

## Armstrong Reserve Rehabilitation – Capecare Monitoring Report – Baseline (August 2020)

<b>Monitoring Date(s):</b>	05/08/20	<b>Conducted By:</b>	A. Johnston & J. Sherborne
<b>Site Reference:</b>	Armstrong Reserve	<b>Reviewed By:</b>	M. Blunt
<b>Area (ha):</b>	3.5		

### Brief Works History

- This monitoring report was undertaken prior to any on-ground works occurring. Future reports will provide comments regarding previous work history.

### Monitoring Methodology

#### Quadrat Establishment

- 6x monitoring quadrats (5m x 5m) were established and demarcated using steel fence droppers in each corner in a NE/SE/NW/SW configuration;
- Quadrats were positioned in degraded areas of the site where revegetation works are planned;
- All quadrats are located around the perimeter of the reserve where the majority of degraded areas were identified during the initial weed / condition survey;
- Photos of each quadrat was taken from the NE corner of each quadrat.

#### Data Collection


- The NE corner quadrat marker of each quadrat was GPS marked and location recorded;
- All native species were identified and individuals counted;
- Overall native cover and stem density was also recorded;
- All weed species were identified and recorded as overall % cover;
- Additional comments were recorded where appropriate.

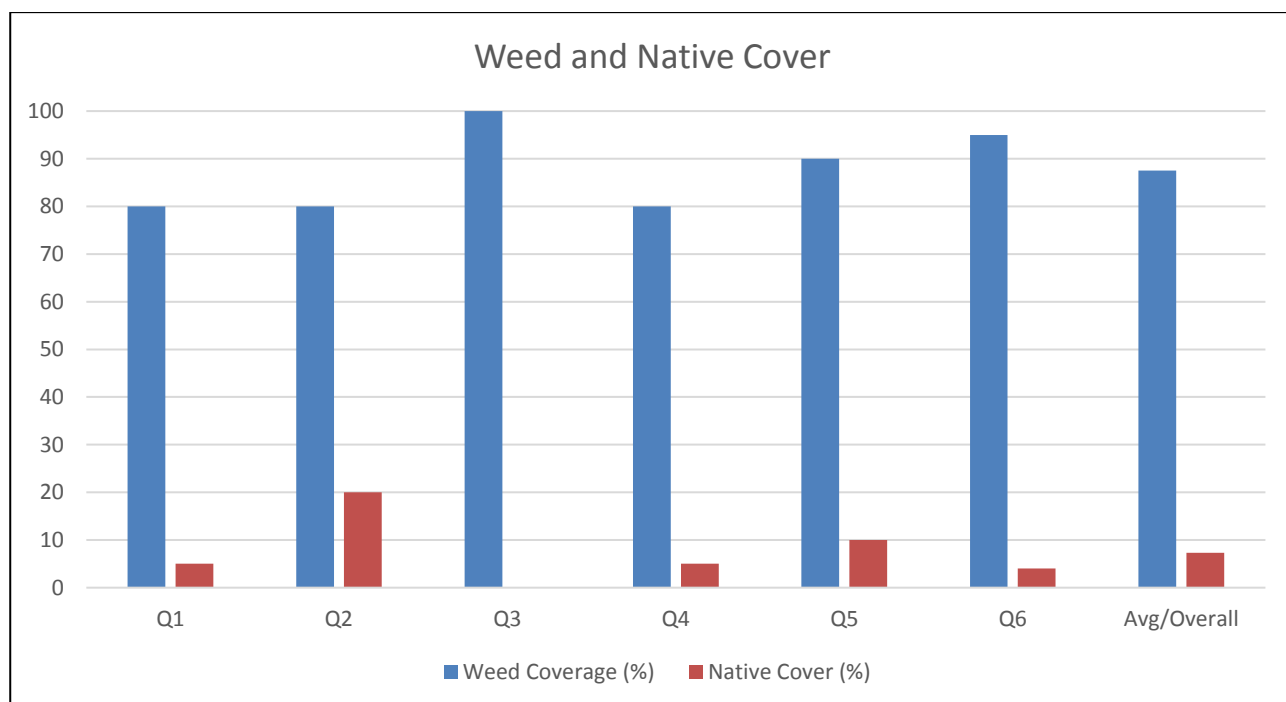
#### Monitoring and Reporting Schedule

- This is the first of six formal monitoring events scheduled for the duration of the 3 year project period;
- Additional weed monitoring events are to be conducted quarterly in addition to the formal events over the project period.

## Results, Observations and Discussion

The following data from this initial assessment will be used as a baseline to measure future progress. Further analysis and interpretation will be provided in subsequent monitoring reports as comparative quantitative data becomes available. Detailed raw data for each quadrat is provided in Appendix 1 of this document.

		<b>Capecare - Armstrong Reserve Rehabilitation</b> <b>Quantitative Data Summary - Baseline (Aug-20)</b>		
Quadrat	Native Species Diversity (Richness)	Native Density (stems / m <sup>2</sup> )	Weed Coverage (%)	Native Cover (%)
Q1	6	0.4	80	5
Q2	8	1.3	80	20
Q3	1	0.1	100	0
Q4	7	0.7	80	5
Q5	6	0.9	90	10
Q6	4	0.2	95	4
<b>Avg/Overall</b>	<b>5.3</b>	<b>0.6</b>	<b>87.5</b>	<b>7.3</b>



The results of the baseline monitoring assessment demonstrate a dominance of weeds in all quadrats assessed, with weed cover 80% or above. The dominant weed species relative to overall cover were the more abundant grasses (*C. clandestinum*, *C. dactylon*, *E. curvula* & *E. longiflora*).

Native species cover was minimal and native stem density does not demonstrate a natural native density in any of the quadrats. Native species richness is also significantly lower than that observed across the wider Armstrong reserve or would be expected in this vegetation type.

## Conclusions and Recommendations

- The data presented was captured prior to any rehabilitation / revegetation works being undertaken and will be used as a baseline to measure against future works;
- The data captured in the quadrats does not represent the condition of the entire Armstrong Reserve and were specifically located in degraded areas of the reserve that are planned for intensive revegetation works;
- The Completion Criteria provided in the Weed Management Plan (Onshore Environmental, 2020) do not specify quantitative targets for weed management or revegetation works. The document outlines the requirement that:
  - *No significant increase in weeds (weed density and/or cover depending on weed species) in Armstrong Reserve;*
  - *No significant change in the distribution and extent of identified weed species in Armstrong Reserve;*
  - *No new weed species observed or recorded in Armstrong Reserve.*
  - *WONS and Declared Pests are eradicated where possible, or controlled within Armstrong Reserve.*
  - *No significant increase in the density and/or cover (depending on species) of WONS and Declared Pests within Armstrong Reserve.*
- The data captured during the monitoring events will be focussed on ensuring the above criteria is met over the project period, in addition to monitoring the condition of existing vegetation and revegetation plantings to be installed as part of the project;
- The initial works for this project will focus on ensuring that the weeds are well managed prior to the installation of native plants in subsequent years, and that these revegetation areas are maintained for the project period;
- Additional weed control across the wider reserve will also focus on removing the priority weeds identified in the WMP progressively over the project period;
- The works scheduled to occur as part of the rehabilitation project will provide every chance that the criteria will be easily met by the end of the project period.





Project: Armstrong Reserve Rehabilitation  
 Project Number: P904A  
 Client: CapeCare

Drawing: Monitoring Quadrat Locations  
 Drawing Number: P904A-01  
 Revision: 0

Date: 26/08/20  
 Drawn By: AJ





## Quadrat Photographs







**Quadrat 3**



**Quadrat 4**







## **Appendix 1 - Monitoring Data Sheets**



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q1	
Quadrat GPS Location:	GDA94 Z50 324302E; 6279327S	
Current Site Conditions:	SE corner of reserve. Highly degraded	
Native Species (count)	Count	Comments:
<i>Acacia saligna</i>	2	
<i>Agonis flexuosa</i>	1	
<i>Corymbia calophylla</i>	1	
<i>Dasypogon bromeliifolius</i>	1	
<i>Eucalypus rudis</i>	3	
<i>Xanthorrhoea preissii</i>	1	
Weed Species (Cover %)	Cover	Comments:
<i>Avena barbata</i>	5	
<i>Cynodon dactylon</i>	20	
<i>Eragrostis curvula</i>	10	
<i>Erharta longiflora</i>	5	
<i>Gladiolus caryophyllaceus</i>	15	
<i>Nothoscordum gracile</i>	<1	
<i>Oxalis</i> sp.	5	
<i>Pennisetum clandestinum</i>	20	
<i>Zantedeschia aethiopica</i>	<1	
Native Density		Comments:
Stem density (stems / m2)	0.4	
Cover (%)		Comments:
Native Cover	5	
Weed Cover	80	
Additional Comments:		



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q2	
Quadrat GPS Location:	GDA94 Z50 324253E; 6279408S	
Current Site Conditions:	Central eastern boundary. Degraded	
Native Species (count)	Count	Comments:
<i>Acacia saligna</i>	2	
<i>Acacia sp.</i>	2	
<i>Austrostipa sp.</i>	12	
<i>Baumea juncea</i>	5	
<i>Conostylis sp.</i>	3	
<i>Corymbia calophylla</i>	3	
<i>Lyginia imberbis</i>	3	
<i>Pattersonia occidentalis</i>	2	
Weed Species (Cover %)	Cover	Comments:
<i>Agapathus praecox</i>	5	
<i>Erharta longiflora</i>	35	
<i>Gladiolus caryophyllaceus</i>	20	
Native Density		Comments:
Stem density (stems / m2)	1.3	
Cover (%)		Comments:
Native Cover	20	
Weed Cover	80	
Additional Comments:		



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q3	
Quadrat GPS Location:	GDA94 Z50 324171E; 6279521S	
Current Site Conditions:	NE corner of reserve. Highly degraded	
Native Species (count)	Count	Comments:
<i>Juncus pallidus</i>	2	
Weed Species (Cover %)	Cover	
<i>Eragrostis curvula</i>	<1	
<i>Gladiolus caryophyllaceus</i>	<1	
<i>Oxalis</i> sp.	<1	
<i>Pennisetum clandestinum</i>	99	
Native Density		Comments:
Stem density (stems / m2)	0.1	
Cover (%)		Comments:
Native Cover	<1	
Weed Cover	>99	
Additional Comments:		



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q4	
Quadrat GPS Location:	GDA94 Z50 324114E; 6279499S	
Current Site Conditions:	Northern boundary (opp. 7 Cygnet Cove). Highly degraded	
Native Species (count)	Count	Comments:
<i>Acacia pulchella</i> var. <i>pulchella</i>	8	
<i>Acacia saligna</i>	1	
<i>Adenanthos meisneri</i>	1	
<i>Agonis flexuosa</i>	2	
<i>Conostylis acculeata</i>	1	
<i>Corymbia calophylla</i>	4	
<i>Xanthorrhoea preissii</i>	1	
Weed Species (Cover %)	Cover	Comments:
<i>Agapathus praecox</i>	5	
<i>Avena barbata</i>	70	
<i>Euphorbia peplus</i>	<1	
<i>Stenotaphrum secundatum</i>	5	
Native Density		Comments:
Stem density (stems / m2)	0.7	
Cover (%)		Comments:
Native Cover	5	
Weed Cover	80	
Additional Comments:		
Lawn clippings dumped		



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q5	
Quadrat GPS Location:	GDA94 Z50 324037E; 6279440S	
Current Site Conditions:	Northern boundary (opp. 15 Cygnet Cove). Highly degraded	
Native Species (count)	Count	Comments:
<i>Agonis flexuosa</i>	1	
<i>Conostylis acculeata</i>	2	
<i>Hibbertia cuneiformis</i>	14	
<i>Kennedia prostrata</i>	3	
<i>Lepidosperma squamatum</i>	1	
<i>Loxocarya cinerea</i>	2	
Weed Species (Cover %)	Cover	Comments:
<i>Acacia longifolia</i>	5	
<i>Erharta longiflora</i>	60	
<i>Euphorbia peplus</i>	5	
<i>Gladiolus caryophyllaceus</i>	10	
<i>Hypochaeris radiata</i>	<1	
<i>Nothoscordum gracile</i>	5	
<i>Zantedeschia aethiopica</i>	2	
Native Density		Comments:
Stem density (stems / m2)	0.9	
Cover (%)		Comments:
Native Cover	10	
Weed Cover	90	
Additional Comments:		



**P904A Armstrong Reserve Rehabilitation**

Quadrat Information		
Site / Quadrat Name:	P904A Armstrong Reserve Q6	
Quadrat GPS Location:	GDA94 Z50 324074E; 6279368S	
Current Site Conditions:	SW corner, near construction boundary; highly degraded	
Native Species (count)	Count	Comments:
<i>Agonis flexuosa</i>	2	
<i>Baumea juncea</i>	1	
<i>Juncus sp.</i>	2	
<i>Lepidosperma gladiatum</i>	1	
Weed Species (Cover %)	Cover	Comments:
<i>Cynodon dactylon</i>	10	
<i>Oxalis sp.</i>	5	
<i>Pennisetum clandestinum</i>	75	
<i>Zantedeschia aethiopica</i>	5	
Native Density		Comments:
Stem density (stems / m2)	0.2	
Cover (%)		Comments:
Native Cover	5	
Weed Cover	95	
Additional Comments:		