



ecoplanning
ecology | planning | offsets

Tharbogang Quarry and Landfill Offset Monitoring



Lot 181 and 182 / DP756035, Hillside Drive, Tharbogang, NSW

Annual monitoring report 2020

Prepared for: Griffith City Council

21 December 2020 Version: 1.1 – Final

PROJECT NUMBER	2018-063			
PROJECT NAME	Tharbogang Quarry and Landfill Offset Monitoring			
PROJECT ADDRESS	Lot 181 and 182 / DP756035, Hillside Drive, Tharbogang, NSW			
PREPARED FOR	Griffith City Council			
AUTHOR/S	Bruce Mullins, Brooke Trigg and Liz Norris			
REVIEW	Technical	QA	Version	Date to client
	Bruce Mullins		1.0 - Draft	23 December 2020
			1.1 – Final	23 December 2020

This report should be cited as: 'Ecoplanning (2020). Tharbogang Quarry and Landfill Offset Monitoring— Lot 181 and 182 / DP756035, Hillside Drive, Tharbogang, NSW. Prepared for Griffith City Council.'

Disclaimer: This report has been prepared by Ecoplanning Pty Ltd for Griffith City Council and may only be used for the purpose agreed between these parties, as described in this report. The opinions, conclusions and recommendations set out in this report are limited to those set out in the scope of works and agreed between these parties. Ecoplanning P/L accepts no responsibility or obligation for any third party that may use this information or for conclusions drawn from this report not provided in the scope of works or following changes occurring subsequent to the date that the report was prepared.

ECOPLANNING PTY LTD | 74 HUTTON AVENUE BULLI NSW 2516 | P: (02) 4244 2736



Contents

1	Introduction.....	1
2	Monitoring methodology	2
3	Completed management actions	3
4	Photo monitoring points and quadrats	5
5	Condition of conservation values	20
6	Effectiveness of management actions	21
6.1	Monitoring Biobanking monitoring plots and photos points	21
6.2	Annual reports for monitoring program	21
6.3	Weed management.....	21
6.4	Pest management	21
6.5	Fire trail and vehicle access.....	21
6.6	Fencing	21
6.7	Quarterly inspections	22
7	Recommendations	24

Appendices

Appendix A	Species list	25
Appendix B	Completed monitoring data sheets	35
Appendix C	Completed quadrat data sheets	53
Appendix D	Weed management receipt	58

Figures

Figure 6.1:	Weeds recorded as living, treated or resprouting in the Conservation Area.	23
-------------	---	----

Tables

Table 3.1:	Management actions for Year 5, 2020 monitoring period.....	3
Table 4.1:	Plant community type benchmarks and quadrat scores as at September 2020 (in bold), with the range of values from monitoring periods across all years (in brackets). Values within benchmark are highlighted in green.	19



Glossary and abbreviations

Acronym	Description
DNG	Derived native grassland
LLS	Local Land Services
MZ	Management Zone
OEH	Office of Environment and Heritage

1 Introduction

Ecoplanning was commissioned to prepare the Annual Monitoring Report 2020 to comply with the Conservation Agreement between the Minister Administering the *National Parks and Wildlife Act 1974* and Griffith City Council for Tharbogang Quarry and Landfill (2015). This report complies with Annexure D of the Conservation Agreement, to satisfy a commitment made to secure a biodiversity offset relating to the expansion of the existing landfill and quarry. The subject site is located at Lots 181 and 182 in Deposited Plan 756035 (known as Tharbogang Quarry and Landfill), approximately 10 km northwest of Griffith.

Monitoring of the Conservation Area is undertaken annually, with this report documenting year 5 of monitoring under the Conservation Agreement.

The Conservation Agreement requires that the annual monitoring report is to include:

- a description of all completed management actions undertaken in the previous 12-month period
- copies of all receipts from third party contractors engaged by the owner to undertake management actions listed in items 1 and 2 of Annexure C to the Conservation Agreement
- completed monitoring data sheets (including photographs) using the template provided in Table 4 of Annexure D to the Conservation Agreement (below) and including quarterly inspection data and stock impact data collected by the owner
- a discussion of the changes recorded at photo monitoring points and quadrats
- a discussion of the condition of Conservation Values
- a discussion of effectiveness of any management actions implemented
- recommendations and proposed management actions to be performed in following year.

2 Monitoring methodology

Monitoring was consistent with Annexure D of the Conservation Agreement and previous monitoring, and included:

- Photos point sampling
- Collection of Biometric data and previous locations
- Fauna monitoring
- Walk through assessment.

Monitoring occurred from 7 to 9 and 11 September 2020.

Four photos (one in each cardinal direction) were taken at each of the eight monitoring photo points and six Biobanking monitoring points. Notes were taken on the presence of weeds, erosion, vegetation condition. Vegetation condition and management issues were compared to previous years.

Floristic data were collected at each of the six Biobanking monitoring sites in accordance with the Biobanking Assessment Methodology (2014) and compared with baseline data (collected in 2015), data from 2018 and benchmark data.

Surveys for microchiropteran bats were conducted in each management zone. The sites surveyed were the same as those in 2016, 2017, 2018 and 2019. An Anabat Express and Anabat Swift were used for the survey. Echolocation calls were recorded over two nights and were activated 1 hour before sunset until 1 hour after sunrise.

Bird surveys were undertaken at the same sites as in 2016, 2017, 2018 and 2019: one site in DNG (MZ1), two in open woodland (MZ2) and two in woodland (MZ3) and one in *Callitris* Woodland. At each 2 ha site, a 20 minute survey was conducted in the morning and at dusk over two days. All birds seen or heard were recorded.

The Conservation Area was traversed to record opportunistic sightings within the Conservation Area. The current survey recorded weed species, evidence of pest animals, natural regeneration of previously disturbed areas and sightings of threatened species.

3 Completed management actions

Table 3.1: Management actions for Year 5, 2020 monitoring period.

Management action	Timing	Status
Monitoring Biobanking monitoring plots and photo points	Year 5	Complete – results of monitoring are provided
Recommend weed management thresholds and commence weed management actions in the Conservation Area in Year 1	Years 1 - 5	Weed management occurred during 2020
Pest animal control (local co-ordination with LLS and OEH)	Years 1 - 10	No pest animal control actions were undertaken.
	Years 1 – 4 Initial Rabbit Control	No pest animal control actions were undertaken. No Rabbits, evidence of Rabbits, were observed during the survey.
	Years 1-10 Fox Control	No pest animal control actions were undertaken. Foxes were observed in the Conservation Area.
	Years 1 – 10 Feral Goat Control	No pest animal control actions were undertaken. No Feral Goats, or evidence of Feral Goats were observed during monitoring.
	Years 1 – 10 Feral Cat Control	No pest animal control actions were undertaken. No Feral Cats, or evidence of Feral Cats, were observed during the survey.
Fire management hazard reduction burn	Years 1 – 10	No fire management actions were undertaken.
Maintain vehicle access to Conservation Area for fire management, weed and fencing management.	Year 2-10 Maintain tracks and fire breaks	Tracks were inspected during the monitoring period. No action was required
Fencing, gates and signage	Year 1	The boundary of the Conservation Area has been fenced and signage erected. Western fence line completed in 2017. The northern boundary fence completed in 2018.

Management action	Timing	Status
	Year 2-10 – maintain fences and gates	Fences and gates re-inspected during monitoring.
Quarterly inspections and stock management data	Years 1 - 10	Inspections were conducted in December 2019, March, June, and September 2020. No grazing occurred in year 5.
Annual Reports for Monitoring Program	Years 1 -10	Monitoring was conducted in September 2020.

4 Photo monitoring points and quadrats

Photo Point 1 (PP1) (from top left bearing N, E, S, W)

This photo point monitors an eroded channel and pasture weeds.

Erosion: Monitoring in 2020 did not observe any active erosion.

Vegetation- general: Height and biomass increased from 2019, due to higher rain fall.

Vegetation cover: Groundcover was estimated to be 75% in the area surrounding the photo point in 2020, which is higher than the groundcover in 2019 (42%).

Weeds: *Echium plantagineum* (Paterson's Curse), *Arctotheca calendula* (Capeweed), *Hordeum leporinum* (Barley Grass), *Medicago* sp. were observed in 2020.

Threatened species sightings: *Pomatostomus temporalis* (Grey-crowned Babbler) was recorded during bird surveys.



Photo Point 2 (PP2) (from top left bearing N, E, S, W)

Photo point monitors an eroded channel, pasture weeds and woodland heath. Erosion appeared inactive along the drainage line and stabilised by vegetation cover.

Erosion: Monitoring in 2020 did not observe active erosion.

Vegetation – general: Higher rainfall earlier in the year increased the height and biomass from 2019.

Vegetation cover: The ground cover in 2020 was 45% which was more than 2019 of 41% in the area surrounding the photo point. The canopy cover was higher (15%) than 2019 (10%) and the midstory was the same (10%).

Weeds: *Echium plantagineum*, *Arctotheca calendula* and *Sisymbrium erysimoides* were recorded in 2020.

Fire event/fuel/fire breaks: The fire road was intact.



Photo Point 3 (PP3) (from top left bearing N, E, S, W)

Photo point monitors a weed infested area, which during baseline survey included priority weeds *Lycium ferocissimum*, *Marrubium vulgare* and *Opuntia* sp. and other weeds such as *Hordeum leporinum*, *Echium plantagineum* and *Arctotheca calendula*.

Vegetation- general: Vegetation cover was similar to the previous year, however, there was a high cover of weeds and biomass.

Vegetation cover: The ground and canopy cover was the same as 2019 with 40% groundcover and 5% canopy cover in the area surrounding the photo point.

Weeds: *Echium plantagineum*, *Arctotheca calendula*, *Hordeum leporinum* and *Sisymbrium erylroides* were recorded in 2020.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.

Pest animals: The species *Sturnus vulgaris* (Common Starling) was observed.



Photo Point 4 (PP4) (from top left bearing N, E, S, W)

Photo point monitors priority weeds and eucalypt health. Priority weeds observed in the baseline survey included *Lycium ferocissimum*, *Marrubium vulgare* and *Opuntia* sp. Other weeds at the site included *Echium plantagineum* and *Hordeum leporinum*. Some minor dieback of eucalypts was observed in the south, with scattered regrowth of *Callitris* observed in the west.

Vegetation – general: Cover appeared to be similar.

Vegetation cover: The ground cover was estimated to be 55% in the area surrounding the photo point. There was a high litter cover of 40% similar to previous years.

Weeds: *Echium plantagineum*, *Arctotheca calendula* and *Sisymbrium erysimoides* were recorded in 2020. In addition the priority weed *Marrubium vulgare* (Horehound) was also recorded.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.



Photo Point 5 (PP5) (from top left bearing N, E, S, W)

Photo point monitors priority weeds and eucalyptus health.

Vegetation – general: The area around the photopoint had a high cover of vegetation. Weeds are more concentrated around the base of trees

Vegetation cover: The ground cover was 40% larger than 2019 (35%) in the area surrounding the photo point. The canopy and midstory cover were estimated at 5% and 1%, respectively.

Weeds: *Sisymbrium erysimoides*, *Hordeum leporinum*, *Marrubium vulgare*, *Echium plantagineum* and *Arctotheca calendula* were recorded in 2020.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.

Pest animals: *Sturnus vulgaris* (Common Starling) was observed frequently during the monitoring period.



Photo Point 6 (PP6)(from top left bearing N, E, S, W)

The photo point monitors priority weeds and eucalyptus health. During baseline survey dense infestations of the priority weed *Opuntia* sp. were recorded. Significant effort has been applied to the area to remove *Opuntia* sp. from the area.

Erosion: Monitoring in 2020 did not observe active erosion around the drainage line.

Vegetation – general: Vegetation cover and biomass was higher in 2020 to previous years.

Vegetation cover: The groundcover was 40% in the area surrounding the photo point. The mid and overstorey were 5% and 10%, respectively.

Weeds: *Echium plantagineum*, *Arctotheca calendula*, *Sisymbrium erysimoides* and two *Opuntia stricta* were recorded in 2020. *Opuntia stricta* was a problem weed at this photo point, and effort should be made to control and eliminate the species.

Fire event/fuel/fire breaks: The fire trail was in good condition.

Threatened species sightings: Grey-crowned Babbler was recorded at this photo point.

Rubbish: Small amounts of blown rubbish was observed.



Photo Point 7 (PP7) (from top left bearing N, E, S, W)

Photo point monitors eucalyptus health and regrowth, and general woodland health. Eucalypt regrowth was present during the baseline survey, with minor dieback in the canopy. The vegetation is generally low and sparse with few weeds.

Vegetation – general: Biomass and height of vegetation increased since 2019, due to higher rain fall. The increase in vegetative cover and biomass is evident from the site photos.

Vegetation cover: Ground cover increased from 2019 (21%) to 27% in 2020 in the area surrounding the photo point. The overstorey was at an estimated 15% and the midstorey at 5%.

Weeds: *Echium plantagineum*, *Arctotheca calendula* and *Sisymbrium erysimoides* were recorded in 2020.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.



Photo Point 8 (PP8) (from top left bearing N, E, S, W)

Photo point monitors priority weeds, perimeter track, pasture weeds and eucalypt health. During baseline survey the priority weed *Lycium ferocissimum* was recorded, with a high abundance of other weeds in the area.

Vegetation – general: Vegetation height and biomass has increased since 2019 due to higher rainfall.

Vegetation cover: In the area surrounding the photo point the ground cover was estimated to be 60% which increased from 2019 (42%).

Weeds: *Lycium ferocissimum* that had been previously treated has not resprouted. *Hordeum leporinum*, *Echium plantagineum* and *Arctotheca calendula* were recorded in 2020.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.

Fire event/fuel/fire breaks: The fire break was in good condition.

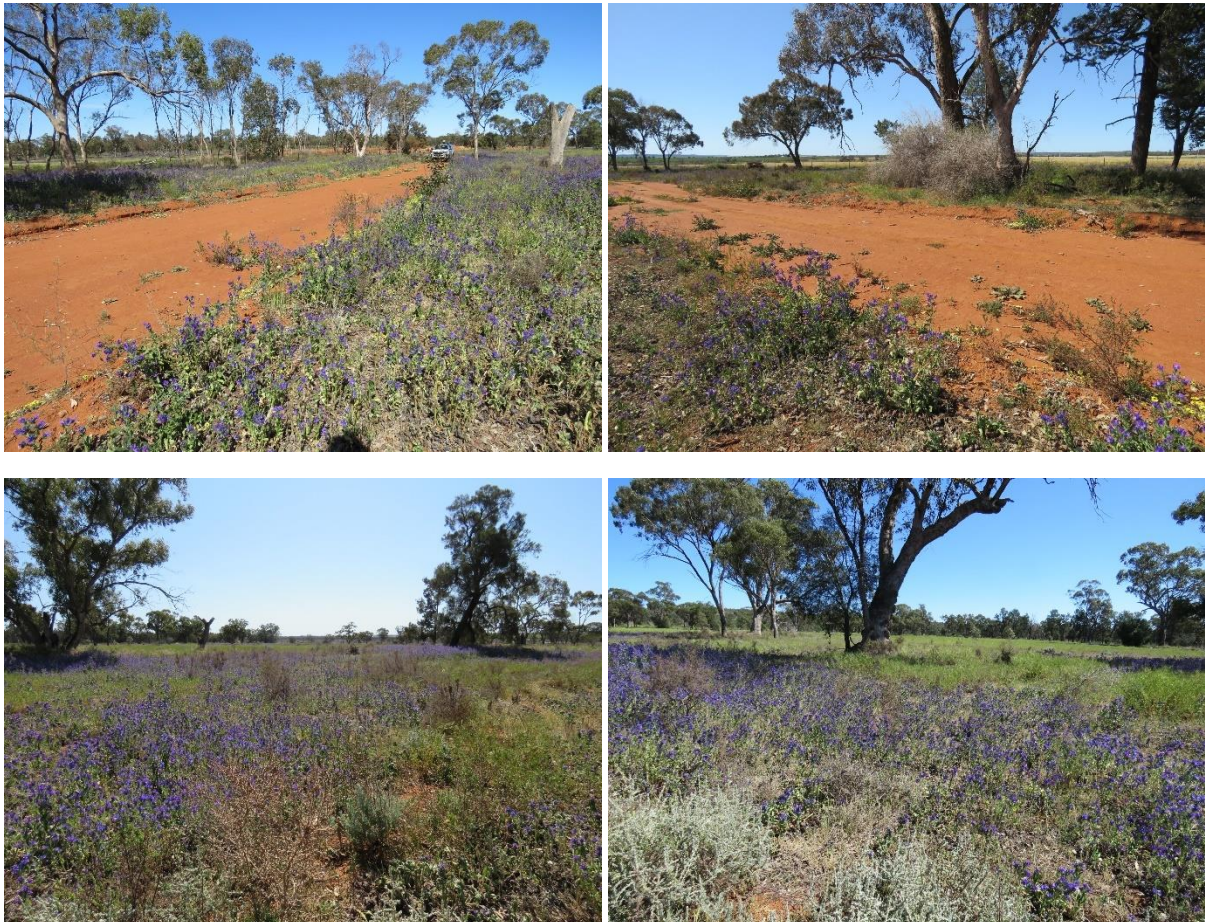


Photo Point 9 (BOA1) (from top left bearing N, E, S, W)

This photo point monitors a Biobanking plot located in open woodland. During baseline survey the plot was in good condition with a high abundance and diversity of native flora (*Austrostipa scabra*, *Goodenia pusilliflora* and *Hyalosperma semisterile*) with a low cover of weeds (24%).

Vegetation - general: A significant increase in height and biomass of the vegetation compared to 2019, which is likely due to higher rainfall.

Vegetation cover: The ground cover in the area surrounding the photo point was estimated at 70% in 2020 compared with 36% in 2019. The midstorey was the same in 2019 and 2020 (5%), the overstorey was also similar in 2020 <1% and 2019, 1%.

Weeds: There was an increase in weed species in 2020, with low amounts of *Lycium ferocissimum* within the plots and *Echium plantagineum*, *Arctotheca calendula*, *Medicago minima* (Woolly Burr Medic) and *Opuntia stricta* found just outside the plot.

Fire event/fuel/fire breaks: A fire trail is located nearby.

Visitor impact/ vehicles: There were formed tracks nearby.



Photo Point 10 (BOA2) (from top left bearing N, E, S, W)

This photo point monitors a Biobanking plot located in woodland. During baseline survey the plot had a high cover of weeds (*Bromus* sp., *Vulpia* sp., *Echium plantagineum*, and *Hypochaeris radicata*), but high diversity of native flora (*Austrostipa scabra* and *Rytidosperma semisterile*). The area was generally in good health with no signs of dieback.

Vegetation – general: Due to increased rainfall in 2020, there was a noticeable increase in height and biomass of vegetation. The highest native species richness was recorded in 2020.

Vegetation cover: In 2019 the groundcover was observed at 11% and in 2020 it increased to 20% in the area surrounding the photo point. In both 2020 and 2019 the mid and overstorey were similar.

Weeds: In 2020 there was an increase in weed species with *Opuntia stricta*, *Echium plantagineum*, *Arctotheca calendula* and *Hypochaeris radicata* observed.

Threatened species sightings: Monitoring observed Grey-crowned Babbler.



Photo Point 11 (BOA3) (from top left bearing N, E, S, W)

This photo point monitors Biobanking plot located in open woodland. During baseline survey the plot was in good condition with a high abundance and diversity of native flora (*Austrostipa scabra* and *Goodenia pusilliflora*) with a moderate cover of weeds (*Vulpia* sp. and *Arctotheca calendula*).

Vegetation – general: An increase in vegetation biomass and height is evident from 2019 to 2020.

Vegetation cover: Ground cover increased in 2020 (64%) compared to 2019 (46%) in the area surrounding the photo point. The overstorey and midstorey also increased in 2020 to 2% and 10%, respectively.

Weeds: The weeds *Arctotheca calendula*, *Echium plantagineum* and *Medicago* spp. were present.

Threatened species sightings: Grey-crowned Babbler was recorded during bird surveys.

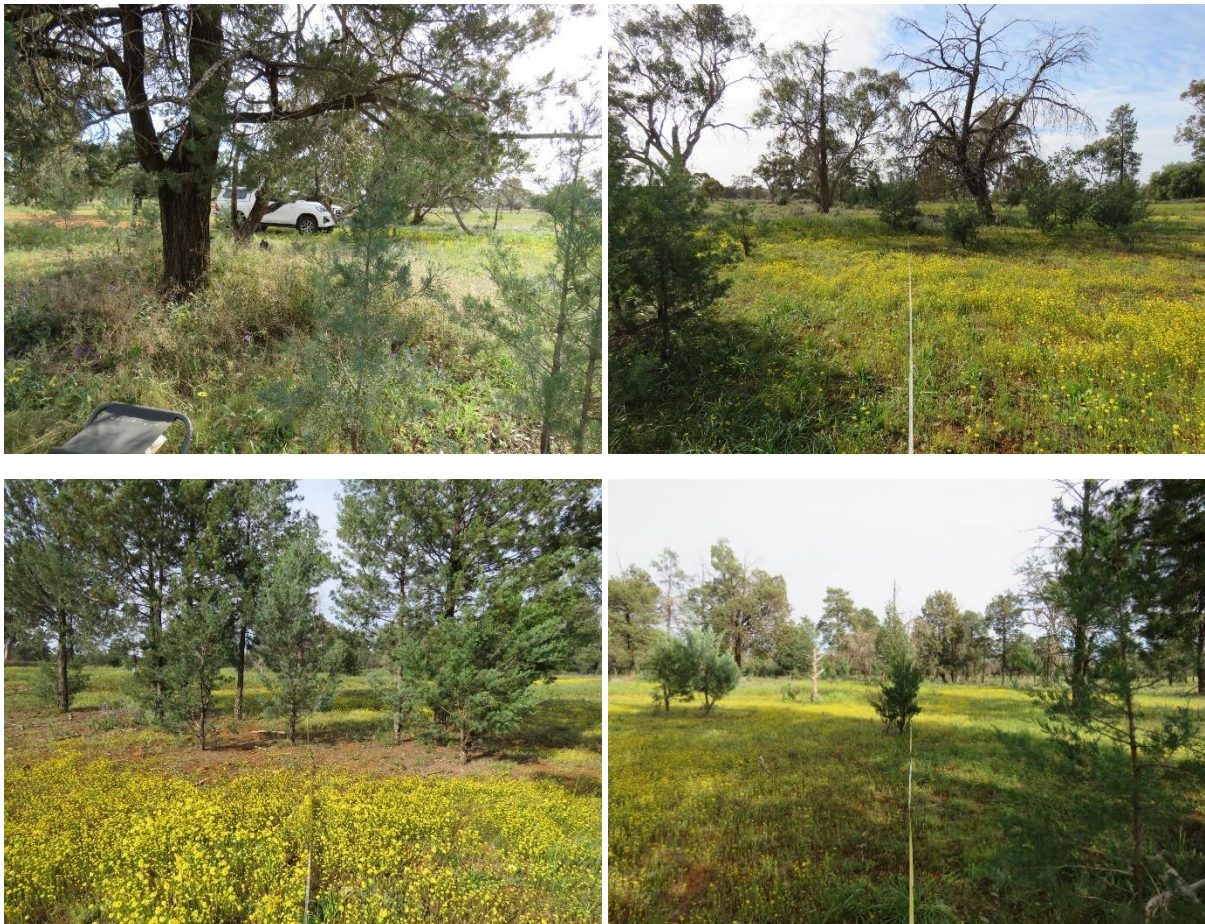


Photo Point 12 (BOA4) (from top left bearing N, E, S, W)

This photo point monitors a Biobanking plot located in derived native grassland (DNG) and was a former gravel extraction pit.

Vegetation – general: There was a slight increase in vegetation biomass between 2020 and 2019. This was due to higher rainfall.

Vegetation cover: Vegetation cover in 2020 increased in the area surrounding the photo point with groundcover estimated at 28%, midstorey at 4% and overstorey at 5%.

Weeds: *Opuntia stricta* (Common Prickly Pear) was observed in the plot.

Canopy trees: There was natural regeneration of *Eucalyptus populnea* subsp. *bimbil* and *Callitris glaucophylla*.

Threatened species sightings: Grey-crowned Babbler was recorded during bird surveys.

Fire event/fuel/fire breaks: A well maintained fire track was found nearby.

Rubbish: Small amounts of blown rubbish were observed.

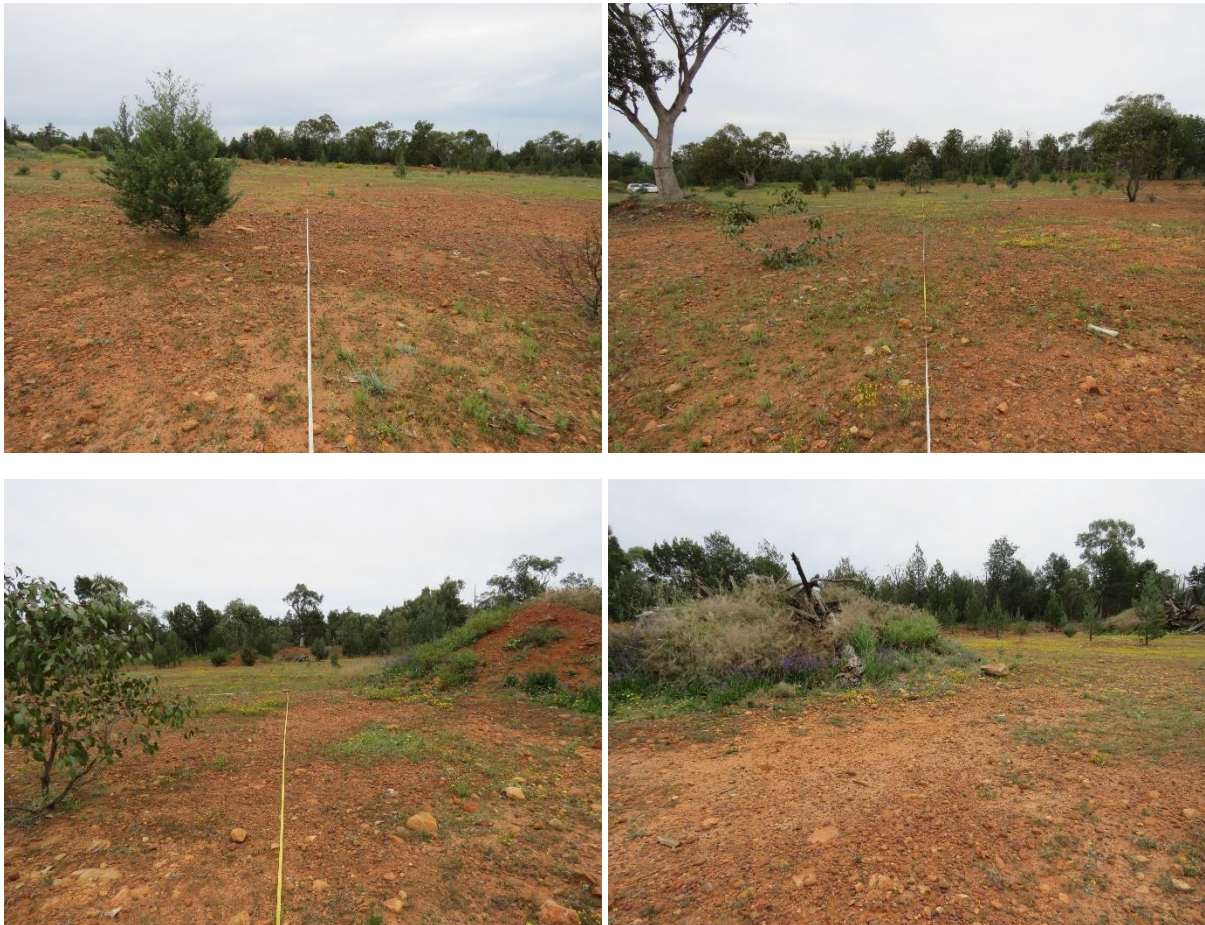


Photo Point 13 (BOA5) (from top left bearing N, E, S, W)

This photo point monitors Biobanking plot located in a *Callitris glaucophylla* thicket. .

Vegetation – general: Due to increased rainfall in 2020, native vegetation was in good condition.

Vegetation cover: There was a decrease in the groundcover estimated in 2020 (14%) compared to 2019 (31%). The midstorey at 60% (25% in 2019) increased in the area surrounding the photo point, which is offset by a decrease in canopy cover (8% in 2019 compared to 0% in 2020).

Weeds: The weed species *Opuntia stricta*, *Hordeum leporinum* (Barley Grass), *Echium plantagineum* and *Hypochaeris radicata* (Catsear) were present.

Threatened species sightings: Monitoring observed Grey-crowned Babbler and a *Pyrrholaemus sagittatus* (Speckled Warbler).

Rubbish: Rubbish had blown from the tip into the area.



Photo Point 14 (BOA6) (from top left bearing N, E, S, W)

Photo point monitors a Biobanking plot located in woodland. During the baseline survey the plot had a high cover of weeds (*Arctotheca calendula*, *Bromus* sp., *Echium plantagineum* and *Medicago* sp.), but also had a high diversity of native flora (*Dichopogon fimbriatum*, *Austrostipa scabra*, *Triptilodiscus pygmaea* and *Stuartina muelleri*).

Vegetation – general: An increase in vegetation biomass and height is clear between 2020 and 2019. This was due to higher rainfall.

Vegetation cover: The groundcover in 2020 (26%) decreased from 2019 (46%) in the area surrounding the photo point. The midstorey and canopy was similar in 2019 and 2020 within the plot.

Weeds: *Echium plantagineum*, *Arctotheca calendula* and *Sisymbrium erysimoides* were recorded in 2020.



Table 4.1: Plant community type benchmarks and quadrat scores as at September 2020 (in bold), with the range of values from monitoring periods across all years (in brackets). Values within benchmark are highlighted in green.

Quadrat number	Native species richness	Overstorey cover %	Mid-storey cover %	Ground cover – grasses %	Ground cover – shrubs %	Ground cover – other %	Exotic cover	Number of trees with hollows	Proportion overstorey regen.	Total length of fallen logs (m)
<i>Benchmark:</i>	>=23	14-27	33-38	5-22	0-21	0-20	N/A	>=3	1	>=33
BOA1	37 (26-38)	0 (0-0)	0 (0-3)	64 (0-72)	0 (0-0)	0 (0-80)	6 (0-52)	0 (0-0)	0 (0-1)	0 (0-0)
BOA2	40 (22-40)	0 (0-4)	8 (0-12.1)	14 (0-14)	0 (0-4)	0 (0-34)	6 (0-52)	0 (0-0)	0 (0-0.67)	0 (0-51)
BOA3	41 (22-41)	2 (0-2.1)	10 (0-10)	50 (0-50)	0 (0-4)	0 (0-68)	14 (0-48)	0 (0-0)	0 (0-1)	0 (0-5)
BOA4	35 (21-35)	0 (0-0)	4 (0-4)	26 (0-26)	0 (0-4)	0 (0-50)	2 (0-28)	0 (0-0)	0 (0-1)	0 (0-0)
BOA5	41 (20-41)	0 (0-0)	60 (0-60)	14 (0-16)	0 (0-0)	0 (0-78)	0 (0-42)	0 (0-0)	0 (0-1)	0 (0-5)
BOA6	33 (18-33)	36 (0-36)	6 (0-6)	16 (0-16)	0 (0-8)	0 (0-38)	10 (0-70)	0 (0-1)	0 (0-1)	0 (0-22)

5 Condition of conservation values

Conservation values refers to the biodiversity values of the Conservation Area and are specified in Annexure B of the Conservation Agreement.

Native species richness was the highest recorded during the monitoring period at BOA 2 to 6 had the highest richness over the survey period, with up to seven additional native species recorded. All the sites were within benchmark for native species richness.

Unfortunately data for groundcover “shrubs” and “other” were lumped with groundcover “grasses”, meaning that it was not possible to determine comment of the cover of these features. This data is collected along the 50 m transect, however, it is evident from the plot data that the groundcover “other” was the dominant form of ground cover in 2020. It possible that at some sites (e.g. BOA 1), the cover of groundcover “other” may have exceed the benchmark.

Overstorey cover and midstorey cover was like previous years and not within benchmark.

The cover of exotic species scored lower along the transect, but appeared to be higher in photo points. *Arctotheca calendula* and *Echium plantagineum* were common at most sites and had a relatively high cover. These species are widespread throughout the offset area.

Figure 6.1 illustrates the distribution of weeds in the Conservation Area. Several weeds were dead or not found during the survey. Follow up spraying is required for some weeds as some have resprouted or remain untreated. Weed control has proven to be effective for most *Lycium ferocissimum* (African Boxthorn), although some have resprouted. Many of the *Opuntia stricta* and *Marrubium vulgare* were also looking in better health than 12 months ago. Very few *Xanthium spinosum* were found in the 2020 survey. As an annual species, it is presumed that conditions were not suitable for the species to germinate and grow in 2019.

The 2020 survey recorded 64 species of birds within the Conservation Area during the bird surveys with three additional species recorded incidentally (**Appendix A**). Three of these species are listed under the *Biodiversity Conservation Act 2016* (Grey-crowned Babbler, Major Mitchell’s Cockatoo and Speckled Warbler) and six species (Collared Sparrowhawk, White-necked Heron, Sulphur-crested Cockatoo, Australian Wood Duck, Masked Lapwing, White-faced Heron) were recorded for the first time. However, it is likely that there has been confusion or misidentification of *Corvus* species. Previously, Little Crow (*Corvus bennetti*) has been observed on site, however, closer analysis of calls during the 2019 survey identified Little Raven (*Corvus mellori*). Australian *Corvus* species are difficulty to identify and calls are the most reliable means of identification. Nevertheless, the calls of Little Crow and Little Raven have many similarities.

Only one species, Common Starling, is considered a pest species. Full species list in **Appendix A**.

The 2020 survey recorded 12 species of microbat within the Conservation Area during bat surveys (**Appendix A**). This is one less that the 2019 survey which recorded 13 species of microbat. Two threatened microbats were recorded, one species had not been previously recorded: *Saccolaimus flaviventris* (Yellow-bellied Sheathtail bat).

6 Effectiveness of management actions

The following management actions have been undertaken within the Conservation Area in the past twelve months.

6.1 Monitoring Biobanking monitoring plots and photos points

Monitoring of Biobanking monitoring plots and photo points was undertaken in the 2020 period. Monitoring methodology followed the management action outlined in Table 4 Annexure C Monitoring Program of the Conservation Agreement (2015) and **Table 3.1** of this report. No significant deviations from baseline monitoring occurred in the 2020 monitoring period.

6.2 Annual reports for monitoring program

This Annual Monitoring Report meets the specifications in Annexure D Monitoring Program of the Conservation Agreement (2015).

6.3 Weed management

Weed management occurred on the 16 December 2019, and 7, 12, 13, 18 21 September 2020 (**Appendix D**). Previous weed treatment is evident with many weeds found dead or not found during the survey. Weed treatments include both herbicide application and mechanical removal of weeds, with particular focus on *Lycium ferocissimum* (African Boxthorn).

Figure 6.1 shows the weeds that require treating (i.e. not the weeds that were recorded as dead or not found). It should be noted that some weeds may not have been visible because of the height of the ground layer. An increase in biomass and vegetation height was evident in 2020 from above average rainfall.

6.4 Pest management

There was no evidence of Rabbits, Feral Cat or Feral Goat observed during the monitoring program.

6.5 Fire trail and vehicle access

All trails were in fair to good condition.

6.6 Fencing

All fencing was observed to be in good condition and working order.

6.7 Quarterly inspections

Quarterly inspections of the Conservation Area were conducted in September and December 2019, March and June 2020 by Riverina Agriconsultants. The inspections include commentary on:

- Erosion
- Weeds
- Vegetation cover
- Litter cover
- Dieback
- Soil stability
- Feral animals

The only actions arising from the quarterly inspections were to:

- monitor and control weeds
- monitor erosion lines.

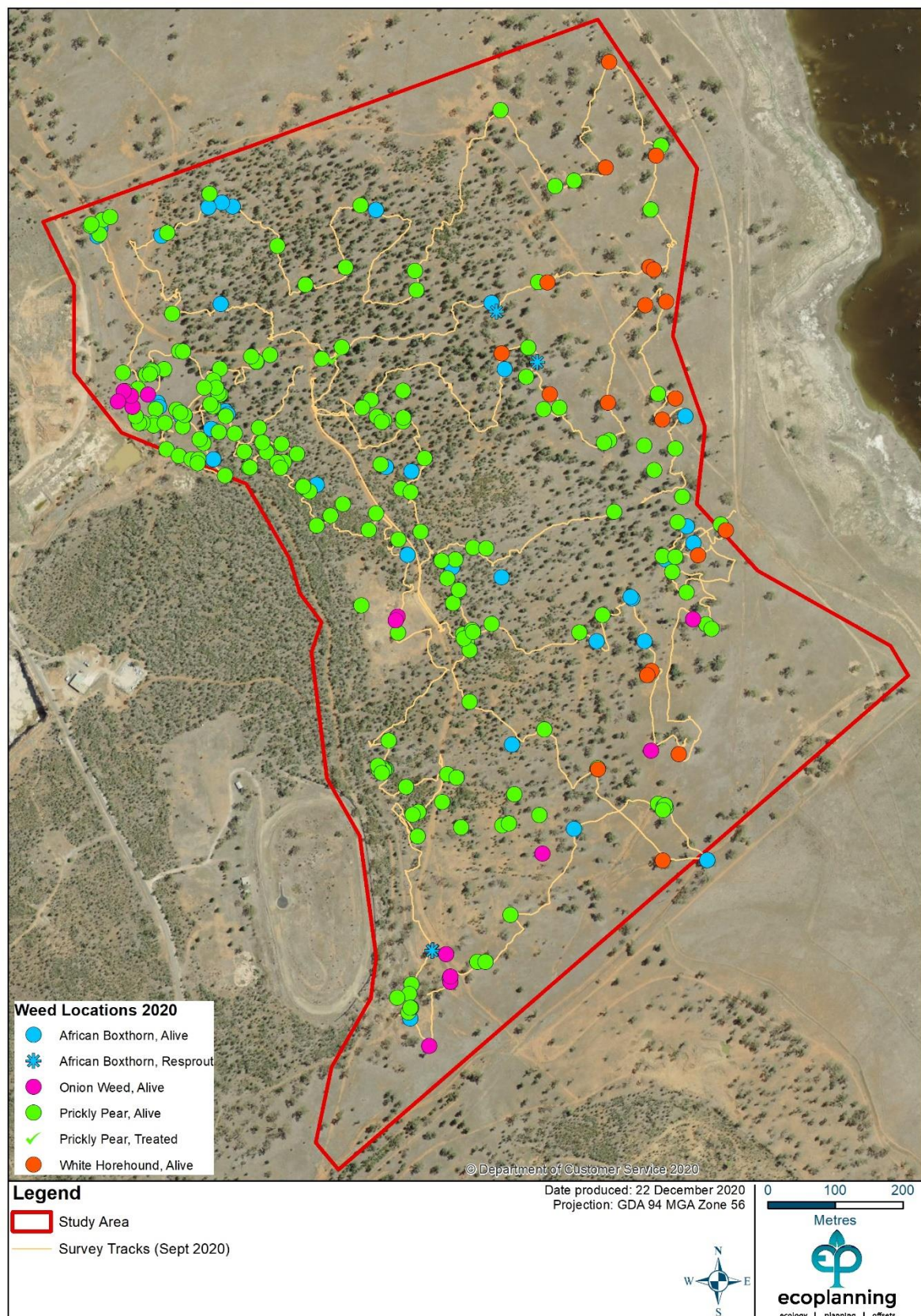


Figure 6.1: Weeds recorded as living, treated or resprouting in the Conservation Area.

7 Recommendations

The following is recommended for the Conservation Area:

- Continue to monitor weeds and conduct secondary treatment for *Lycium ferocissimum*, *Opuntia* sp. and *Marrubium vulgare* as required. Consider digging out small *Opuntia* sp. and disposing of them in the landfill rather than spraying.
- Maintain quarterly inspections. Monitoring weed growth along the northern perimeter track.
- Above average rainfall can result in high biomass and litter levels, and a high fuel load. Fire breaks and fire trails must be maintained.

Appendix A Species list

Biobanking plot species lists

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6					
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	
Exotic species																																
<i>Aira cupaniana</i>																							x					x				
<i>Arctotheca calendula</i>	Capeweed	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	
<i>Brassicaceae</i> sp.																															x	
<i>Bromus rubens</i>					x		x					x		x			x		x	x				x	x		x		x			
<i>Bromus</i> sp.			x		x		x	x	x	x	x	x	x			x	x				x	x	x		x	x	x	x	x	x	x	
<i>Capsella bursa-pastoris</i>	Shepherd's Purse													x																x		
<i>Carthamus lanatus</i>	Saffron Thistle												x		x		x	x	x	x	x				x		x					
<i>Cirsium vulgare</i>	Spear Thistle																				x											
<i>Chenopodiaceae indeterminate</i>	Salt-bushes																									x						
<i>Echium plantagineum</i>	Paterson's Curse	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		x	x	x	x		x	x	
<i>Eragrostis</i> sp.																													x			
<i>Erodium cicutarium</i>	Common Crowfoot											x				x																
<i>Euphorbiaceae indeterminate</i>	Spurges														x											x					x	
<i>Hedypnois rhagadioloides</i>	Cretan Weed	x			x	x						x			x		x			x	x											
<i>Hordeum leporinum</i>	Barley Grass	x	x				x	x		x	x	x								x		x	x	x	x	x	x	x			x	
<i>Hypochaeris glabra</i>		x					x	x					x													x	x	x				
<i>Hypochaeris radicata</i>	Catsear	x	x		x	x	x	x		x	x	x	x		x	x	x	x		x	x	x	x		x	x	x	x		x	x	
<i>Lactuca serriola</i>	Prickly Lettuce		x			x	x	x			x					x						x	x				x					
<i>Lamarckia aurea</i>	Goldentop																															
<i>Leptorhynchus</i> sp.					x																											
<i>Lolium rigidum</i>	Wimmera Ryegrass							x		x	x				x						x	x	x	x				x	x		x	x

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6				
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020
<i>Lycium ferocissimum</i>	African Boxthorn				x	x																									
<i>Medicago laciniata</i>	Cut-leaved Medic	x	x	x	x	x						x	x	x	x	x					x	x				x	x			x	x
<i>Medicago minima</i>	Woolly Burr Medic				x	x	x	x	x	x	x				x	x	x	x		x	x					x					x
<i>Medicago truncatula</i>	Barrel Medic		x	x	x			x	x	x		x	x				x	x		x				x					x	x	
<i>Medicago</i> sp.							x															x	x			x	x				
<i>Opuntia stricta</i>																															
<i>Opuntia</i> sp.	Prickly Pear																x		x		x			x		x			x		
<i>Pentaschistis airoides</i>	False Hairgrass							x		x	x				x										x	x				x	x
<i>Raphanus raphanistrum</i>	Wild Radish					x																									
<i>Romulea rosea</i>	Onion Grass				x				x	x	x		x	x	x	x					x			x	x	x			x	x	x
<i>Silene tridentata</i>	Catchfly										x					x				x	x						x				x
<i>Sisymbrium erysimoides</i>	Smooth Mustard	x				x	x	x		x	x	x					x				x	x	x			x	x	x		x	x
<i>Sisymbrium irio</i>	London Rocket	x					x			x	x																x			x	x
<i>Sonchus oleraceus</i>	Common Sowthistle	x			x	x	x			x	x	x			x	x	x			x	x	x			x	x	x			x	x
<i>Trifolium arvense</i>	Haresfoot Clover						x	x		x	x	x			x	x							x		x	x	x	x		x	x
<i>Trifolium glomeratum</i>	Clustered Clover							x						x									x					x			
<i>Trifolium</i> sp.										x					x	x										x	x			x	
<i>Veronica arvensis</i>	Wall Speedwell						x					x										x									
<i>Vulpia myuros</i>	Rat's Tail Fescue					x				x	x				x	x										x					x
<i>Vulpia</i> sp.		x	x	x	x		x	x	x			x	x	x			x	x		x	x	x	x		x		x	x		x	
Unknown dead thistle																								x							
Unknown grass															x																
Unknown green fleshy lily											x					x											x				
Native species																															
<i>Actinobole uliginosum</i>	Flannel Cudweed	x	x		x	x	x	x		x	x	x	x		x	x						x	x		x	x	x	x		x	x
<i>Aphanes australiana</i>										x	x				x	x										x	x	x			x
<i>Aristida behriana</i>	Bunch Wiregrass	x	x		x	x		x	x		x	x	x			x		x	x	x	x			x							
<i>Aristida</i> sp.															x	x										x					
<i>Arthropodium minus</i>	Small Vanilla Lily		x	x	x											x						x			x	x	x	x	x		x
<i>Atriplex semibaccata</i>	Creeping Saltbush		x	x			x	x	x		x	x	x				x	x	x	x	x										

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6				
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020
<i>Austrostipa aristiglumis</i>	Plains Grass																														
<i>Austrostipa bigeniculata</i>		x	x	x	x			x	x			x	x	x	x									x							
<i>Austrostipa scabra</i>	Speargrass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Austrostipa</i> sp.								x																							
<i>Brachychiton populneus</i>	Kurrajong						x	x	x	x	x																				
<i>Brachyscome lineariloba</i>	Hard-headed Daisy	x																													
<i>Bulbine bulbosa</i>	Bulbine Lily	x			x	x	x			x	x		x		x	x	x				x	x	x		x		x	x		x	x
<i>Bulbine semibarbata</i>																						x				x					
<i>Calandrinia eremaea</i>					x		x			x	x				x	x						x			x	x	x			x	
<i>Callitris glaucophylla</i>	White Cypress Pine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Calotis hispidula</i>	Bogan Flea	x		x	x	x	x	x		x	x	x	x	x	x	x			x	x	x	x	x		x	x	x			x	x
<i>Euphorbia drummondii</i>	Caustic Weed				x	x					x					x					x	x				x					x
<i>Cheilanthes sieberi</i>	Mulga Fern	x	x				x	x	x	x		x	x	x	x	x						x	x	x	x	x	x	x	x	x	x
<i>Chenopodium desertorum</i>						x					x											x						x	x	x	x
<i>Chenopodium</i> sp.																											x				
<i>Chloris</i> sp.		x	x	x	x		x					x	x	x								x	x	x							
<i>Chrysocephalum apiculatum</i>	Common Everlasting	x	x		x	x						x	x		x		x	x	x	x	x	x	x		x	x					
<i>Convolvulus erubescens</i> complex								x			x		x	x	x	x		x	x	x	x					x					x
<i>Convolvulus</i> sp.																x															
<i>Crassula colorata</i>			x			x					x					x							x				x				x
<i>Crassula decumbens</i>																												x			
<i>Crassula</i> sp.		x			x		x			x		x			x							x			x		x			x	
<i>Dianella</i> sp.		x	x	x	x	x																									
<i>Dichelachne</i> sp.																						x					x				
<i>Dichopogon fimbriatum</i>	Chocolate Lily		x	x	x	x		x		x	x		x	x	x	x							x	x	x	x		x	x	x	x
<i>Dichopogon</i> sp.		x					x					x										x					x				
<i>Einadia nutans</i>	Climbing Saltbush	x	x									x	x					x	x			x	x	x			x	x			

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6					
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	
<i>Einadia nutans</i> subsp. <i>nutans</i>		x		x	x	x	x			x	x				x	x				x					x	x					x	x
<i>Enchylaena tomentosa</i>	Ruby Saltbush	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
<i>Enteropogon acicularis</i>									x											x												
<i>Eragrostis</i> spp.	A Lovegrass																								x						x	
<i>Erodium crinitum</i>	Blue Storksbill	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x		x	x	x	x	x	x	x	x	
<i>Eucalyptus populnea</i>	Poplar Box	x	x	x	x	x							x	x	x	x	x	x	x	x	x		x		x	x	x	x		x	x	
<i>Euphorbia</i> sp.																					x											
<i>Goodenia cycloptera</i>		x	x	x	x	x														x					x							
<i>Goodenia pusilliflora</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	
<i>Goodenia</i> spp.																					x					x						
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>			x	x				x	x	x			x	x	x			x	x									x	x			
<i>Hyalosperma semisterile</i>		x			x	x	x	x	x	x	x	x		x	x	x	x			x	x			x	x	x				x	x	
<i>Hyalosperma</i> sp.																					x											
<i>Hyalosperma</i> sp. 2		x																			x						x					
<i>Isoetopsis graminifolia</i>	Grass Cushion	x			x	x	x			x	x	x		x	x	x	x			x	x	x			x	x	x					
<i>Leptorhynchos squamatus</i>	Scaly Buttons					x																										
<i>Limonium</i> spp.																					x											
<i>Maireana enchylaenoides</i>	Wingless Fissure Weed	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Maireana excavata</i>	Bottle Bluebush	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x						x	x			x		
<i>Millotia myosotidifolia</i>	Broad-leaved Millotia																				x				x	x						
<i>Minuria leptophylla</i>																x	x	x	x	x												
<i>Ophioglossum lusitanicum</i>	Adders Tongue	x					x									x																
<i>Ophioglossum</i> sp.										x	x																					
<i>Oxalis perennans</i>		x			x	x	x	x		x	x	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Paspalidium</i> spp.																										x					x	

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6				
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020
<i>Pittosporum angustifolium</i>		x	x	x	x	x																									
<i>Plantago debilis</i>											x					x															
<i>Pterostylis bicolor</i>	Black-tip Greenhood																					x									
<i>Ptilotus spathulatus</i>	Pussy Tails	x	x	x	x	x											x	x	x	x	x										
<i>Ranunculus sessiliflorus</i>							x			x	x																x				x
<i>Rhodanthe corymbiflora</i>	Small White Sunray					x				x										x						x					x
<i>Rhodanthe diffusa</i>							x			x	x	x			x	x									x	x				x	x
<i>Rhodanthe laevis</i>	Smooth Sunray																								x	x					
<i>Rhodanthe pygmaea</i>	Pygmy Sunray	x		x	x	x	x			x	x	x	x		x	x	x				x	x				x					
<i>Rytidosperma</i> sp.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Salsola australis</i> (syn. <i>S. kali</i> and <i>S. tragus</i>)	Soft Roly Poly	x	x			x	x	x	x							x	x	x			x										
<i>Sclerolaena diacantha</i>						x															x										
<i>Sclerolaena</i> sp.				x	x																										
<i>Senna artemisioides</i>	Silver Cassia						x			x	x																				
<i>Sida corrugata</i>	Corrugated Sida	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x		x	x
<i>Sida cunninghamii</i>	Ridged Sida	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Solanum esuriale</i>	Quena											x	x						x			x									
<i>Solanum</i> sp.								x																							
<i>Spergularia</i> sp.																						x									
<i>Stackhousia monogyna</i>	Creamy Stackhousia						x	x	x	x	x	x										x	x		x						
<i>Stuartina muelleri</i>	Spoon Cudweed					x	x			x	x	x			x	x						x	x		x		x			x	x
<i>Thysanotus patersonii</i>	Twining Fringe Lily																					x			x	x					
<i>Tricoryne elatior</i>	Yellow Autumn-lily				x			x	x	x	x	x	x	x	x	x								x		x		x	x	x	x
<i>Tripogon loliiformis</i>	Five-minute Grass																									x					x
<i>Triptilodiscus pygmaeus</i>	Common sunray	x			x	x	x			x	x	x	x		x	x						x	x		x	x	x	x		x	x
<i>Vittadinia cuneata</i>	Fuzzweed		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x	x	x		x
<i>Vittadinia</i> spp.	Fuzzweed															x															

Species Name	Common Name	BOA1					BOA2					BOA3					BOA4					BOA5					BOA6				
		2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020	2015	2017	2018	2019	2020
<i>Wahlenbergia communis</i>	Tufted Bluebell									x																					
<i>Wahlenbergia</i> sp.		x			x		x								x								x	x					x		
<i>Wahlenbergia</i> sp. (broad leaf)												x				x															
<i>Wahlenbergia stricta</i>	Tall Bluebell					x					x															x					
<i>Wurmbea dioica</i>	Early Nancy						x			x	x															x					
<i>Xerochrysum bracteatum</i>	Golden Everlasting		x		x		x	x		x	x	x			x	x		x		x	x	x	x		x	x	x	x		x	x
Unknown Asteraceae																													x		
Unknown grass																			x			x	x						x		

Bird survey species lists 2020

Species Name	Common Name	BC Act Listing	EPBC Act Listing	BOA2	BOA3	BOA4	BOA5	BOA6	Bird 6	Incidentals	Previously recorded
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater			x	x	x	x	x	x		x
<i>Acanthiza apicalis</i>	Inland Thornbill										x
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			x		x	x		x		X
<i>Acanthiza nana</i>	Yellow Thornbill			x		x	x	x	x		X
<i>Acanthiza reguloides</i>	Buff-rumped Thornbill								x		x
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill			x		x	x		x		x
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk					x					
<i>Aphelocephala leucopsis</i>	Southern Whiteface					x					x
<i>Aquila audax</i>	Wedge-tailed Eagle										x
<i>Ardea pacifica</i>	White-necked Heron					x					
<i>Artamus cyanopterus</i>	Dusky Woodswallow	V									x
<i>Artamus leucorhynchus</i>	White-breasted Woodswallow										x
<i>Artamus personatus</i>	Masked Woodswallow										x
<i>Artamus superciliosus</i>	White-browed Woodswallow										x
<i>Barnardius zonarius</i>	Australian Ringneck			x	x	x	x	x	x		x
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo							x			
<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo	V								x	x
<i>Chalcites basal</i>	Horsefield's Bronze-Cuckoo						x				x
<i>Chenonetta jubata</i>	Australian Wood Duck					x		x			
<i>Chroicocephalus novaehollandiae</i>	Silver Gull			x	x	x	x	x			x
<i>Chrysococcyx lucidus</i>	Shinny Bronze Cuckoo					x					x
<i>Cincloramphus mathewsi</i>	Rufous Songlark										x
<i>Colluricincla harmonica</i>	Grey Shrike-thrush										x
<i>Columba livia</i>	Rock Dove							x			x
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			x	x	x	x	x	x		x
<i>Corcorax melanorhamphos</i>	White-winged Chough			x		x	x	x	x		x
<i>Corvus bennetti</i>	Little Crow										x
<i>Corvus coronoides</i>	Australian Raven			x	x	x	x	x	x		x

Species Name	Common Name	BC Act Listing	EPBC Act Listing	BOA2	BOA3	BOA4	BOA5	BOA6	Bird 6	Incidentals	Previously recorded
<i>Corvus mellori</i>	Little Raven			x	x	x	x	x	x		x
<i>Cracticus nigrogularis</i>	Pied Butcherbird			x	x		x		x		x
<i>Cracticus tibicen</i>	Australian Magpie			x	x	x	x	x	x		x
<i>Cracticus torquatus</i>	Grey Butcherbird			x	x	x	x	x	x		x
<i>Dacelo novaeguineae</i>	Laughing Kookaburra							x			x
<i>Dicaeum hirundinaceum</i>	Mistletoe Bird										x
<i>Egretta novaehollandiae</i>	White-faced Heron					x			x		
<i>Eolophus roseicapilla</i>	Galah			x	x	x	x	x	x		x
<i>Eopsaltria australis</i>	Eastern Yellow Robin						x				x
<i>Falco berigora</i>	Brown Falcon				x		x	x	x		x
<i>Falco cenchroides</i>	Nankeen Kestrel										x
<i>Falco subniger</i>	Black Falcon			x		x					x
<i>Geopelia placida</i>	Peaceful Dove			x	x		x	x			x
<i>Gerygone fusca</i>	Western Gerygone					x	x	x	x		x
<i>Grallina cyanoleuca</i>	Magpie Lark			x	x	x	x	x	x		x
<i>Haliastur spheurnus</i>	Whistling Kite			x	x	x	x	x	x		x
<i>Lalage sueurii</i>	White-winged Triller					x	x	x			x
<i>Manorina flavigula</i>	Yellow-throated Miner			x	x	x	x	x	x		x
<i>Melopsittacus undulatus</i>	Budgerigar			x				x			x
<i>Milvus migrans</i>	Black Kite			x	x	x	x	x	x		x
<i>Northiella haematogaster</i>	Blue Bonnet			x	x	x		x	x		x
<i>Nymphicus hollandicus</i>	Cockatiel			x	x	x	x	x	x		x
<i>Ocyphaps lophotes</i>	Crested Pigeon			x	x	x	x	x	x		x
<i>Pachycephala rufiventris</i>	Rufous Whistler			x		x	x		x		x
<i>Pardalotus striatus</i>	Striated Pardalote			x			x				x
<i>Pelecanus conspicillatus</i>	Australian Pelican				x				x		x
<i>Petrochelidon nigricans</i>	Tree Martin						x	x	x		x
<i>Petroica goodenovii</i>	Red-capped Robin					x					x
<i>Phalacrocorax carbo</i>	Black Cormorant										x
<i>Phaps chalcoptera</i>	Common Bronzewing			x	x		x		x		x

Species Name	Common Name	BC Act Listing	EPBC Act Listing	BOA2	BOA3	BOA4	BOA5	BOA6	Bird 6	Incidentals	Previously recorded
<i>Philemon citreogularis</i>	Little Friarbird			x	x	x	x	x	x		x
<i>Plectorhyncha lanceolata</i>	Striped Honeyeater			x		x	x	x	x		x
<i>Polytelis swainsonii</i>	Superb Parrot	V	V								x
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler	V		x	x	x	x	x	x		x
<i>Psephotus haematonotus</i>	Red-rumped Parrot			x	x	x	x	x	x		x
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	V								x	x
<i>Rhipidura albiscapa</i>	Grey Fantail			x		x	x	x	x		x
<i>Rhipidura leucophrys</i>	Willie Wagtail			x	x		x	x			X
<i>Smicromis brevirostris</i>	Weebill					x					x
<i>Struthidea cinerea</i>	Apostlebird			x	x	x					x
<i>Sturnus vulgaris</i>	Common Starling				x	x		x	x		x
<i>Taeniopygia bichenovii</i>	Double-barred Finch									x	x
<i>Threskiornis moluccus</i>	Australian White Ibis				x	x	x		x		x
<i>Threskiornis spinicollis</i>	Straw-necked Ibis				x	x	x		x		x
<i>Todiramphus sanctus</i>	Sacred Kingfisher								x		x
<i>Trichoglossus haematodus</i>	Rainbow lorikeet							x			x
<i>Vanellus miles</i>	Masked Lapwing			x							
<i>Zosterops lateralis</i>	Silvereye										x

Bat survey species list 2020

Species Name	Common Name	BC Act Listing	EPBC Act Listing	2016	2017	2018	2019	2020
<i>Austronomus australis</i>	White-striped Freetail Bat			X			X	X
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			X	X	X	X	X
<i>Chalinolobus morio</i>	Chocolate Wattled bat			X	X	X	X	X
<i>Chalinolobus picatus</i>	Little Pied Bat	V		X	X			X
<i>Miniopterus australis</i>	Little Bent-winged Bat	V					X	
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V					X	
<i>Mormopterus (Ozimops) kitcheneri</i>	South-western Freetail Bat			X				
<i>Nyctophilus sp.</i>	Long-eared Bat			X	X	X	X	X
<i>Ozimops petersi</i>	Inland Freetail Bat			X	X	X	X	X
<i>Ozimops planiceps</i>	South-eastern Freetail Bat				X	X	X	X
<i>Rhinolophus megaphyllus</i>	Eastern Horseshoe Bat						X	
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail Bat	V						X
<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat			X	X	X	X	X
<i>Scotorepens greyii</i>	Little Broad-nosed Bat			X	X	X	X	X
<i>Vespadelus baverstocki</i>	Inland Forest Bat	V		X				
<i>Vespadelus darlingtoni</i>	Large Forest Bat				X			
<i>Vespadelus regulus</i>	Southern Forest Bat			P			X	X
<i>Vespadelus vulturnus</i>	Little Forest Bat			X	X	X	X	X

Appendix B Completed monitoring data sheets

Photo point 1

Monitoring Data Sheet			
Monitoring Point Number	PP1	Date	9/9/20
1. Site Photo(s)	6980 - 6983		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		5	E pop Alb larch
Midstorey:		1	E pop
Groundcover(grass):		60	Sclero, Erodium, Salix, Atriplex Chloro, Entero, Atriplex
Litter:		35	
Bare ground:		4	
Cryptogams:		1	
Proportion of canopy species regenerating			
Exotic cover		(15)	Arcto, Echin, Hordern Medic, Rumex
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			1/2 E pop
Threatened species sightings			GCB
Fire event/fuel/fire breaks			Nul
Weeds			as above
Pest animals			Nul
Visitor impact/vehicles			Nul
Rubbish dumping			Nul
Erosion			Nul - stable drainage line
Fencing			Nul

Photo point 2

Monitoring Data Sheet			
Monitoring Point Number	pp2	Date	8/9/20
1. Site Photo(s)	6910 - 6913		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		15	Call glauc E. pop
Midstorey:		10	Geigeria parv. C. glauc
Groundcover(grass):		30	Prodr. crin, Hyal semi Echinum, Echinops
Litter:		10	
Bare ground:		30	
Cryptogams:		30	
Proportion of canopy species regenerating			
Exotic cover		(15) ^{% of total}	Echinum, Sisy eys Arctotheca
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			C. glauc
Threatened species sightings			Nil
Fire event/fuel/fire breaks			Road in track.
Weeds			Arct. calc, Echinum Sisy eys
Pest animals			Nil
Visitor impact/vehicles			Track use
Rubbish dumping			Nil
Erosion			No new erosion
Fencing			Nil

Photo point 3

Monitoring Data Sheet			
Monitoring Point Number	703	Date	9/9/20
1. Site Photo(s)	6971 - 6974		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		5	E. pol C. glauc
Midstorey:		5	E. pol C. glauc A. oswa
Groundcover(grass):		30	Erich. tone, Sole. drac, Calotis Atr. semi, Entero, Aistpa, Pyti
Litter:		30	
Bare ground:		30	
Cryptogams:		10	
Proportion of canopy species regenerating			2/2
Exotic cover		(10)	Sisy. erys, Echum, Hordeum Arct,
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/2
Threatened species sightings			GCB
Fire event/fuel/fire breaks			Nil
Weeds			Echum, Hordeum Opuntia, Lyceum (dead)
Pest animals			Nil (Starling)
Visitor impact/vehicles			Nil
Rubbish dumping			Nil
Erosion			Nil
Fencing			Nil

Photo point 4

Monitoring Data Sheet			
Monitoring Point Number	PP4	Date	11/9/20
1. Site Photo(s)	7014 - 7017		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		15	E. polglane
Midstorey:		10	E. polglane
Groundcover(grass):		35%	Echidna, A. shpa, Erodium crn
Litter:		40	
Bare ground:		10	
Cryptogams:		5	
Proportion of canopy species regenerating			
Exotic cover		(20%)	Echidna, Hordeum, Arctis, Marrubium, Sisymbrium, medus
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/2
Threatened species sightings			GCB
Fire event/fuel/fire breaks			Nd
Weeds			Marrubium, Lycium dead, Opuntia nearby
Pest animals			Nd
Visitor impact/vehicles			Nd
Rubbish dumping			Nd
Erosion			Nd
Fencing			Nd

Photo point 5

Monitoring Data Sheet			
Monitoring Point Number	PP5		Date
1. Site Photo(s)	6976 - 6979		
2. Floristic BioMetric attributes			
Native cover	% cover	Dominant species	
Overstorey:	5	E. pop C. glauca (taw)	
Midstorey:	1	E. pop G. parv C. glauca	
Groundcover(grass):	30.	Eich. tenu, Chenop., E. radiat Mairea decal, A. stipa, Sclero, Enter	
Litter:	40		
Bare ground:	25		
Cryptogams:	5		
Proportion of canopy species regenerating			
Exotic cover	(10.)	Sisy. erys, Malva, Echinum Hordeum, Marrubium	
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/2
Threatened species sightings			GCB
Fire event/fuel/fire breaks			Nil
Weeds			Sisy. erys, Echinum, Arcto, Marrubium Hordeum
Pest animals			Nil (starlings)
Visitor impact/vehicles			Nil
Rubbish dumping			Nil
Erosion			Nil
Fencing			Nil

Photo point 6

Monitoring Data Sheet			
Monitoring Point Number	PPL		Date 8/9/20
1. Site Photo(s)	6914 — 6917		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		10	E. pop C. glauc
Midstorey:		5	C. glauc
Groundcover(grass):		35	Erod. corn, Erod. tan Sida diac.
Litter:		20	
Bare ground:		30	
Cryptogams:		15	
Proportion of canopy species regenerating		2/2	
Exotic cover		(5) of ground total	Echinum, Sida, Erod. Arct, Opuntia x 2
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			E. pop C. glauc
Threatened species sightings			Nil
Fire event/fuel/fire breaks			Track in good cond
Weeds			Opuntia, Echinum, Arct
Pest animals			Nil
Visitor impact/vehicles			Nil
Rubbish dumping			Small amounts of glass rubbish
Erosion			Bank stable
Fencing			Nil



Photo point 7

Monitoring Data Sheet			
Monitoring Point Number	PP 7	Date	8/9/20
1. Site Photo(s)	6922 - 6925		
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		15%	E. pol C. glauc
Midstorey:		5%	E. glauc
Groundcover(grass):		20%	Erodium crin Calo hisp, Dichap
Litter:		1%	
Bare ground:		44%	
Cryptogams:		35%	
Proportion of canopy species regenerating			
Exotic cover		(7%) ^{of total}	Echinum, medic Arctoo
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/2
Threatened species sightings			GCB
Fire event/fuel/fire breaks			N/A
Weeds			Sisym, Echinum, Arcto
Pest animals			N/A
Visitor impact/vehicles			N/A
Rubbish dumping			N/A
Erosion			N/A
Fencing			N/A

Photo point 8

Monitoring Data Sheet			
Monitoring Point Number	PP8		Date
1. Site Photo(s)		7018 - 7021	
2. Floristic BioMetric attributes			
Native cover		% cover	Dominant species
Overstorey:		5	E pop, Call glauc
Midstorey:		1	Ale leah
Groundcover(grass):		40.	C glauc, Maireana, Geyera E-pop, Acacia oswaldi
Litter:		50	A styl, Sclero muri
Bare ground:		5	Erodium, Maireana decal
Cryptogams:		5	
Proportion of canopy species regenerating			2/3
Exotic cover		(20)	lycun dead, Hordeum, Arcto Arcto, Echum, Medie
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/3 E pop C. glauc
Threatened species sightings			GCB
Fire event/fuel/fire breaks			Fire break in good cond
Weeds			Echum Arcto, Hordeum
Pest animals			N/A
Visitor impact/vehicles			formed track
Rubbish dumping			N/A
Erosion			N/A
Fencing			N/A

Photo point 9 (BOA 1)

Monitoring Data Sheet			
Monitoring Point Number	BOA 1	Date	8/9/20
1. Site Photo(s)	6906 - 6909		
2. Floristic BioMetric attributes			
Native cover		% cover Trans Plot	Dominant species
Overstorey:		- <1	E. pop, C. glauc
Midstorey:		- 5	Pitt angu
Groundcover(grass):		64	Mylal semi, Dick forbs
Litter:		6	
Bare ground:	V	14	
Cryptogams:		20	
Proportion of canopy species regenerating			2/2 Callitris glauc, E pop
Exotic cover		6	
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			Call glauc E. pop
Threatened species sightings			Nil
Fire event/fuel/fire breaks			Nil, Track nearby
Weeds			Low, Lycium in plot. Opuntia just outside Art cane, Echium, Medica
Pest animals			Nil
Visitor impact/vehicles			signed Track nearby
Rubbish dumping			No evidence of blown rubbish
Erosion			Nil
Fencing			Nil

Photo point 10 (BOA 2)

Monitoring Data Sheet			
Monitoring Point Number	BOA 2	Date	9/9/20
1. Site Photo(s)	6967 - 6970		
2. Floristic BioMetric attributes			
Native cover	% cover	Plot	Dominant species
Overstorey:		2	B. pop E. pop
Midstorey:	8	5	C. glauca E. pop
Groundcover(grass):	14	15	Hypola, Rhod. dist, Goodenia Crassula, Calotus
Litter:	28		
Bare ground:	30		
Cryptogams:	30		
Proportion of canopy species regenerating			
Exotic cover	6	(3)	Echinum, Trifolium, Medicago Arcto, Opuntia nearby.
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/3
Threatened species sightings			GCB nearby
Fire event/fuel/fire breaks			Nil
Weeds			Opuntia Echinum, Arcto, Hypo radi
Pest animals			Nil
Visitor impact/vehicles			Nil
Rubbish dumping			Nil
Erosion			Nil
Fencing			Nil



Photo point 11 (BOA 3)

Monitoring Data Sheet			
Monitoring Point Number	BOA3	Date	8/9/20
1. Site Photo(s)	6902 - 6905		
2. Floristic BioMetric attributes			
Native cover		% cover Trans Plot	Dominant species
Overstorey: 1		2 0	Callitris glauca
Midstorey: IIII		10 10	Call glauca
Groundcover(grass): IIII IIII IIII IIII IIII		50	
Litter: IIII III		16	
Bare ground: IIII II		14	
Cryptogams: IIII		10	
Proportion of canopy species regenerating			2/2 E. pop C. glauca
Exotic cover IIII II		14	
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			Natural regen No distur
Threatened species sightings			GCB
Fire event/fuel/fire breaks			N/A
Weeds			low Arct calend, Echium, Medica
Pest animals			Nil
Visitor impact/vehicles			Nil
Rubbish dumping			Nil
Erosion			Nil
Fencing			Nil



Photo point 12 (BOA 4)

Monitoring Data Sheet			
Monitoring Point Number	BOA 4	Date	9/9/20
1. Site Photo(s)	6963 - 6966		
2. Floristic BioMetric attributes			
Native cover	% cover		Dominant species
	trans	Plot	
Overstorey:		5	E. pol
Midstorey:	4	1	E. pol E. glauc
Groundcover(grass):	26	7	Astypa, Eod pus Hyalo, Lytido
Litter:	8	5	
Bare ground:	50	60	
Cryptogams:	16	28	
Proportion of canopy species regenerating			
Exotic cover	2	4	Arcto, Opuntia Echium
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			Yes, 2/2
Threatened species sightings			GGB
Fire event/fuel/fire breaks			Nil Track close by maintained
Weeds			Opuntia Arcto, Echium, Cartha
Pest animals			Nil
Visitor impact/vehicles			Old quarry, piled earth
Rubbish dumping			Small amounts of blown rubbish
Erosion			Nil
Fencing			Nil



Photo point 13 (BOA 5)

Monitoring Data Sheet			
Monitoring Point Number	BOA 5		Date
1. Site Photo(s)		6959 - 6962	
2. Floristic BioMetric attributes			
Native cover	% cover		Dominant species
	trans	plot	
Overstorey:		0	
Midstorey:		60	20
Groundcover(grass):		14	15
Litter:		46	35
Bare ground:		24	35
Cryptogams:		10	15
Proportion of canopy species regenerating			
Exotic cover		0	(5)
3. Opportunistic observations			
	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			2/2
Threatened species sightings			GCB nearby Speckled Warbler
Fire event/fuel/fire breaks			N/A
Weeds			Opuntia Hypo radi, Arcto, Echium, Hordeum
Pest animals			Nil
Visitor impact/vehicles			Nil
Rubbish dumping			Blown rubbish in area
Erosion			Nil
Fencing			Nil

Photo point 14 (BOA 6)

Monitoring Data Sheet			
Monitoring Point Number	80A6	Date	8/9/20
1. Site Photo(s)	6918 - 6921		
2. Floristic BioMetric attributes			
Native cover	% cover	Dominant species	
Overstorey: IIII IIII IIII IIII	36 15	C. glauc E. pop	
Midstorey: III	6 5	C. glauc E. pop	
Groundcover(grass): IIII III	16 20	Enchyta, Erbdum crin Hyal semi, Delt fruib	
Litter: IIII IIII IIII IIII	38 35		
Bare ground: IIII III	16 10		
Cryptogams: IIII IIII	20 35		
Proportion of canopy species regenerating		2/2 C. glauc E. pop	
Exotic cover IIII	10 (6)	Echum Arcto, Sisy 2/3	
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas			Yes 2/2
Threatened species sightings			NIL
Fire event/fuel/fire breaks			NIL
Weeds			lycum dead nearby Echum, Arcto, Sisy
Pest animals			NIL
Visitor impact/vehicles			NIL
Rubbish dumping			NIL
Erosion			NIL
Fencing			NIL

Appendix C Completed quadrat data sheets

THARBOGANG OFFSET MONITORING

Date: 8-11 Sept 2020

Observers: BM, EN

Species Name	Common Name	BOA 1	BOA 2	BOA 3	BOA 4	BOA 5	BOA 6
Exotics							
<i>Aira cupaniana</i>	Capeweed	✓ 0.5, 30	✓ 0.5, 50 ⁺⁺	✓ 0.1, 10	✓ 0.2, 50	✓ 5, 500	✓ 3, 100
<i>Arctotheca calendula</i>	Wild Oats						✓ 0.1, 1
<i>Avena fatua</i>	<i>Brassica tournefortii</i>						
<i>Brassicaea sp.</i>		✓ 0.1, 1			✓ 0.1, 5 ⁺⁺	✓ 0.1, 1	✓ 0.1, 5 ⁺⁺
<i>Bromus rubens</i>			✓ 0.1, 8 ⁺⁺⁺		✓ 0.1, 2 ⁺⁺⁺	✓ 0.1, 5	✓ 0.1, 5 ⁺⁺
<i>Bromus sp. B. arenarius</i>							
<i>Carthamus lanatus</i>	Saffron Thistle						
<i>Centaurea sp.</i>							
<i>Cirsium vulgare</i>	Spear Thistle						
<i>Echium plantagineum</i>	Paterson's Curse	✓ 1, 100	✓ 2, 50	✓ 0.5, 10	✓ 0.1, 5 ⁺⁺⁺	✓ 1, 100	✓ 2, 50
<i>Erodium cicutarium</i>	Common Crowfoot	✓ 0.1, 1		✓ 0.1, 5	✓ 0.1, 1		
<i>Hedynopsis rhagadioloides</i>			✓ 0.1, 2 ⁺⁺			✓ 0.1, 5 ⁺⁺⁺	✓ 0.1, 5 ⁺⁺⁺
<i>Hordeum leporinum</i>	Barley Grass					✓ 0.1, 7 ⁺⁺⁺	
<i>Hypochoeris glabra</i>							
<i>Hypochoeris radicata</i>	Catsear	✓ 0.1, 1	✓ 0.2, 50 ⁺⁺⁺	✓ 0.1, 5	✓ 0.1, 20	✓ 0.2, 50 ⁺⁺	✓ 0.1, 4 ⁺⁺⁺
<i>Iris sp.</i>							
<i>Lactuca serriola</i>	Prickly Lettuce	✓ 0.1, 1	✓ 0.1, 1 ⁺⁺	✓ 0.1, 3			
<i>Lepidium sp.</i>							
<i>Lolium rigidum</i>	Wimmera Ryegrass		✓ 0.1, 10 ⁺⁺⁺		✓ 0.1, 5 ⁺⁺⁺		✓ 0.1, 2 ⁺⁺
<i>Lycium ferocissimum</i>	African Boxthorn	✓ 0.1, 1					
<i>Rostratula pumila</i>							
<i>Medicago lacinata</i>	Cut-leaved Medic	✓ 1, 1000 ⁺⁺		✓ 0.5, 100	✓ 0.1, 1	✓ 0.1, 20	✓ 1, 1000
<i>Medicago minima</i>	Woolly Burr Medic	✓ 0.2, 100	✓ 0.2, 100 ⁺⁺	✓ 0.1, 1	✓ 0.1, 20 ⁺⁺	✓ 0.1, 10	✓ 0.1, 20

Barren for all

Plot cover: BOA 3 - 35% BOA 5 - 15%
BOA 1 - 40% BOA 4 - 5%
BOA 6 - 20% BOA 2 - 15%



Species Name	Common Name	BOA 1	BOA 2	BOA 3	BOA 4	BOA 5	BOA 6
<i>Medicago polymorpha</i>	Burr Medic					✓ 0.1, 1	
<i>Medicago sp.</i>							
<i>Medicago truncatula</i>	Barrel Medic	✓ 0.1, 10	✓ 0.1, 10				
<i>Opuntia stricta</i>	Prickly Pear				✓ 0.1, 1	✓ 0.1, 1	
<i>Opuntia sp.</i>							
<i>Pentstemonis airoides</i>	False Hairgrass		✓ 0.1, 10			✓ 0.1, 6	✓ 0.1, 5
<i>Polygonum aviculare</i>	Wireweed						
<i>Raphanus raphanistrum</i>	Wild Radish						
<i>Romulea rosea</i>	Onion Grass		✓ 0.1, 20	✓ 0.1, 50	✓ 0.1, 1	✓ 0.1, 20	✓ 0.1, 50
<i>Silene tridentata</i>	Catchfly		✓ 0.1, 1		✓ 0.1, 3		✓ 0.1, 2
<i>Sisymbrium erysimoides</i>		✓ 0.1, 3	✓ 0.1, 3		✓ 0.1, 10	✓ 0.1, 2	✓ 0.2, 20
<i>Sisymbrium info</i>	London Rocket		✓ 0.1, 5				✓ 0.1, 2
<i>Sonchus asper</i>	Prickly Sowthistle						
<i>Sonchus oleraceus</i>	Common Sowthistle	✓ 0.1, 2	✓ 0.1, 3	✓ 0.1, 2	✓ 0.1, 2	✓ 0.1, 20	✓ 0.1, 4
<i>Trifolium arvense</i>	Haresfoot Clover		✓ 0.1, 100	✓ 0.1, 20		✓ 0.1, 20	✓ 0.1, 50
<i>Trifolium sp.</i>				✓ 0.1, 5		✓ 0.1, 1	
<i>Veronica arvensis</i>							
<i>Vulpia myuros</i>	Rat's Tail Fescue	✓ 0.1, 20	✓ 0.1, 20	✓ 0.1, 20	✓ 0.1, 20	✓ 0.1, 20	✓ 0.1, 20
<i>Vulpia sp.</i>					✓ 0.1, 20		
Natives							
<i>Actinobole uliginosum</i>	Flannel Cudweed	✓ 0.2, 100	✓ 0.1, 50	✓ 1, 100		✓ 0.1, 50	✓ 2, 500
<i>Aphanes australiana</i>			✓ 0.1, 50	✓ 0.1, 10		✓ 0.1, 20	✓ 0.1, 100
<i>Aristida behriana</i>	Bunch Wiregrass	✓ 0.2, 15	✓ 0.1, 10	✓ 0.1, 1	✓ 0.2, 12		
<i>Aristida sp.</i>				✓ 0.2, 20	✓ 0.1, 3		
<i>Arthropodium minus</i>	Small Vanilla Lily			✓ 0.1, 20		✓ 0.1, 10	✓ 0.1, 5
<i>Arthropodium sp.</i>							

Anshida jenschoensis var *subsp. nuda* - BOA 4, BOA 5

Cat's glaucophylla @ BOA1 - 1x seedling + 3 v. young plants

Species Name	Common Name	BOA 1	BOA2	BOA3	BOA4	BOA5	BOA6
<i>Atriplex semibaccata</i>	Creeping Saltbush		✓ 0.1, 1 ✓ under pines!		✓ 0.1, 3 ^{IV}		
<i>Atriplex</i> sp.							
<i>Austrostipa aristiglumis</i>	Plains Grass						
<i>Austrostipa bigeniculata</i>							
<i>Austrostipa scabra</i>	Speargrass	✓ 2, 100	✓ 0.1, 10	✓ 0.2, 50	✓ 0.5, 100	✓ 0.1, 10	
<i>Austrostipa</i> sp.							
<i>Brachychiton populneus</i>	Kurrajong		✓ 1, 1 oh				
<i>Brachyscome lineariloba</i>	Hard-headed Daisy						
<i>Bulbine bulbosa</i>	Bulbine Lily	✓ 0.3, 50	✓ 0.1, 2 ^{II}	✓ 0.2, 25	✓ 0.1, 2	✓ 0.1, 12 ^{III}	✓ 0.1, 20
<i>Bulbine semibarbata</i>						✓ 0.1, 5	
<i>Calandrinia eremaea</i>			✓ 0.1, 20 ^I	✓ 0.1, 12 ^{III}		✓ 0.1, 7 ^{III}	✓ 0.1, 6 ^{III}
<i>Callitris glaucophylla</i>	White Cypress Pine	✓ 1, 5	✓ 5, 17	✓ 4, 18	✓ 0.1, 3	✓ 20, 100 ^{II}	✓ 15, 20
<i>Calotis hispidula</i>	Bogan Flea	✓ 10, 5000	✓ 1, 200 ^{II}	✓ 5, 500	✓ 0.1, 20	✓ 0.2, 100	✓ 2, 100
<i>Cassia artemisioides</i>			out this year				
<i>Cassia</i> sp.							
<i>Chamaesyce drummondii</i>	Caustic Weed	✓ 0.1, 1	✓ 0.1, 2 ^{II}	✓ 0.1, 1	✓ 0.1, 2 ^{II}	✓ 0.1, 3 ^{III}	✓ 0.1, 1
<i>Chelanthus sieberi</i>	Mulga Fern			✓ 0.1, 5		✓ 0.1, 20 ^{II}	✓ 0.1, 20 ^{III}
<i>Chenopodium desertorum</i> subsp. <i>desertorum</i>		✓ 0.1, 1	✓ 0.1, 1		✓ 0.1, 1		✓ 0.3, 5 ^{III}
<i>Chenopodium nitraticeum</i>	Nitre Goosefoot						
<i>Chenopodium</i> sp.							
<i>Chloris</i> sp.							
<i>Chloris truncata</i>	Windmill Grass						
<i>Chryscephalum apiculatum</i>	Common Everlasting	✓ 0.1, 2 ^{II}			✓ 0.1, 6 ^{III}	✓ 0.1, 3 ^{III}	
<i>Convolvulus erubescens</i> complex			✓ 0.1, 3 ^{III}	✓ 0.2, 20	✓ 0.2, 10 ^{III}	✓ 0.1, 5 ^{III}	✓ 0.1, 4 ^{III}
<i>Convolvulus</i> sp.							
<i>Crassula colorata</i>		✓ 0.1, 10	✓ 0.2 ^{II}	✓ 0.3, 1000		✓ 0.1, 50	✓

Dianella sp @ BOA 1 - lvs blue/green, sometimes twisted, rough along midvein adaxial surface - lvs dirty x2

Species Name	Common Name	BOA 1	BOA 2	BOA 3	BOA 4	BOA 5	BOA 6
<i>Crassula decumbens</i> var <i>decumbens</i>							0.2, 1000
<i>Crassula</i> sp.							
<i>Dianella</i> sp.		0.1, 4					
<i>Dichelachne</i> sp.							
<i>Dichopogon fimbriatum</i>	Chocolate Lily	3, 100	0.1, 2	1, 50		0.3, 50	3, 100
<i>Dichopogon</i> sp.							
<i>Einadia nutans</i>	Climbing Saltbush						
<i>Einadia nutans</i> subsp <i>nutans</i>		0.1, 3	0.1, 7	0.1, 2		0.1, 4	0.1, 2
<i>Enchylaena tomentosa</i>	Ruby Saltbush	1, 50	1, 30	0.1, 5	0.1, 2	1, 12	1, 20
<i>Erodium cicutarium</i>	Blue Storkbill	5, 100	0.5, 100	4, 100	0.1, 5	0.3, 50	
<i>Eucalyptus populnea</i>	Poplar Box	0.1, 1		0.1, 1	10, 5	0.1, 1	0.1, 1
<i>Euphorbia</i> sp.							
<i>Goodenia cycloptera</i>	Goodenia cycloptera						
<i>Goodenia fascicularis</i>							
<i>Goodenia pusilliflora</i>		1, 1000	0.5, 100	1, 1000	0.2, 200	0.1, 20	0.2, 50
<i>Homopholis prolata</i>							
<i>Hyalosperma glutinosum</i> subsp. <i>glutinosum</i>							
<i>Hyalosperma semiterite</i>		20, 5000	4, 1000	15, 5000	1, 200	0.2, 100	1, 500
<i>Hyalosperma</i> sp.							
<i>Isoetopsis graminifolia</i>	Grass Cushion	0.1, 50	0.1, 20	0.1, 30	0.1, 5	0.1, 5	
<i>Maireana enclylaenoides</i>	Wingless Fissure Weed	0.1, 1	0.1, 4	0.1, 5	0.1, 2	0.1, 2	0.1, 2
<i>Maireana excavata</i>		0.3, 50	0.1, 4	0.3, 50	0.1, 1		
<i>Millotia myosotidifolia</i>						2, 1000	
<i>Minuria leptophylla</i>					0.1, 3		
<i>Ophioglossum lusitanicum</i>	Adders Tongue			0.1, 25			

Species Name	Common Name	BOA 1	BOA 2	BOA 3	BOA 4	BOA 5	BOA 6
<i>Ophioglossum</i> sp.		✓ 0.1, 5	✓ 0.1, 20 ^{III}	✓ 0.1, 6 ^{III}	✓ 0.1, 3 ^{III}	✓ 0.1, 20	✓ 0.1, 20
<i>Oxalis perennans</i>		✓ 0.2, 14					
<i>Ptilosporum angustifolium</i>							
<i>Pterostylis bicolor</i>	Black-tip Greenhood						
<i>Ptilotus spathulatus</i>	Pussy Tails	✓ 0.1, 2 ^{II}	✓ 0.1, 2 ^{II}		✓ 0.1, 3 ^{III}		
<i>Ranunculus sessiliflorus</i>							✓ 0.1, 2
<i>Rhodanthe corymbiflora</i>	Small White Sunray	✓ 0.1, 1 ^I				✓ 0.1, 1	
<i>Rhodanthe diffusa</i>			✓ 0.2, 100	✓ 1, 100		✓ 1, 500	✓ 0.3, 100
<i>Rhodanthe pygmaea</i>	Pygmy Sunray	✓ 0.1, 10	✓ 0.1, 1	✓ 0.1, 50	✓ 0.1, 5 ^{III}		
<i>Rytidosperma</i> sp. "hairy narrow"		✓ 0.1, 20	✓ 0.1, 10 ^{III}	✓ 0.1, 10	✓ 0.1, 10 ^I		✓ 0.1, 10 ^{II}
<i>Salsola australis</i> (formerly <i>S. kali</i> and <i>S. tragus</i>)	Soft Roly Poly	✓ 0.1, 2 ^{II}		✓ 0.1, 1	✓ 0.1, 2		
<i>Sclerolaena</i> sp. = <i>S. diacantha</i>		✓ 0.1, 4 ^{III}			✓ 0.1, 2 ^{II}		
<i>Sida corrugata</i>	Corrugated Sida	✓ 0.1, 3 ^{III}	✓ 0.1, 2 ^{II}	✓ 0.1, 2	✓ 0.1, 1	✓ 0.1, 5	✓ 0.1, 5
<i>Sida cunninghamii</i>	Ridged Sida	✓ 0.2, 20 ^{III}	✓ 0.1, 10 ^{III}	✓ 0.1, 10	✓ 0.1, 4 ^{III}	✓ 0.1, 5	✓ 0.1, 10
<i>Solanum esuriale</i>	Quena				✓ 0.1, 2		
<i>Spergularia</i> sp.							
<i>Stackhousia monogyna</i>	Creamy Stackhousia		✓ 0.2, 12 ^{III}			✓	
<i>Sturtia muelleri</i>	Spoon Cudweed	✓ 0.1, 1 ^I	✓ 0.1, 20	✓ 1, 200		✓	✓ 0.3, 100
<i>Thysanotus patersonii</i>						✓ 0.1, 1	
<i>Tricoryne elatior</i>	Yellow Autumn-lily		✓ 0.1, 7 ^{III}	✓ 0.1, 1		✓ 0.1, 8 ^{III}	✓ 0.1, 8 ^{III}
<i>Triptilodiscus pygmaeus</i>	Common sunray	✓ 0.1, 1 ^I	✓ 0.1, 30 ^I	✓ 0.1, 8		✓ 0.1, 20 ^{III}	✓ 0.1, 2 ^{II}
<i>Velleia paradoxa</i>							
<i>Vittadinia cuneata</i>	Fuzzweed	✓ 0.1, 5	✓ 0.1, 3 ^{III}	✓ 0.1, 5	✓ 0.2, 20 ^{III}	✓ 0.1, 1	✓ 0.1, 1
<i>Wahlenbergia</i> (broad leaf) sp.				✓ 0.1, 3			
<i>Wahlenbergia communis</i>	Tufted Bluebell		one 10 ^{II}				
<i>Wahlenbergia</i> sp.							

sample collected

Rytidosperma caespitosum — BOA 4 — possibly the "hairy narrow"
Rytidosperma articulata BOA 6 — also narrow hairy
Triadenum liliiformis — BOA 6 + BOA 5

Appendix D Weed management receipt

THE GENERAL MANAGER
PO BOX 485,
GRIFFITH NSW 2680
Telephone: (02) 6962 1277
Facsimile: (02) 6962 7161

Griffith city council
...love the lifestyle...

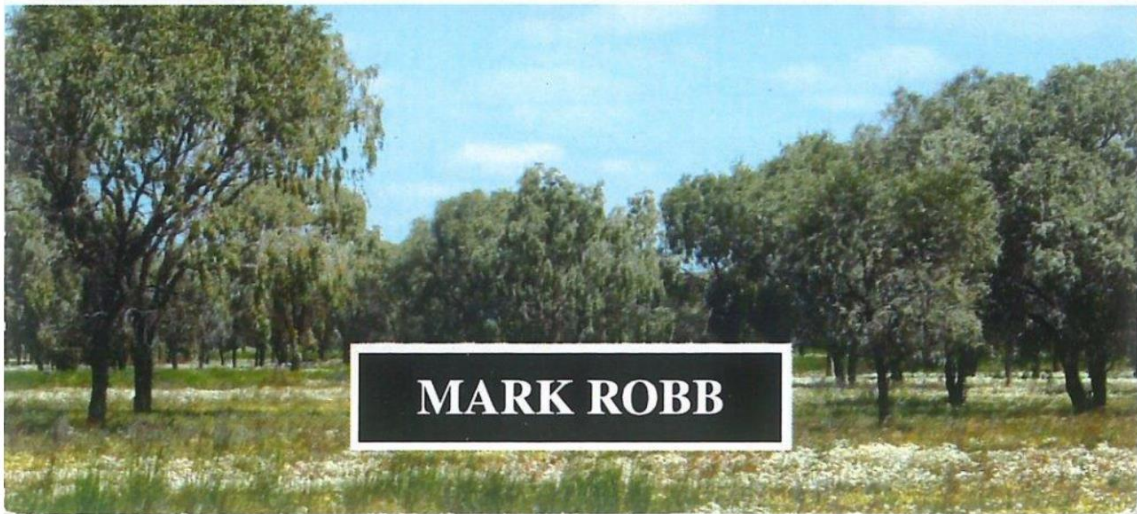
Council
Chambers
Griffith
2680

2093

HERBICIDE SPRAY CONTROL SHEET

Date: 16-12-19 Operator: Ian Hornbuckle
Roads Sprayed/Noxious Weed: Griffith L.P.
From km 12.9 to km 3000
First Fill Ltr Fourth Fill Ltr
Second Fill Ltr Fifth Fill Ltr
Third Fill Ltr Sixth Fill Ltr
Types of Chemical Used:
Name: weed master 9.90 Quantity / Tank 90 / 3000 Rate / ha
Name: bast 9 Quantity / Tank 20 / 3000 Rate / ha
Name: Quantity / Tank Rate / ha
Name: Quantity / Tank Rate / ha
Guide Post Guardrail Overall Spray Spot Spray:
Spray on Area: 12.9
Time Spent: 6.00 Area Covered: PS.I. 1.5
Blockups, blocked nozzles or other remarks: no ok
Weed Infestation on Area: Light Medium Heavy
Road Side: Light Medium Heavy
Weed actively growing Moisture stressed Heat stressed
Weeds Identified: annual weeds
Weather Conditions: fine 1/4 How much: 1/4
Time of spraying: Overcast Fine Temperature 12°C
Wind Conditions: SE at 6 to 12 km/h
Changes of weather from start to finish, any: got to be windy
SIGNATURE OF OPERATOR: Ian Hornbuckle
Time recorded after spraying: How much:
Inspection date: By Whom:
Inspection date: By Whom:

MA & WM ROBB ENVIRONMENTAL MANAGEMENT SERVICES



GCC Weed Control Program – Lot 201 & Lot 181 Tharbogang

African Boxthorn Control Work – September 2020

Reporting Period: 7 September – 21 September 2020

Work Dates: 07/09, 12/09, 13/09, 18/09, 21/09

Work Days Completed: 5



GCC Weed Control Program – Lot 201 Tharbogang

African Boxthorn Control Work – September 2020



GCC Weed Control Program – Lot 181 Tharbogang

African Boxthorn Control Work – September 2020



GCC Weed Control Program – Lot 181 Tharbogang

African Boxthorn Control Work – September 2020

