: *Eucalyptus crebra* +/- *E. melliodora*, *E. tereticornis* woodland on Cainozoic igneous rocks
- 12.8.17 Least Concern: *Eucalyptus melanophloia* +/- *E. crebra*, *E. tereticornis*, *Corymbia tessellaris* woodland on Cainozoic igneous rocks
- 12.9-10.17a Least concern: *Lophostemon confertus* or *L. suaveolens* dominated open forest usually with emergent *Eucalyptus* and/or *Corymbia* species on sedimentary rocks
- 12.9-10.7 Of concern: *Eucalyptus crebra* +/- *E. tereticornis*, *Corymbia tessellaris*, *Angophora* spp, *E. melanophloia* woodland on sedimentary rocks

The highest point of the site is 670m above sea level on the northern block, close to the border of lot 45 on CC32, and is one of the two peaks of Mount Beau Brummel. The Geological Survey of Queensland 1:100,000 Ipswich Geological Map (DME 2008) lists the geology as:

- Qa SEQ: Quaternary; clay, silt, sand, gravel, flood plain alluvium
- Tit SEQ: Tertiary: trachyte (anorthoclase and riebeckite trachyte)
- Jbmk: Jurassic; lithofeldspathic labile and sublabile to quartzose sandstone, siltstone, shale, minor coal, ferruginous oolite marker
- Jbmg: Jurassic; lithic labile and feldspathic labile sandstone

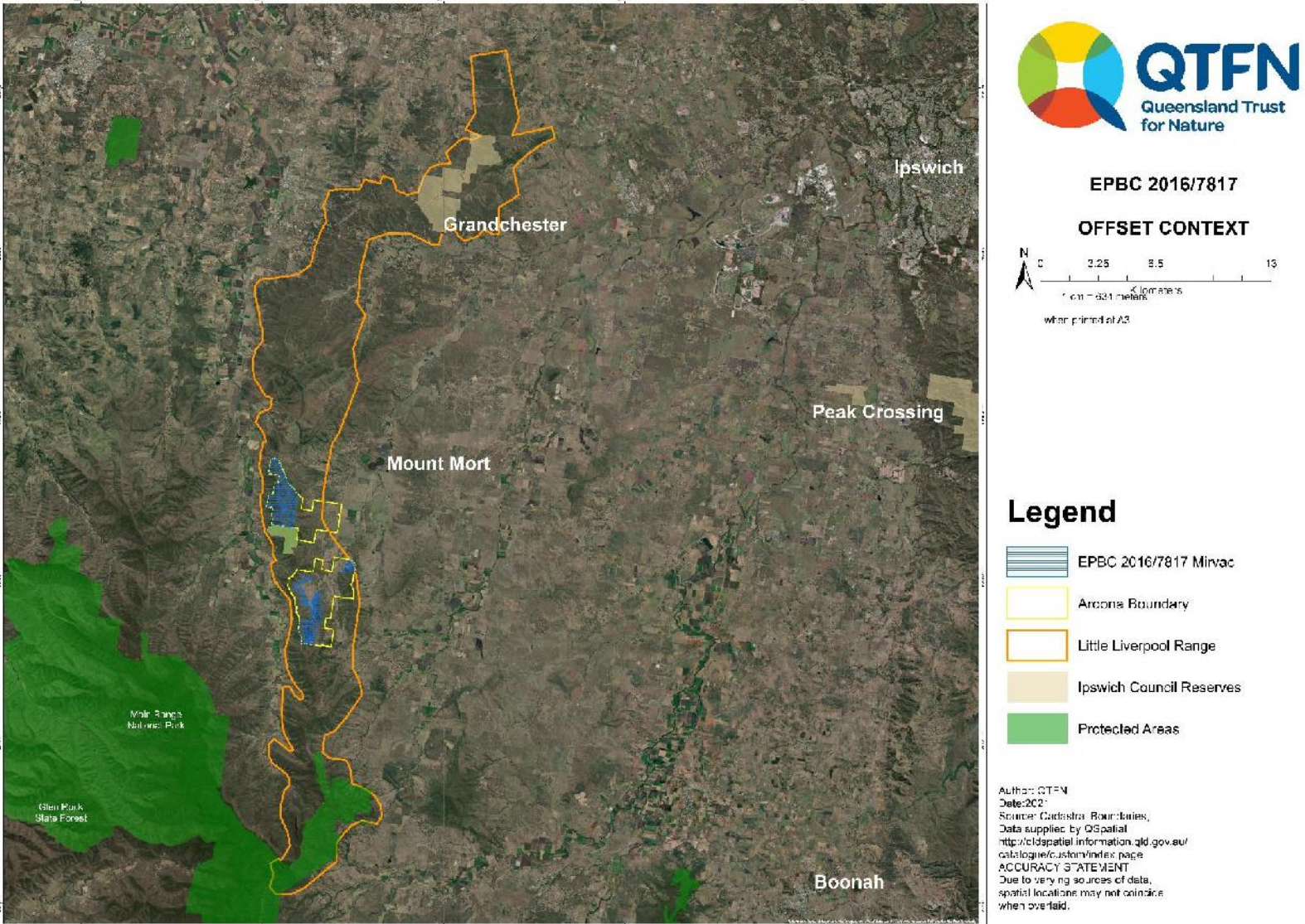
### **1.3 EPBC 2016/7817 OFFSET AREA ATTRIBUTES**

The EPBC 2016/7817 offset area contains multiple parcels within the Aroona Station property, on the northern and southern land parcels (Map 1). The vegetation composition and land use history vary across the property.

The offset area contains remnant vegetation typical of eucalypt Forest and dry sclerophyll (RE12.8.9). Surrounding vegetation is consistent with varying ages of mature eucalypt regrowth forest (RE12.8.16/RE12.9-10.7), previously cleared for cattle grazing purposes. The lowland offset areas are typical of alluvial blue gum and melaleuca flats (RE12.3.3/12.3.7). Vegetation remains along creek lines providing important dispersal pathways. However, the flats have been historically cleared for cattle grazing and will benefit from revegetation activities.



Map 1. Offset area in the context of Aroona Station and the Little Liverpool Range.



# CHAPTER 2: OFFSET MANAGEMENT REPORT

This chapter summarises the annual survey data and methodology in line with the Offset Area Management Plan and the final Approval Conditions set by the relevant parties. Management actions and reporting relevant to each condition will be discussed in each section.

## 2.1 HABITAT CREATION AND QUALITY IMPROVEMENT

### Management Action 4 and 7

An ecological assessment was conducted at Aroona Station in 2016 by AusEcology. The surveys were carried out using the methodology outlined in Offset Management Plan, where BioCondition plots were established and data relating to the habitat quality of the land-based offset was collected, in line with the modified version of the Queensland State Governments *“Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy”* Version 1.2 April 2017 (the Guideline). These plots, herein referred to as ‘Habitat Quality Transects’, allowed for the assessment of the offset area and were designed to determine the condition of the vegetation and its suitability as an offset for the koala and the grey-headed flying-fox.

The site was broken up into eleven assessment units based on regional ecosystem (RE) and vegetation status (remnant, regrowth and cleared). Fourteen Habitat Quality Transects were established across these assessment units. The transects were distributed in such a way as to provide a representative sample of the RE, and gradient condition states of each AU present on the property.

For the purposes of managing the offset, the land was categorised into three management units, remnant (OMU- 1), regrowth (OMU-2) and cleared (OMU-3) Broadly, condition and management actions required are similar for all REs in remnant status, all REs in regrowth status and all cleared areas. As a result, it was decided to assess habitat quality and potential improvements based on OMUs. Operational management units are made up of assessment units relating to the regional ecosystems and vegetation classes within the offset area Table 2. OMU’s are used to demonstrate management actions and impacts across vegetation groups.

### 2.1.1 Management Actions

#### OMU 1 AND OMU 2 – Habitat Quality Improvement

All actions outlined in this document contribute to the management of OMU1 and OMU2 to improve habitat quality.

Rehabilitation actions are conducted in line with the Aroona Station Weed Management Strategy and the Aroona Station Fire Management Plan, detailed in sections 2.5, and 2.8, respectively.

Monitoring transects were established, located in Map 5.

#### OMU3 – Habitat Creation

Revegetation actions are underway to create habitat for the koala and grey-headed flying fox (Figure 1). Revegetation actions within the offset area are complete and are now undergoing maintenance phase. This includes all tree planting and direct seeding events, totalling 29ha and 23.5ha, respectively. Photo monitoring points are established and are presented in Appendix 1. Throughout the time available to source seed, Aroona did not support a seed bank sufficient enough for the complete species diversity and abundance of koala habitat and GHFF forage habitat required to ensure the ‘MHQA species richness’ attribute for koala and GHFF is met and cover the restoration area.

Seed from koala habitat tree species was sourced from within the offset area where possible and utilised in a proportion of the revegetation actions. The residual native seeds and saplings were sourced from local suppliers, ensuring local provenance with as close proximity as possible to increase the likelihood of survival and preference by koala and GHFF.

An above average rainfall season has been promising for the revegetation activities. Trees planted in 2021 at roughly 30cm heights are now ranging between 70cm and 1.5m growth. Survival counts are also showing above 80% success.



Infill planting is not required. Tree planting in March of 2022 has also shown promising growth, as saplings are showing good growth and high survival rates. Minor frost events during the year resulted in minimal loss.



*Figure 1. Revegetation activities within the offset area. Top: burn and seed; middle: one year of growth and bottom: tree planting of alluvial blue gum flats.*

## 2.2 GREY HEADED FLYING FOX FORAGE HABITAT

### MANAGEMENT ACTION 4 and 7

Proximity of grey-headed flying fox (GHFF) colonies to the offset site were determined in a desktop analysis using the National Flying-fox Monitoring viewer (DoE) and cross checked using the state mapping for flying-fox roost sites (DES 2019). Flying-fox camps within 30 km of the site are listed in Table 3.

Table 2. Grey-headed Flying-fox Camps.

Camp name	Level	Proximity to site
Boonah, Bicentennial Park	3	23.5km
Laidley, Laidley Plainlands road	2	24.5km
Gatton, Tenthill creek	2	26.3km

### 2.2.1 Management actions and species occurrence

Flowering grey-headed flying fox forage trees were GPS located and recorded throughout the reporting year Map 4. This allowed for a spatial and seasonal representation of food availability in between milestone reporting years (5 yearly).

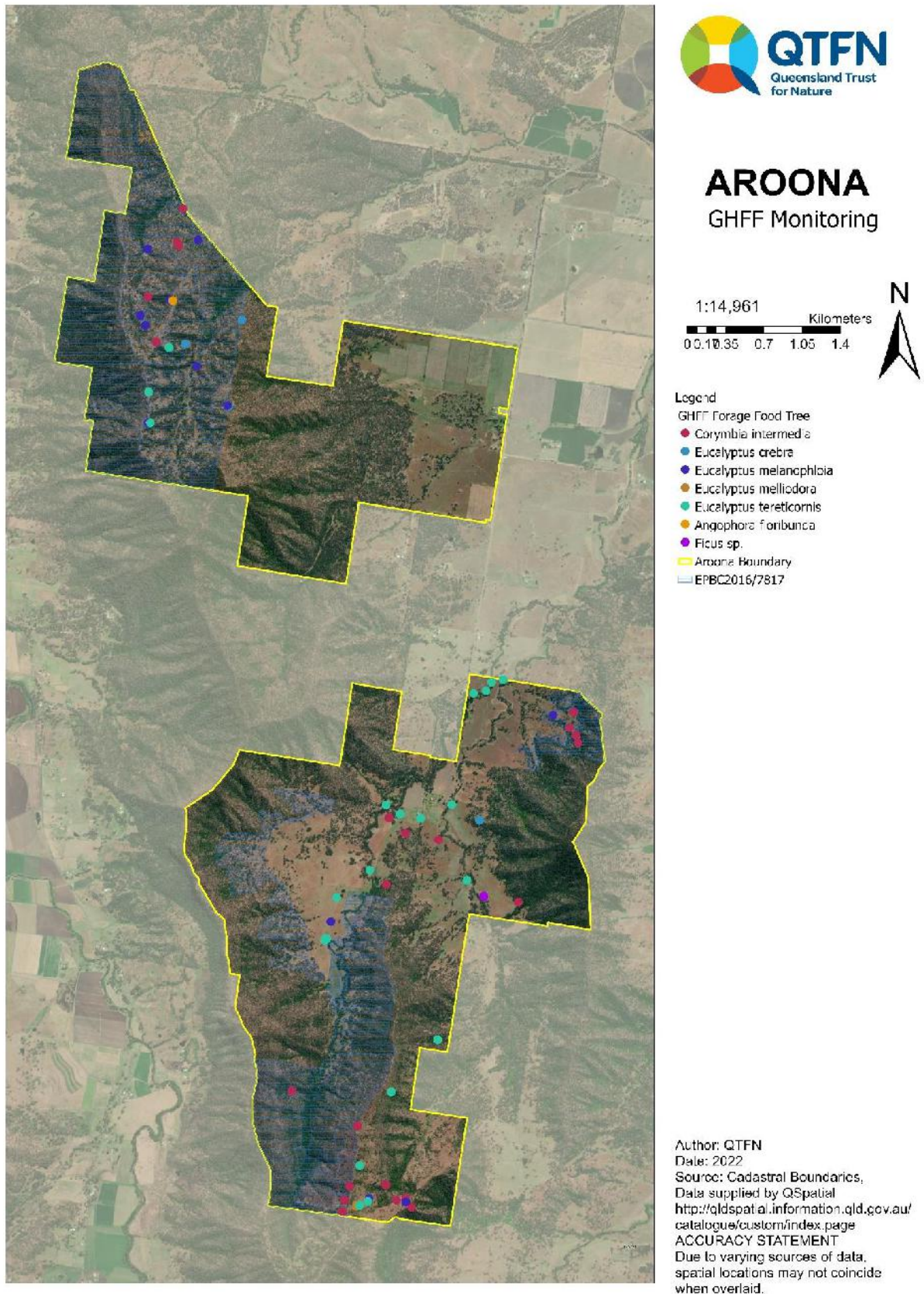
*Corymbia intermedia* and *Eucalyptus tereticornis* were the most dominant flowering forage tree. Due to an unpredictable weather season and multiple La Nina events, the flowering duration of *Eucalyptus tereticornis* was notably later and longer in 2022. This provides year round coverage as they are a summer and winter forage species respectively.

Table 3. GHFF Forage Species Calendar (blue shading = literature based flowering times, X = observed flowering in offset area).

Species	OMU 1	OMU 2	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Angophora floribunda</i>	Y	Y												
<i>Lophostemon confertus</i>	Y	Y												
<i>Melia azedarach</i>	Y	Y												
<i>Corymbia intermedia</i>	Y	-	X		X									
<i>Corymbia tessellaris</i>	Y	Y	X											
<i>Eucalyptus crebra</i>	Y	Y								X	X			
<i>Eucalyptus melanophloia</i>	Y	Y									X			
<i>Eucalyptus melliodora</i>	-	Y									X			
<i>Eucalyptus tereticornis</i>	Y	Y								X	X			
<i>Ficus coronata</i>	-	Y									X			
<i>Ficus opposita</i>	Y	Y												



Map 2. GHFF forage trees in flower across offset area.



## 2.3 SPECIES STOCKING RATE

### MANAGEMENT ACTION 8

Baseline data was collected from 2016 to 2019 across the offset site using multiple survey methodologies, summarised in Table 5. These surveys will be carried out across the offset area though the lifetime of the offset to report on the effectiveness of management actions and the increase in koala abundance and activity.

*Table 4. Koala monitoring methods.*

Methodology	Frequency	Characteristic monitored	Result
SAT surveys (Phillips and Callaghan 2011)	Annually	SAT monitoring, recording the presence of koala scats under food and habitat trees. Survey will record activity and abundance of koalas.	Demonstrated increase in koala density and abundance through an increase in scats recorded during SAT
Intensive population surveys using methodology modified from Ellis et al (2015) Method involves capturing, conducting health assessments by a wildlife vet including age, body mass, reproductive health and signs of koala disease. In addition to capturing individuals, surveying will include nocturnal spotlighting, acoustic listening for male bellowing and camera trapping.	At years 5, 10, 15 and 20	Surveys are designed to detect koala breeding within the offset area. Data collected will show evidence of breeding through back/pouch young, used pouches and male bellowing records.	Demonstrated use of the offset site for breeding purposes.

### 2.3.1 Management actions and species occurrence

Opportunistic scat surveys were conducted across the reporting period (Map 3).

Koala scat was observed through all of the offset management units, including individual large trees on cleared land. This further demonstrates the importance of these areas within the landscape and the high potential of OMU-3 cleared areas to restore connectivity.

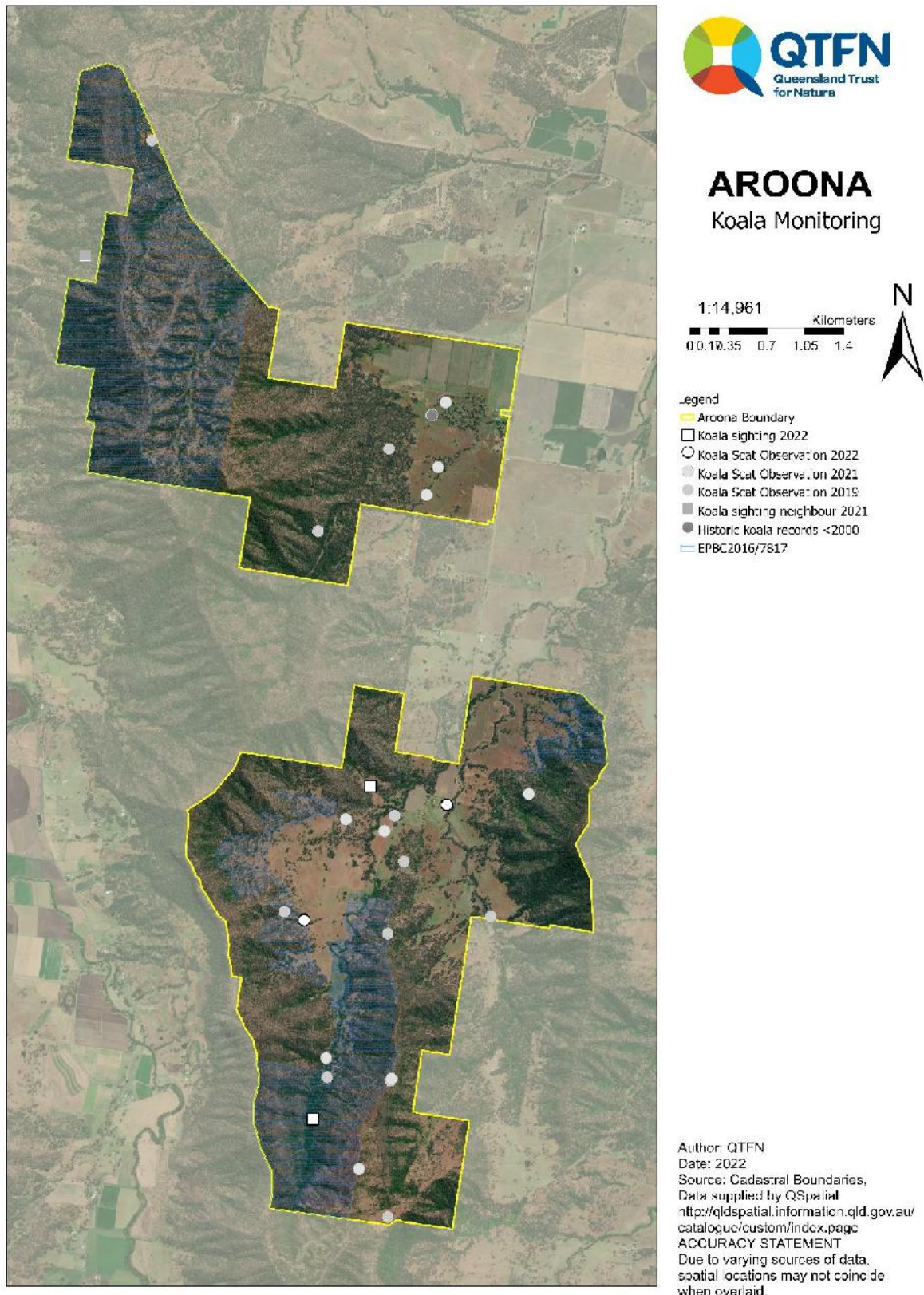
Two koalas were observed across Aroona Station, one visual observation in a paddock adjacent to the EPBC2016/7817 offset area and the second via motion sensor camera trap within the offset area (Figure 2).





*Figure 2. Koalas observed on Aroona Station, top – within revegetation zone, bottom – camera trap.*

Map 3. Koala occurrence.





## 2.4 EXTENT OF WEED COVER

### MANAGEMENT ACTION 1

At the commencement of site management, weed extent was mapped across the property. This will form the basis for the targeted areas for treatment. Monitoring will occur on an annual basis and the extent and abundance of weed cover in OMU-01, OMU-02 and OMU-03 will be measured through the improvement in non-native plant cover, measured through quadrats in Habitat Quality Transects assessments. Milestone surveys in the form of Habitat Quality Transects assessment will measure the success of the weed treatment every 5 years.

Baseline weed assessments were conducted in 2021 and will be conducted annually for the duration of the offset management plan. Permanently marked transects were surveyed according to Nelder *et al* 2015 in a 50 x 10m transect (Map 4). Photo points were recorded at each transect to ensure that the progress of the site could be monitored (Appendix 3).

Weed coverage is recorded and mapped spatially at a one-hectare scale of the property (Map 5). Due to the isolate distribution of cat's claw and Chinese elm, these species are not mapped for coverage.

#### 2.4.1 Monitoring in this period

Weed assessments continue to be conducted annually and compared to results from the baseline survey of 2021. Permanently marked transects were surveyed according to Nelder *et al* 2015 in a 50 x 10m transect. Photo points were recorded at each transect so that the progress of the site could be monitored (Appendix 2). The target weed species identified as a threatening process to koalas is *Lantana camara*. Whilst other weeds were measured for overall ecological health, the focus of the weed management is the control and eradication of *L. camara*, as it has the capacity to prevent koala movement and access to food and shelter trees.

The target weed species identified as a threatening process to koalas are lantana (*Lantana camara*), broad-leaved pepper (*Schinus terebinthifolius*), Chinese celtis (*Celtis sinensis*) and cat's claw (*Macfadyena unguis-cati*). Whilst other weeds were measured for overall ecological health, the focus of the weed management is the control and eradication of these woody weeds, as they have the capacity to prevent koala movement and access to food and shelter trees, particularly in riparian corridors.

##### 2.4.1.1 Results

###### Offset specific trends

Woody weed cover remains stable within the offset area, despite active control along creek lines. A slight increase in *Celtis sinensis* is attributed to re-emergence. Lantana remains the dominant species (100% occupancy) and occurs in varying densities within transects, whereas *Shchinus terebinthifolius* and *Celtis sinensis* remain constricted to creek lines and gullies. This is to be expected during and post extensive wet seasons. Strategic management will be actioned to ensure control is conducted where effective.

###### Property wide trends

Similarly, across the Aroona Station property woody weed cover remains stable. Due to an above average rainfall attributed to the extensive La Nina season, woody weed growth has benefited.

#### 2.4.2 Management outcomes

The Weed Strategy 2020-2025 outlines the principles and approach to weed management at a property wide scale. Results from this survey have informed the approach for the next five years. A contractor has been engaged to complete weed control in high priority areas targeting lantana, broad leaved pepper and cats' claw in the endangered blue gum alluvial flats (RE12.3.3), and into the foothills.

A wet season associated with a continued La Nina seasons has promoted weed growth and restricted weed control actions across most of the property. Weed management was conducted in areas of accessible during wet weather and where treatments methods were compatible with wet weather (hand pulling, stem injection) (Map 5).

Retreatment of isolated patch of *Lantana montevidensis* is required.

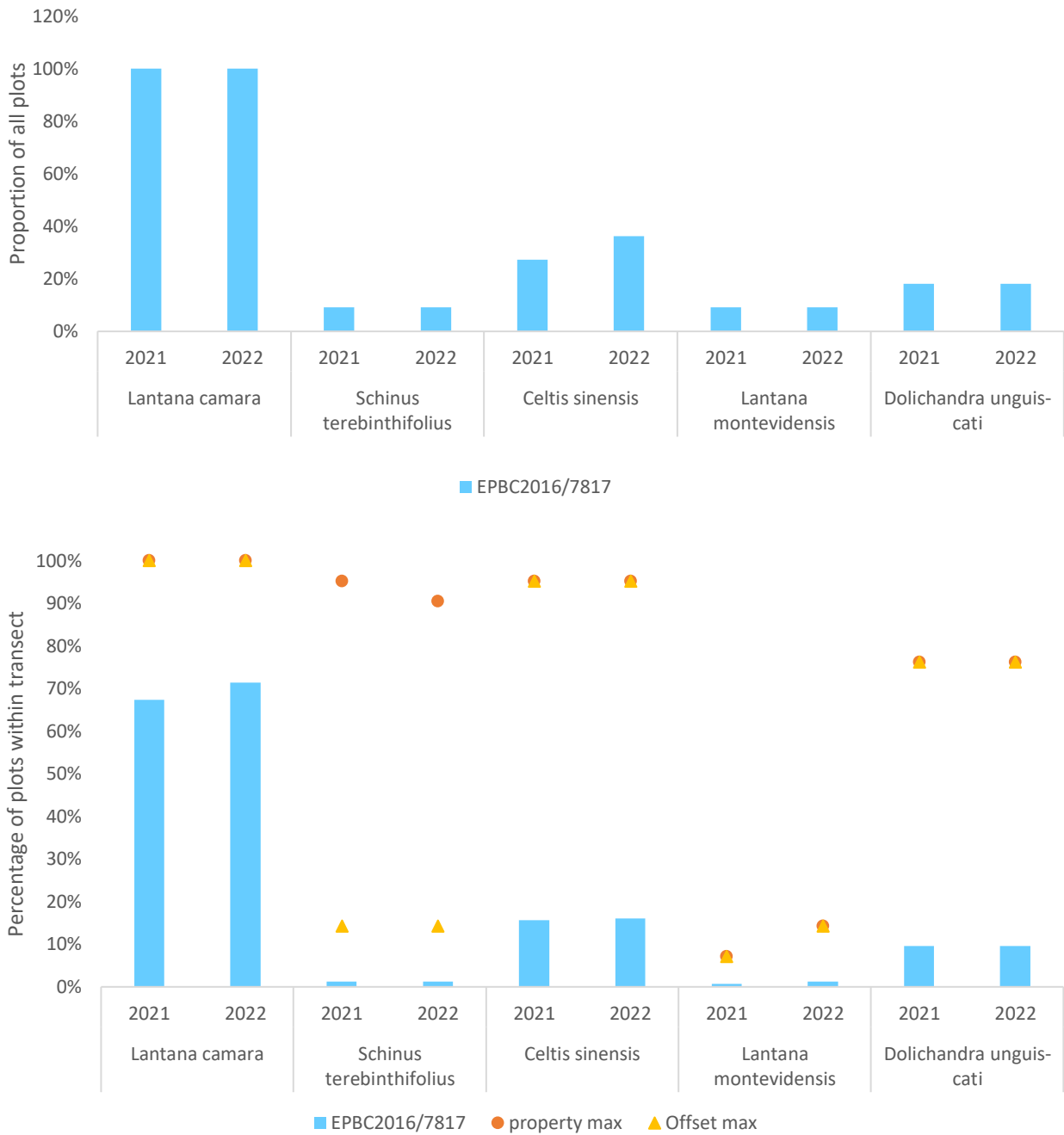


Figure 3. The percentage of the weed transects across EPBC 2016/7817 offset site with weed cover (top), and the average percent coverage of all transects across offset site (bottom) with maximum coverage across whole of property (red circle) and offset specific (orange triangle).

Map 4. Weed extent across the property, the larger the circle the higher the density within the transect sampled, x= absent.



Lantana

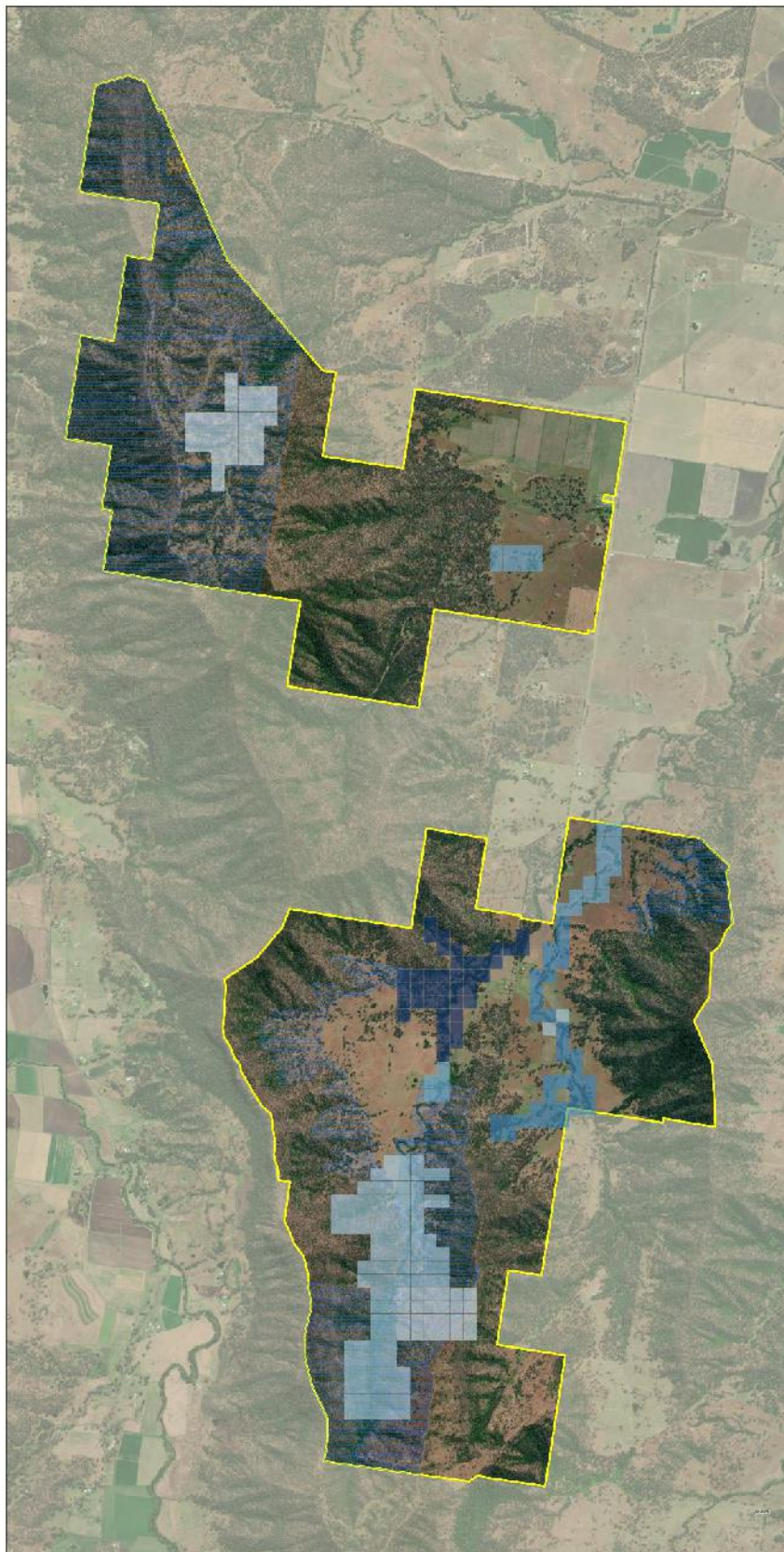
Broad-leaved pepper

Chinese Celtis

Cat's Claw



Map 5. Weed treatment



## AROONA Weed Monitoring

1:14,961  
0 0.1 0.35 0.7 1.05 1.4 Kilometers



- Legend
- Aroona Boundary
  - ACTIVE\_WeedTreatmentArea
  - Treatment to date
  - 2016
  - 2018
  - 2019
  - 2020
  - 2021
  - 2022
  - EPBC2016/7817

Author: QTFN  
Date: 2022  
Source: Cadastral Boundaries,  
Data supplied by QSpatial  
<http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>  
ACCURACY STATEMENT  
Due to varying sources of data,  
spatial locations may not coincide  
when overlaid.

## 2.5 NON-NATIVE PREDATORS AND HERBIVORES

### MANAGEMENT ACTION 6

Wild dogs/dingoes, feral foxes and feral cats are restricted invasive animals under the *Biosecurity Act 2014* (QLD), and do not require specific control measures. It states, “The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive animals under their control”. The adaptive predator control measures, rigorous monitoring and coordinated landscape approach that will be implemented at the offset site go far beyond the minimal requirement of reducing the risks associated with invasive animals.

As part of the management program, baseline monitoring will be undertaken on the property and a relative abundance index (RAI) calculated for wild dogs and foxes. Where post control surveys indicate that there has been a recurrence of wild dogs and/or foxes on the site, control measures will be actioned using methods (e.g. controlled shooting and/or trapping) as determined by a pest control professional in consideration of these monitoring results.

Predator home ranges exceed the Aroona Station property area, and the EPBC 2016/7817 offset area within. Therefore, as predator abundance and activity can be influenced by multiple factors including, seasonality, food availability and neighbouring predator control works, it is important to provide context for the surrounding landscape of the offset area.

Predator management on Aroona Station has occurred since 2018. To date, dingoes (*Canis lupus*), foxes (*Vulpes vulpes*) and cats (*Felis catus*) have all been recorded on-site in camera trapping, from visual sightings or from the collection of scats. A property wide scale assessment was conducted to ensure that detection of predator activity is maximised, to reflect the large home ranges, and best inform management actions. Pursuant to the Offset Management Plan, this will best inform the property wide predator control program. Regardless, specific attention will be paid to individuals observed on camera trap stations directly within the offset area.

*Table 5. Average foraging range for three target predators ascertained from the literature (Harden 1985; Meek 1999; Meek & Saunders 2000; Molsher et al. 2005; McNeill et al. 2016), and the camera trap stations that therefore assess the RAI of each species within.*

Species	Radius	Camera stations with territories that overlap EPBC 2016/7817
Dog ( <i>Canis lupus</i> )	2 to 3km	a/b/c/d/e/f/g/h/i/j/k/l/m/n/o/p/q
Cat ( <i>Felis catus</i> )	600m? to 1km	a/b/c/d/e/f/g/h/i/j/k/l/m/n/o/p/q
Fox ( <i>Vulpes vulpes</i> )	~900m	a/b/c/d/e/f/g/h/i/j/k/l/m/n/o/p/q

### 2.5.1 Monitoring in this period

Feral predator abundance has been monitored on Aroona Station using two methods since 2018: camera trapping and scat searches.

Given that the movement range of these feral predators extends beyond the specific offset area, RAI are presented including the data from any camera trapping station with projected territories of any feral animal that overlap with the offset area. Observations specific to cameras within the offset area are presented in maps.

The home-ranges of non-native predators; dogs, foxes and cats in both peri-urban and agricultural are presented in Table 7. Operating under this assumption, we placed a network of 16 camera trapping stations that ensured coverage of the entire property (Map 8). Cameras were deployed for a 40-day trapping interval in each season, and all photos were databased, categorised and analysed using Camelot (@WildLabs, 2018), with an independence threshold of 10min.

Camera trapping is performed biannually to account for seasonal variation in predator behaviour. To demonstrate a significant reduction in non-native predator numbers over time within the offset site, the response variables able to be used are discussed below.



**Metric 1 –RELATIVE ABUNDANCE INDEX** - a relative measure of abundance based on the frequency and duration of time each predator species is recorded on camera i.e. how many are there relative to survey time.

**Metric 2 –OCCUPANCY** – the proportion of camera trapping stations at which a predator was detected i.e. how many locations that had evidence of predators in the area.

#### 2.5.1.1 Results

Climate and weather conditions influence the occupancy of feral animals. During dry weather periods, animals display a lower occupancy score as they (and their prey) are constrained to water sources. During wet weather periods, the occupancy score is likely to increase as the animals find prey across the landscape.

Throughout the monitoring period, the relative abundance and occupancy of wild dogs showcased a peak in Summer 2021. Preliminary individual recognition shows that these are the same few individuals moving across the landscape. Occupancy in winter declined back to baseline thresholds. Camera trap footage demonstrated isolate individuals and no large packs in the winter of 2021.

The abundance and occupancy of foxes remains stable at the baseline threshold, with a small decline in Winter 2022.

Pigs (*Sus scrofa*) have also been observed in the property. Pig abundance and occupancy fluctuates with weather conditions and seasons. The year was typical of above average rainfall, attracting pigs to lowland alluvial flats, and providing ample food source. The abundance (RAI) of pigs declined in Summer 2021 and Winter 2022. There was minimal evidence of pigs in the revegetation area and no disturbance observed. Management action will continue to be taken.

No cats were observed during this monitoring period.

*Table 6. Occupancy, the number of camera traps with a 1km radius that overlaps with the EPBC2016/7817 offset area.*

	Dogs	Foxes	Cats	Pigs
00_SUM_2019	3	2	0	0
01_WIN_2020	6	1	0	0
02_SUM_2020	4	2	0	2
03_WIN_2021	3	4	1	4
04_SUM_2021	5	2	0	2
05_WIN_2022	2	1	0	2

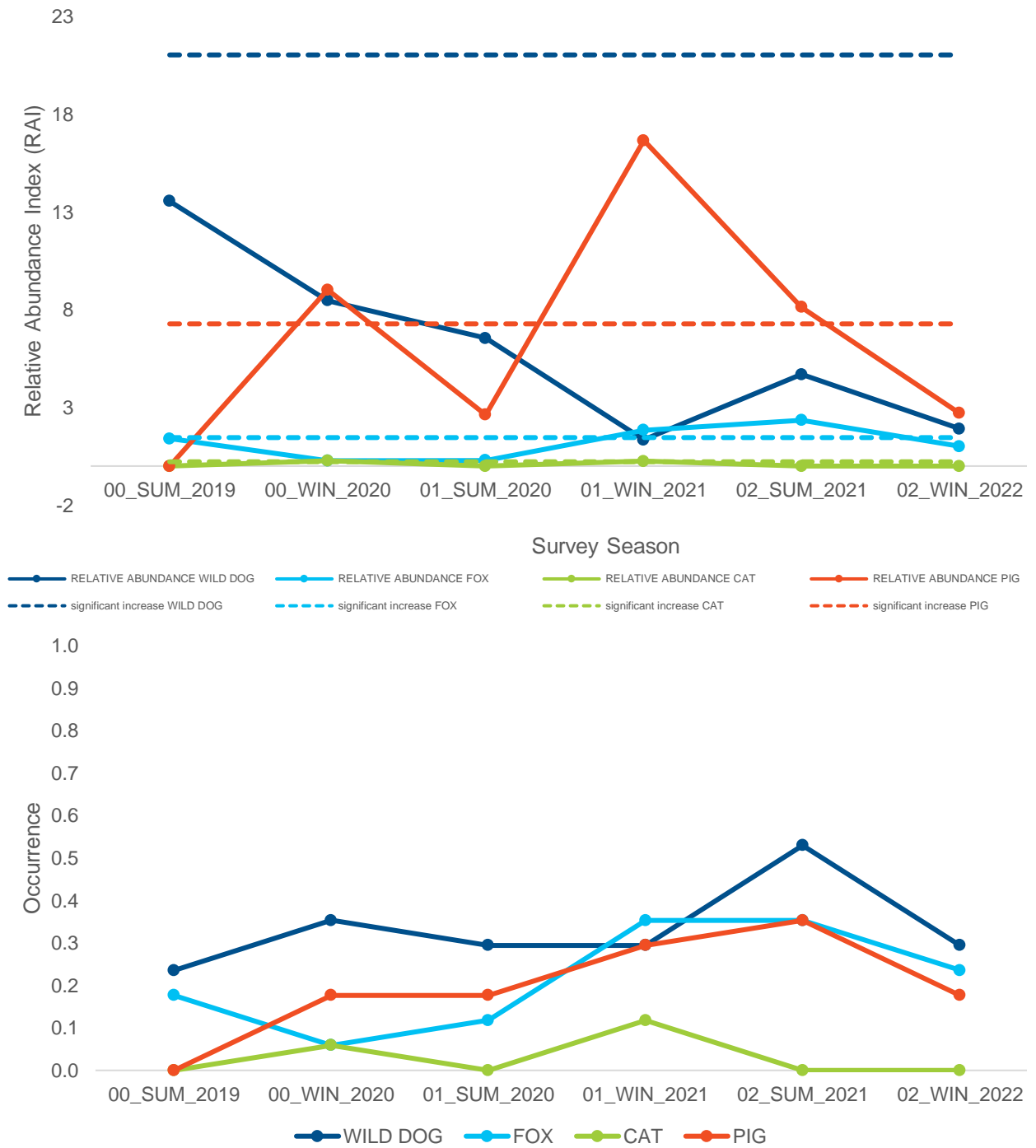


Figure 4. Relative Abundance Index (RAI) and Occupancy of predators across camera traps, and confidence limit threshold to show future deviations from the baseline.



### 2.5.2 Supplementary scat searches

Throughout the year, predator scat is collected opportunistically across the property. In addition to opportunistic scat collection, scat is collected during bi-monthly traverses of the Aroona Station property, road sides and creeks.

Scats are GPS located and collected for laboratory dietary analysis. Scat identification and dietary analysis gives an indication of species and predation trends over time, however is not considered a metric in relation to accurately monitoring predator abundance.

#### Predator scat analysis

To date, predator scat analysis shows no presence of koala in any predators diet on Aroona Station. In the past five years, macropods and wallabies have been the main fauna group present in predator scat, followed by small native mammals, birds and reptiles. Several non-native mammals were found in scat including goat and pigs since 2017.

QTFN have been actively collecting and analysing predator scat on Aroona Station since 2018 (Figure 5).

Predator scats continue to be found across the Aroona Station site and within the EPBC 2016/7817 offset area (Map 8). Although both foxes and dogs remain on the site, predatory scats collected during this reporting period suggest that neither predator is consuming koala, and the diets of most individuals is composed of macropods and vegetation (Table 8).

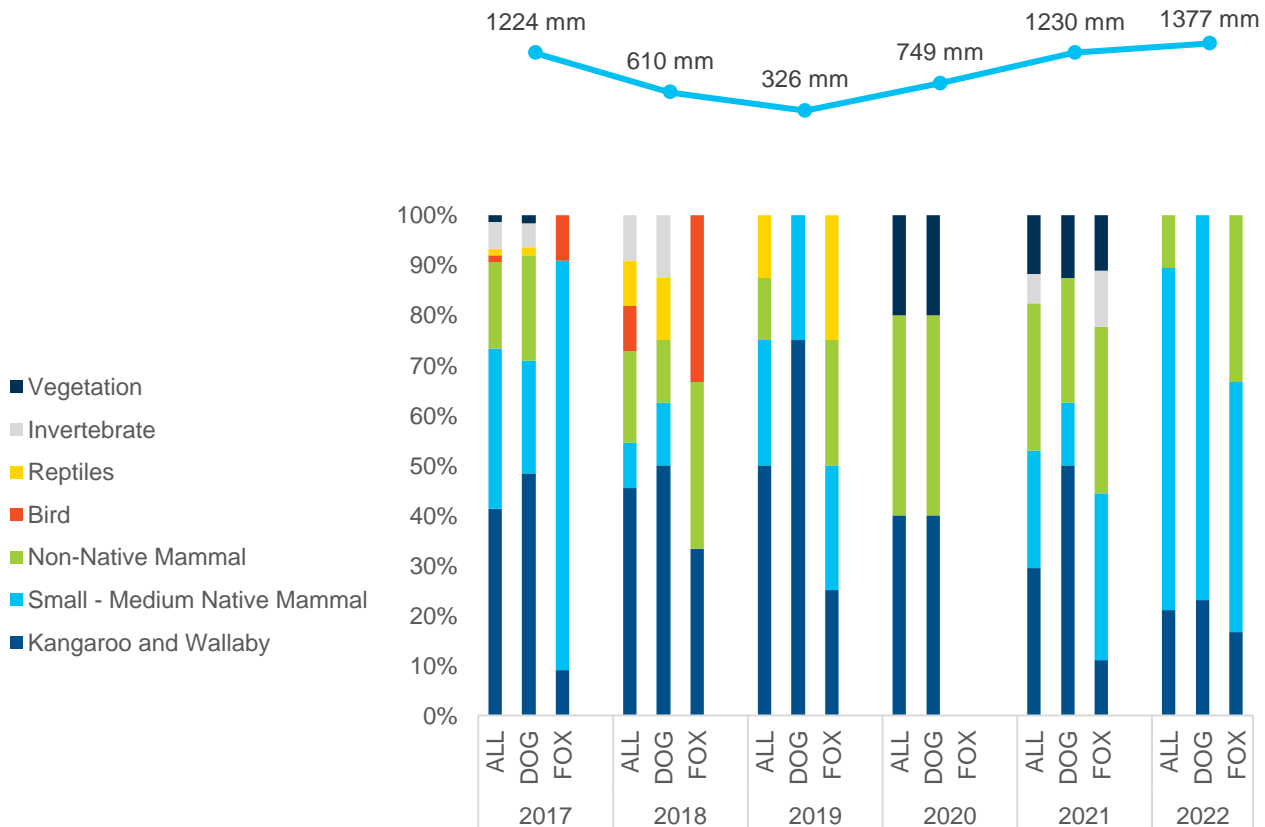


Figure 5 Long term predator diet analysis, percentage of prey type found in scat across years with annual average rainfall (points). i.e. in 2019, all reptile prey was only recorded in fox scat. No fox scats collected in 2020.

*Table 7. The types of prey item identified from fox and dog scat collected within the site from August 2021 to August 2022, sorted by the frequency of individual predators whose scat contained each prey type (e.g. Northern brown bandicoot were found in 67% of the 12 scats collected).*

Species name	Common name	Frequency
<i>Isoodon macrourus</i>	Northern brown bandicoot	0.667
<i>Rattus fuscipes</i>	Bush Rat	0.556
<i>Pseudomys gracilicaudatus</i>	Eastern chestnut mouse	0.22
<i>Macropus dorsalis</i>	Black striped wallaby	0.22
<i>Macropod sp.</i>		0.11
<i>Wallabia bicolor</i>	Swamp wallaby	0.11
<i>Rattus rattus</i>	Rat	0.11
	Goat	0.11

### 2.5.3 Management outcomes

As of Summer 2020, a contractor has been engaged to control pest fauna. Biannual monitoring using camera traps will continue, and the feral animal contractor will target the creek line within the offset area that regularly captures predators and pigs. Management will include trapping seasons and ad hoc removal when required.

One cat was removed in May 2022, by the contractor. Gut contents analysis showed *Rattus sp.*. Over twenty pigs were removed throughout this monitoring period.

The inherent nature of controlling introduced predators over an unfenced site means some years will see an increase in numbers, regardless of measures put in place to control them.

## 2.6 KOALA MORTALITIES ATTRIBUTABLE TO NON-NATIVE PREDATORS

### MANAGEMENT ACTION 6

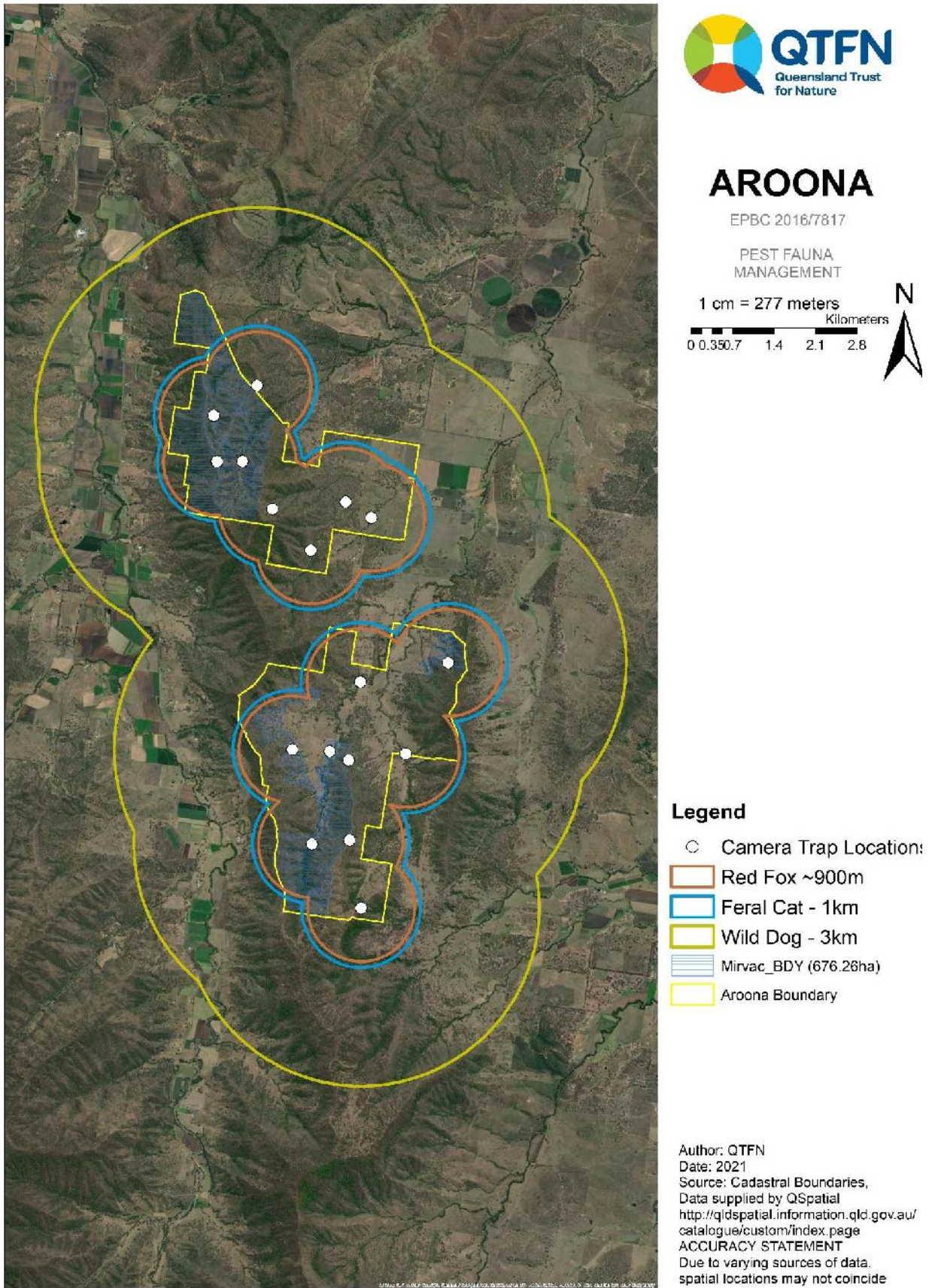
No koala mortalities caused by non-native predators was recorded in the last monitoring season.

#### 2.6.1 Management outcomes

An inventory is kept for any incidences relating to koala mortalities attributable to non-native predators.



Map 6. Non-native predators and herbivores monitoring and dispersal distances.



## 2.7 STOCK MANAGEMENT

### MANAGEMENT ACTION 9

#### 2.7.1 Cattle grazing monitoring

Cattle grazing for the purpose of fuel hazard management was conducted in line with the decision matrix provided in the Offset Management Plan.

Fuel hazard assessments demonstrated that the near surface (grasses) fuel layer contributed the greatest to the high, very high and extreme overall ratings. The biomass in this layer is a significant food source for cattle, before it cures and contributes further to fuel loads. When managed correctly, it can be reduced without impact on native recruitment.

- Frequency, duration and location of grazing, and stock density for each grazing period;

Where fuel hazard assessments scored high and very high, cattle were moved into offset areas until the fuel hazard was reduced. Only one grazing period was conducted between fuel hazard assessments. A summary is provided in Table 9.

- The timing and frequency of monitoring undertaken; and

Fuel hazard assessments were conducted bi-annually (January and August), Table 9. The year 2022 has experienced above average rainfall contributing to growth in the near surface layer, reflected in both assessments. Higher fuel hazard ratings are attributed to the near surface fuel layer.

- Details of any injury or mortality of individual koalas;

No evidence of koala injury or mortality caused by cattle grazing was recorded.

- Details of corrective actions already undertaken and/or proposed to be undertaken in the event of injury or mortality of individual koalas as a result of grazing, and/or if monitoring demonstrates the outcomes under 15-18 are not achievable.

In the event that it occurs in the future, cattle will be removed from the offset area and the cause of interaction will be investigated.

If target vegetation composition is negatively affected by cattle grazing, implement adaptive management actions which may include: additional cattle exclusion areas, additional re-vegetation / rehabilitation in areas negatively affected by cattle grazing, reduce intensity of grazing for fuel reduction purposes, and exclude cattle from the offset area.

#### 2.7.2 Management outcomes

An integration of agritech was implemented in 2022. Cibolabs satellite-based pasture monitoring aligned with Ceres Tag GPS tracking of cattle has allowed QTFN to monitor and manage our cattle grazing practices. This will assist in management of pasture fuel load reductions and best practice cattle management.

No wildlife incidents or mortality have been recorded with the newly installed fences.

Fuel hazard assessments will continue to be conducted.



Table 8. Cattle management summary.

Paddock	January FHA						August FHA					
	FHA	Cattle Hazard Reduction Triggered	Cattle Moved In	Cattle Moved Out	Head of Cattle	Days grazing	FHA	Cattle Hazard Reduction Triggered	Cattle Moved In	Cattle Moved Out	Head of Cattle	Days grazing
Basils	H		No grazing permitted in OMU3 within paddock				H		No grazing permitted in OMU3 within paddock			
Desjardin	H	Yes				0	H	Yes				
Gahrke	H	Yes					VH	Yes				
Meiers	H	Yes	No grazing permitted in OMU3 within paddock				VH	Yes	No grazing permitted in OMU3 within paddock			
Mountain	H	Yes				0	H	Yes	17/10/2022	21/11/2022	72	35
Mt Grey	H	Yes	12/02/2022	21/04/2022	289	68	H	Yes				
Sawmill	H	Yes				0	H	Yes				
Spring	H	Yes				0	H	Yes	07/08/2022	17/10/2022	64	70
Wensley	H	Yes	24/07/2022	09/09/2022	5	47	H	Yes				

## 2.8 FIRE MANAGEMENT

### MANAGEMENT ACTION 2 and 3

The threats to koalas from fire was addressed in accordance with OMP by referring to the 'Aroona Station Fire Management Plan'.

The Aroona Station Fire Management Plan divides the property into Fire Management Zones: Land Management Zones, Exclusion Zones and Asset Protection Zones. Within the Land Management Zones, the landscape is broken up into subzones or Fire Management Areas (FMAs) according to practicable containment lines. The Fire Management plan details burning intervals recommended for these FMAs.

#### 2.8.1 Management outcomes

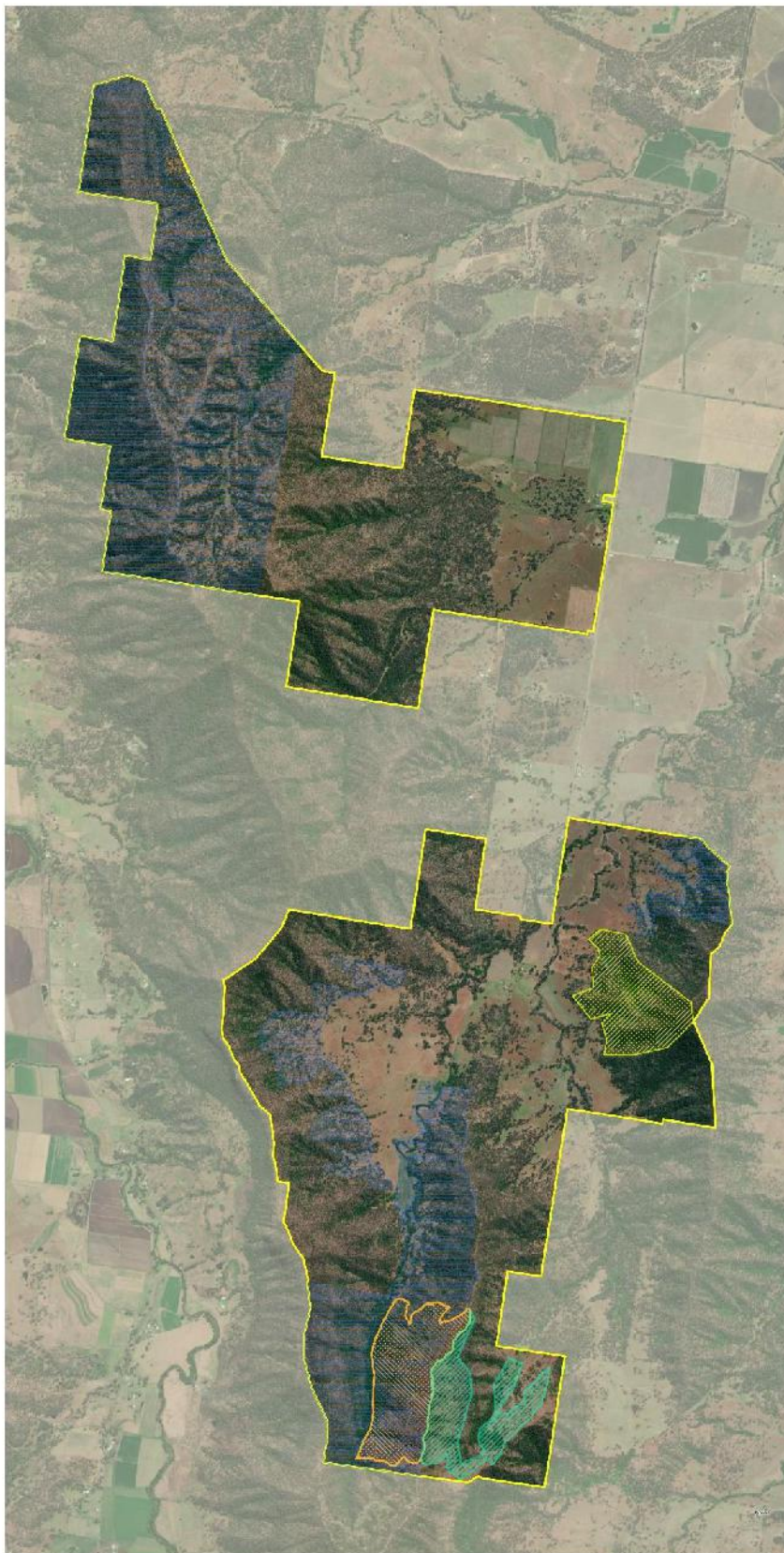
One ecological burn was conducted on Aroona Station, outside the offset area (Map 9). The burn conducted outside the offset area was undertaken with the direct seeding revegetation in adjacent paddocks.

Fuel hazard assessments demonstrate high to very high fuel loads, with over 50% exceeding a 'High' hazard score. Ratings were variable within and across offset management areas. This is attributed to high surface fuel loads caused by increased grass growth during the wet season.

Fire break trails were inspected and maintained at regular intervals.



Map 7. Fire management within offset area.



## AROONA Fire Management

1:14,961  
0.0 0.35 0.7 1.05 1.4 Kilometers



- Legend
- Aroona Boundary
  - 2022 Burn and Seed
  - 2021 Burn and Seed
  - 2021 Firesticks burn
  - EPBC2016/7817

Author: QTFN  
Date: 2022  
Source: Cadastral Boundaries,  
Data supplied by QSpatial  
[http://qldspatial.information.qld.gov.au/  
catalogue/custom/index.page](http://qldspatial.information.qld.gov.au/catalogue/custom/index.page)  
**ACCURACY STATEMENT**  
Due to varying sources of data,  
spatial locations may not coincide  
when overlaid.

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# APPENDIX

*Appendix 1. Revegetation Photo monitoring points*

Zone 1 – Gehkre	ID	Latitude	Longitude
	Gerhke_photopoint1	-27.837921	152.410891
	Gerhke_photopoint 2	-27.843501	152.408309
	Gerhke_photopoint 3	-27.837935	152.405464





Gehrke\_photopoint 4     -27.853073°     152.413571°



Gehrke\_aerialphoto1     -27.837921     152.410891



Gehrke\_aerialphoto2     -27.848592     152.409315



Gehrke\_aerialphoto3     -27.830591     152.412327



Gehrke\_aerialphoto4 -27.843218 152.408263

**Zone 2 – Basils Gorge**



BasilGorge\_photopoint2 -27.8630402 152.406035



BasilGorge\_photopoint3 -27.857305 152.410207



BasilGorge\_photopoint4 -27.857305 152.410207



**Zone 7 – Middle Gehrke**



MidGehrke\_photopoint1 -27.835259 152.402102



MidGehrke\_aerialphoto1 -27.835259 152.402102

**Zone 8 – Upper Gehrke**



UpperGehrke\_photopoint1 -27.83133471000 152.40722426000



UpperGehrke\_photopoint2 -27.83133471000 152.40722426000



UpperGehrke\_aerialphoto1 -27.83133471000 152.40722426000



**Zone 9 – Lower Gehrke**



LowGehrke\_photopoint1 -27.8429224 152.4064424



LowGehrke\_photopoint2 -27.8424026 152.4068609



LowGehrke\_aerialphoto1 -27.8429224 152.4064424

Appendix 2. Weed Transect Monitoring Photos

2021

2022

**Transect #4**



**Transect #6**



**Transect #7**



**Transect #8**



*Photo unavailable- software error*



**Transect #BC03**



*Photo unavailable – software error*

**Transect #BC04**



**Transect #BC06**



*Photo not available – software error*

**Transect #13**





**Transect #BC20**



**Transect #BC22**



Appendix 3. Images from wildlife monitoring cameras

Dogs – *Canis lupus*



Summer



Winter

Fox – *Vulpes vulpes*



Summer



Winter

Cat – *Felis catus*

NONE  
Summer

NONE  
Winter

Pig – *Sus scrofa*



Summer



Winter