

## **Newmont Boddington Gold**

### **EPBC 2012/6370 Annual Compliance Report July 2019 - June 2020**

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## 1 INTRODUCTION

This Annual Compliance Report has been prepared by Newmont Boddington Gold Pty Ltd (Newmont) for the 'Newmont Boddington Gold Life of Mine Extension Project' (NBG) approved under EPBC 2012/6370 (granted on 19 May 2014). State Environmental approval for the project extension was granted by the Minister for the Environment on 12 June 2014 (MS971).

This Annual Compliance Report addresses the compliance status of the project for the period commencing 01 July 2019 – 30 June 2020. This report has been prepared in accordance with Annual Compliance Report Guidelines (Department of the Environment, 2014).

The Report covers;

- A summary of the proposals implementation status and signed declaration;
- Details of declared compliance status; and
- Information/documentation which support/verifies declarations of compliance status.

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## 2 CURRENT IMPLEMENTATION STATUS AND DECLARATION

NBG is an active mining project that originally commenced operations in the 1980s. Since this time, the project has operated non-continuously under a variety of environmental approvals, the most current of which include mine site tenement conditions, State Ministerial Statement MS971, other State permits, EPBC 2011/6192 and EPBC 2012/6370.

The Life of Mine Extension Project approves the widening and expansion of the Wandoo North and South Pits, construction of new Waste Rock Dumps, a second Residue Disposal Area (RDA) and associated infrastructure.

Works related to EPBC 2012/6370 commenced in Q1 2016 with the commencement of clearing activities to the south of the existing operation for Waste Rock Dumps 10 and 11 and associated water management infrastructure. Dumping of waste rock onto the area prepared for WRD11 commenced in 2017 and WRD10 commenced in Q1 2018.

The mine plan is currently under revision with several options under analysis. Dependent on the final option selected, mine infrastructure requirements may include a second RDA (to be located in the Saddleback Treefarm area), additional Waste Rock Dump (Waste Rock Dump 12) or expansion of the existing Waste Rock Dump footprints.

### 2.1 Declaration of accuracy

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

Signed



Full name (please print)

Leesa King

Position (please print)

Manager Sustainability and External Relations

Organisation (please print including ABN/ACN if applicable)

Newmont Boddington Gold Pty Ltd (ABN 45 101 199 731)

Date

22/06/2020

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### 3 Summary Table of Compliance Against Approval Conditions

**Table 1. Summary of Compliance against Conditions of EPBC 2012/6370**

Category	Condition No.	Condition	Status	Achievements for Review Period
Standard Conditions	1	Within 10 days after the commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.	Closed	Letter dated 10/02/2016 submitted to Department of the Environment and Energy (now Department of Agriculture, Water and the Environment (DAWE)) discussing commencement of activity on the 01/02/2016. A formal response was received from the DAWE. This condition is considered closed.
	2	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Not current	Newmont maintains records of all activities, including those associated with this approval. Record management is completed in a manner consistent with the operations Integrated Management System procedures. Records have been maintained relating to communications between Newmont and DAWE in the post approvals phase.
	3	Unless otherwise agreed to in writing by the Minister, by 30 June each year after the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published. The compliance report must remain on the proponent's website for a minimum of 12 months (beginning on the date of publication). Potential or actual contraventions of the conditions of the approval must be reported to the Department in writing within 2 business days of the person taking the action becoming aware of the actual or potential contravention. All contraventions must also be included in the compliance reports.	Compliant	All reports to date have been submitted to the DAWE and placed on <a href="http://www.newmont.com">www.newmont.com</a> A copy of this revised update, which covers the period 01/07/2019 to the 30/06/2020, will be uploaded to the website by the 30/06/2020.
	4	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not current	No direction has been made to Newmont to undertake an independent audit of compliance with approval conditions.

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Category	Condition No.	Condition	Status	Achievements for Review Period
	5	<p>If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plan(s) as specified in the conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of that management plan(s). The varied activity shall not commence until the Minister has approved the varied management plan(s) in writing. The Minister will not approve a varied management plan(s) unless the revised management plan(s) would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plan(s), that management plan(s) must be implemented in place of the management plan(s) originally approved.</p> <p>(a) the approval holder may revise a management plan to correct a minor error in or make an administrative change to the document. Where the approval holder revises a management plan, the approval holder must provide to the Department within 14 days of revising the document:</p> <p>(i) a copy of the management plan, marked up to show the revisions, in both hard copy and electronic copy; and</p> <p>(ii) a clear summary of all revisions that have been made to the management plan, and the reasons for these revisions.</p>	Compliant	No activities have been undertaken otherwise than in accordance with the management plans.

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Category	Condition No.	Condition	Status	Achievements for Review Period
	6	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking the action make specified revisions to the management plan(s) specified in the conditions and submit the revised management plan(s) for the Minister's written approval. The person taking the action must comply with any such request within three months of receiving the request. The revised approved management plan(s) must be implemented within one month of receiving the Minister's written approval. Unless the Minister has approved the revised management plan(s), then the person taking the action must continue to implement the management plan(s) originally approved, as specified in the conditions.	Compliant	No request has been made of Newmont by the Minister to revise any of the Management Plans required under this approval.
	7	If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.	Closed	As outlined in Condition 1, the action was commenced in February 2016.

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Category	Condition No.	Condition	Status	Achievements for Review Period
	8	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plan(s) referred to in these conditions of approval on their website. Each management plan(s) must be published on the website within one (1) month of being approved. The person taking the action must notify the Department within five (5) business days of publishing the management plan(s) on their website. The management plan(s) must remain on their website for the period this approval has effect.	Compliant	<p>The Black Cockatoo Management plan was approved on 24 October 2014, with the management plan published on Newmont's website on 10 November 2014.</p> <p>The Terrestrial Fauna Management plan was approved on 12 January 2015, with the management plan published on Newmont's website on 21 January 2015.</p> <p>Neither plan has been amended since submission. Newmont submitted a revised version of the Black Cockatoo Management Plan in 2017. Feedback on the Plan was received from DAWE and the Plan is still being updated to address this feedback. The Terrestrial Fauna Management plan is currently being revised. The revised versions of the Plans should be resubmitted to DAWE in 2020.</p>
Habitat Clearing	9	The person taking the action must not clear more than 1, 755 hectares of native vegetation from the "Proposed RDA", "WRD#10", "WRD#11" and "WRD#12" within the project site shown in Figure 1 of this approval (subject to condition 10 (b) below). The person taking the action is permitted to make minor changes to the boundaries of the "Proposed RDA", "WRD#10", "WRD#11" and "WRD#12" within the project site. Any change to the boundaries and the reason for the change(s) must be communicated to the Department in writing prior to clearing changes boundaries. No clearing must occur outside the project site.	Compliant	<p>As of 31 December 2019 approximately 300 ha of land has been cleared for the proposal. This clearing has been for the preparation of land for the waste rock expansion and supporting drainage works.</p> <p>The majority of the native vegetation cleared to date has been to allow for the waste rock dump expansion to the south of the operation. Newmont commenced dumping in the vicinity of WRD11 in 2017 and WRD10 in 2018. The remaining cleared land includes drainage lines, water holding structures and transport corridors to support the waste dump expansion project. The Proposed RDA (second facility) and WRD12 have not been progressed at this stage.</p> <p>See Figure 1 showing clearing that has occurred since 2014 approval of the Proposal.</p> <p>Note: the 2016/17 Compliance Assessment Report stated 368 ha of land has been cleared since approval of this proposal. However, this was inaccurate and referred to the increase of the operational footprint which included expansion of the project onto pastoral land (Hotham Farm) to the south of the mine. Disturbance of the highly degraded vegetation and pastoral land was not included in the approved native vegetation clearing assessment described in the PER. The operational footprint is declared to the State Department of Mines, Industry Regulation and Safety (DMIRS) in accordance with the Annual Environmental Report and the Mine Rehabilitation Fund requirements. A Closure Plan is submitted every 3 years to DMIRS and covers the entire operational footprint.</p>

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Category	Condition No.	Condition	Status	Achievements for Review Period
Black Cockatoo Management Plan	10	<p>To protect Black Cockatoos the person taking the action must prepare and submit a Black Cockatoo Management Plan 1 (BCMP) for approval by the Minister. The CMP must include, but is not limited to:</p> <ul style="list-style-type: none"> <li>(a) a staff induction program that provides information to all employees and contractors on the responsibilities of the person taking the action, its employees and contractors to minimise and avoid impacts to Black Cockatoos.</li> <li>(b) Measures to identify and avoid clearing of potential Black Cockatoo breeding habitat, including within the "Proposed RDA", "WRD#10", "WRD#11" and "WRD#12" areas within the project site shown in Figure 1. These measures must include identification of native vegetation containing nestlings and a commitment not to clear native vegetation containing nestlings until such time as nestlings have left the nest without human intervention.</li> <li>(c) Measures to maximize the rehabilitation of the "Proposed RDA", "WRD#10", "WRD#11" and "WRD#12" shown in Figure 1 prior to the expiry date of this approval by using food plant and hollow producing tree species for Black Cockatoos in rehabilitation seed mixes.</li> <li>(d) Investigation of the use of artificial nest hollows on the project site.</li> <li>(e) Measures to identify and limit the spread of <i>Phytophthora cinnamomi</i>, including consideration where relevant of the Threat Abatement Plan for Disease in Natural Ecosystems caused by <i>Phytophthora cinnamomi</i> (Australian Government Department of the Environment, 2014).</li> <li>(f) The prohibition of pets and firearms on the project site.</li> <li>(g) Measures to mitigate vehicle collisions, including speed limits on the project site and the installation of relevant signage on roads and entry points to the project site noting the presence of Black Cockatoos.</li> <li>(h) A requirement for all employees and contractors to report all incidents that result in the injury or death of a Black Cockatoo to the project site Environmental Department. The project site environmental department must report any incidents that result in death or injury to Black Cockatoos in the annual compliance report required by Condition 3.</li> </ul>	Compliant	<p>The Black Cockatoo Management Plan was submitted to DAWE in July and approved on 24 October 2014. The document contains all requirements as specified within condition 10. No clearing action commenced prior to approval of the plan.</p> <p>Newmont submitted a revised version of the Black Cockatoo Management Plan in 2017. Feedback on the Plan was received from DAWE and the Plan is still being updated to address this feedback. The revised version of the Plan should be resubmitted to DAWE in 2020.</p>
	11	<p>The BCMP must be submitted to the Minister for approval at least three months prior to the commencement of the action. Construction must not occur until the BCMP has been approved by the Minister. The approved BCMP must be implemented.</p>	Complete	<p>The Black Cockatoo Management plan was submitted in July and approved on 24 October 2014. No clearing action commenced prior to approval of the plan. The plan was submitted three months prior to commencement of any action including clearing. No clearing action commenced prior to approval of the plan.</p>

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Terrestrial Fauna Management Plan	12	<p>To protect Woylie (<i>Bettongia penicillata ogilbyi</i>) and Chuditch (<i>Dasyurus geoffroii</i>) the person taking the action must prepare and submit a Terrestrial Fauna Management Plan2 (TFMP) for approval by the Minister. The TFMP must include, but is not limited to:</p> <ul style="list-style-type: none"> <li>(a) a staff induction program that provides information to all employees and contractors on Chuditch and Woylie and activities/actions that may result in a direct or indirect impact on these species.</li> <li>(b) Measures to mitigate vehicle collisions, including speed limits on the project site and the installation of relevant signage on roads and entry points to the project site noting the presence of Woylie and Chuditch.</li> <li>(c) The prohibition of pets and firearms on the project site.</li> <li>(d) Measures that ensures connectivity between the eastern and western areas of the project site.</li> <li>(e) Measures to maximize the rehabilitation of the "Proposed RDA", "WRD#10", "WRD#11" and "WRD#12" shown in Figure 1 prior to the expiry date of this approval by using <i>Gastrolobium spp.</i> shrubs in rehabilitation seed mixes.</li> <li>(f) Measures to control feral pigs, foxes and cats on the project site, including consideration where relevant of the Threat Abatement Plan for predation by European Red Fox (Commonwealth of Australia, 2008), the Threat Abatement Plan for predation by feral cats (Commonwealth of Australia, 2008), and the Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Commonwealth of Australia, 2005).</li> <li>(g) A requirement for all employees and contractors to report all observations of Woylie and/or Chuditch to the project site environmental department. The project site environmental department must report any incidents that result in death or injury to Woylie and/or Chuditch in the annual compliance report required by Condition 3.</li> </ul>	Compliant	<p>The Terrestrial Fauna Management plan was submitted to DAWE in December 2014 and approved in January 2015. The document contains all requirements as specified within condition 12. No clearing action commenced prior to approval of the plan.</p> <p>A fauna translocation project was completed prior to clearing activities commencing. This was completed in conjunction with the Parks and Wildlife (PaW) Branch of the Department of Biodiversity, Conservation and Attractions (DBCA).</p> <p>DBCA have completed post-translocation monitoring within the State Forest from 2016-2019.</p>
	13	The TFMP must be submitted to the Minister for approval at least three months prior to the commencement of the action. Construction must not occur until the TFMP has been approved by the Minister. The approved TFMP must be implemented.	Completed	The Terrestrial Fauna Management plan was submitted in December 2014 and approved on January 2015. The plan was submitted three months prior to commencement of any action including clearing. No clearing action commenced prior to approval of the plan.
Offsets	14	To offset residual significant impacts as a result of the loss of 1,755 ha of Black Cockatoo, Woylie and Chuditch habitat the person taking the action must prepare and submit a Land Offset Plan (LOP) for approval by the Minister. The LOP must (but is not limited to):	In Progress	<p>Newmont submitted a Land Offset Management Plan to DAWE in June 2015. Newmont has approached DAWE regarding the potential to phase the clearing and associated offsets under EPBC 2012/6370.</p> <p>Newmont and DAWE have been in discussions regarding amending offset conditions to include a staged offset approach since 2017. Newmont</p>

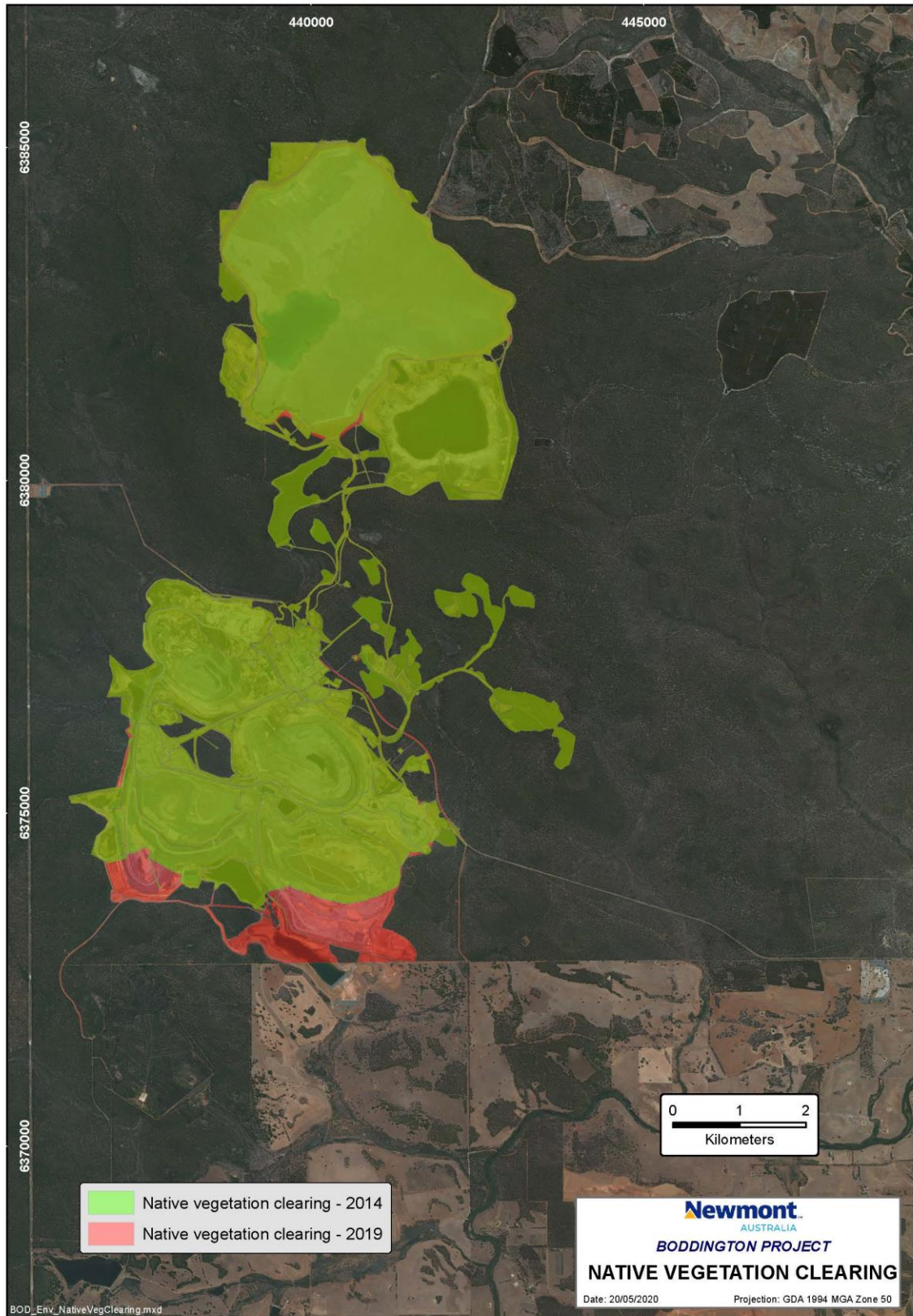
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		<p>(a) Include the identification, acquisition (if required) and timing of placement into a conservation covenant approved by the Government of Western Australia Department of Parks and Wildlife Nature Conservation Covenant Program of 2,000 ha of offset land that has vegetation in similar condition to the vegetation being impacted by the proposal. The offset land to be placed under a conservation covenant must contain:</p> <p>(i) Known foraging and breeding habitat for Carnaby's Black-Cockatoo (<i>Calyptorhynchus latirostris</i>) and Forest Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii naso</i>) and must be within six kilometres of permanent drinking water.</p> <p>(ii) Known foraging habitat for Baudin's Black-Cockatoo (<i>Calyptorhynchus baudinii</i>) and must be within six kilometres of permanent drinking water.</p> <p>(iii) Known habitat for Woylie.</p> <p>(iv) Known foraging and breeding habitat for Chuditch.</p> <p>(b) Include the identification, acquisition (if required) and timing of placement into a conservation covenant approved by the Government of Western Australia Department of Parks and Wildlife Nature Conservation Covenant Program of 470 ha of offset land that has vegetation that can be rehabilitated to similar condition to the vegetation being impacted by the proposal and must be in addition to the offset land required by condition 14 (a) above.</p> <p>(c) For offset lands requiring rehabilitation, the LOP must identify and detail improvement actions (including monitoring requirements and completion criteria) and a timeframe for the actions to be undertaken to improve the conditions of the land to a similar condition to the vegetation being impacted.</p> <p>(d) Ensure that parcels of land to be placed under a conservation covenant are a minimum of 90 ha in size (should more than one parcel of land be identified as part of the 2,470 ha to be placed under a conservation covenant).</p> <p>(e) Ensure that parcels of land to be placed under a conservation covenant are within 50 kilometres of the project site.</p> <p>(f) Detail funding arrangements and timing of funding for rehabilitation activities.</p>		<p>submitted a revised Offset Strategy to DAWE in early 2019. Offset conditions are still required to be amended and will need to address the amended development envelope for NBG which has been approved under WA Ministerial Statement 971.</p> <p>Following amendment of the offset conditions and acceptance of the Offset Strategy, Newmont will submit a revised Land Offset Management Plan will be submitted to both oEPA (now part of the Department of Water and Environmental Regulation) and DAWE.</p> <p>In regards to implementation activities over the past 12 months for the Hotham Farm Restoration Project (to address Condition 14(b):</p> <ul style="list-style-type: none"> <li>Greening Australia has continued with monthly site inspections and the implementation of a weed and pest control program (Appendix 1);</li> <li>Woodman Environmental Consulting's document 'Completion Criteria and monitoring program for the offset area based on the National Standards for the Practice of Ecological Restoration in Australia (SERA 2016)' was peer reviewed by Threshold Environmental (Appendix 2);</li> <li>The report detailing the completion criteria monitoring results from 2018 was received. (Appendix 3);</li> <li>Woodman Environmental selected and completed initial monitoring of Analogue sites. (Appendix 4);</li> <li>Greg Woodman and Marlee Starcevich from Woodman Environmental Consulting Pty Ltd performed a general site inspection at Hotham Farm from 5th to 6th September 2019.</li> </ul>

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	15	The LOP must be submitted to the Minister for approval within one (1) year of the date of this approval. The LOP approved by the Minister must be implemented.	In Progress	<p>Newmont and DAWE have been in discussions regarding amending offset conditions to include a staged offset approach since 2017. Newmont submitted a revised Offset Strategy to DAWE in early 2019. Offset conditions are still required to be amended and will need to address the amended development envelope for NBG which has been approved under WA Ministerial Statement 971.</p> <p>Following amendment of the offset conditions and acceptance of the Offset Strategy, Newmont will submit a revised Land Offset Management Plan to both oEPA (now part of the Department of Water and Environmental Regulation) and DAWE.</p>

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**Figure 1. Showing Native Vegetation Clearing pre-2014 approval (green) and post-2014 approval (red)**

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**Appendix 1.**

**Hotham Farm Biodiversity Offset Restoration Program –Annual Report, January 2020,  
Greening Australia**

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# **Hotham Farm Biodiversity Offset Restoration Program**

*Annual Report, January 2020*

*Prepared for Newmont Goldcorp Boddington*

## Executive Summary

In April 2019 Newmont Goldcorp Boddington (NGB) commissioned Greening Australia Ltd. (GAL) to undertake a maintenance programme across the Hotham Farm Restoration Project site.

This report outlines the activities undertaken in April to December 2019 which include:

- Targeted control of declared weeds and/or weeds of significant threat;
- Remnant vegetation weed control and general site maintenance;
- Routine inspections and reporting; and
- Completion of the 2019 Annual Report.

GAL will be continuing the maintenance programme between January and April 2020, as per the current scope of works. Targeted weed control in the revegetation areas and remnant vegetation will continue as well as routine inspections and reporting. A proposal for the extension of the maintenance programme until April 2021 was also submitted to NGB in December 2019. The focus of the next maintenance programme will be on preparing the site for infill planting in 2021.

GAL is looking forward to receiving the monitoring data to quantify restoration success at the Hotham Farm site and believe the restoration efforts to date are consistent with the trajectory outlined within the PEP. We look forward to sustaining a strong and collaborative partnership with Newmont Goldcorp Boddington to deliver management actions at the Hotham Farm Site into the future.



This document has been prepared for the benefit of Newmont Goldcorp Boddington. No liability is accepted by this Company or any employee or Sub-consultant of this Company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

**QUALITY STATEMENT**

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**Revision Schedule**

Rev No	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1.0	14/01/20	First Draft	AV	JM	JM	
2.0	17/01/20	Final Draft	AV	JM	JM	TS

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## **LIST OF ABBREVIATIONS**

DBCA - Department of Biodiversity, Conservation and Attractions

EPBC Act - *Environmental Protection and Biodiversity Conservation Act 1999*

EP Act - *Environmental Protection Act 198*

FISEM - Feral Invasive Species Eradication Management

GAL - Greening Australia Ltd.

LMU – Land Mapping Unit

LOM - Life of Mine

NGB - Newmont Goldcorp Boddington

NSS – Nindethana Seed Service

PEP – Project Execution Plan

RDA – Residue Disposal Area

WRD - Waste Rock Dump

# 1 Introduction

## 1.1 BACKGROUND

Newmont Goldcorp Boddington (NGB) commissioned Greening Australia Ltd. (GAL) in April 2019 to undertake the maintenance programme over the 470 ha Hotham Farm Restoration Project site (the Project Area) (Figure 1).

Hotham Farm is located approximately 110 km southeast of Perth and 10 km south of the Boddington Gold Mine, in the Southwest of Western Australia (Figure 1).

The Hotham Farm Restoration Program (the Restoration Program) forms one component of a land offset strategy required under NGB's Life of Mine (LOM) Extension Project Approval Conditions under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) 2012/6370 and Ministerial Statement 971 (MS 971) under the WA *Environmental Protection Act 1986* (EP Act) for the clearing of land associated with Waste Rock Dump (WRD) expansions and construction of a second Residue Disposal Area (RDA) at the Boddington Gold Mine.

NGB proposed a staged strategy for the implementation of offset requirements to coincide with the execution of components associated with the LOM Extension Project which commenced in August 2015.

Implementation of the offset requirement is embodied within a proposed restoration programme on primarily cleared agricultural land ('the Project', to be undertaken by Greening Australia Ltd.).

The bulk of the baseline data and assessments were completed in 2016 with preparation of the PEP in October 2017. Seed procurement, site preparation, weed and pest management and revegetation activities commenced during winter 2017, culminating in the completion of approximately 85 % of the revegetation seeding. Following a re-scope in April 2018, GAL completed the seeding programme and continued site maintenance until December 2018. GAL were then contracted in April 2019 to continue the maintenance programme until April 2020.

The following report details activities undertaken at the Hotham Farm site during 2019.

## 1.2 PURPOSE

The purpose of this report is to provide a summary of project work undertaken in 2019. Actions are in accordance with the scope of work for the twelve-month maintenance programme from 2019 and 2020.

GAL have submitted a proposal to NGB for the maintenance programme Extension from April 2020 to 2021 outlines recommended management actions after April 2020.

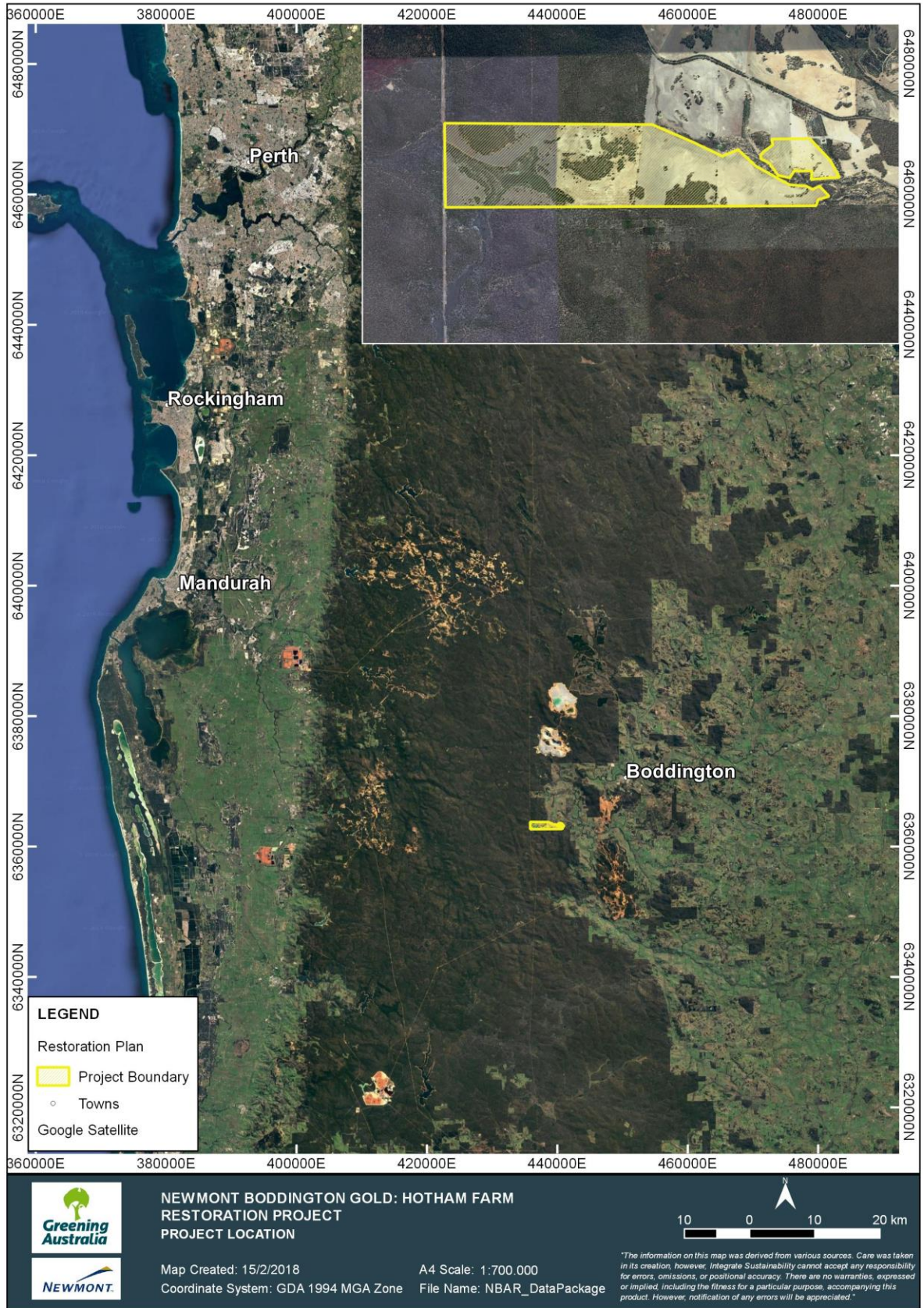


Figure 1: Hotham farm project site location.

## 2 Summary of Works

The following sections summarise activities undertaken between April and December 2019 as part of the 2019 to 2020 Hotham farm maintenance programme. The main tasks included in the maintenance programme are summarised in **Table 1** below.

**Table 1: Summary of Works – April to December 2019.**

Activity/Task	Month
Broadacre Weed and Insect Control	August and September
Targeted Weed Control – Remnant Vegetation	May, September and October
Targeted Weed Control – Revegetation Areas	May, July, August, September and December
Routine monitoring and Inspection	Monthly
Quarterly Report	June, September and December

## 3 Weed and Insect Control

### 3.1 BROADACRE WEED CONTROL

A selective weed control event was conducted in late August 2019 across all areas direct seeded in 2018 (**Figure 2**). This treatment targeted grass species and any insects, following winter in order to reduce competitive pressure on seedlings and impact from insects. The internal tracks and firebreaks were also treated using a non-selective method in September 2019 (**Figure 6**). The treatments applied are summarised in **Table 2** below.

**Table 2: Summary of Broadacre Weed Control Activities between April and December 2019.**

Date of application	Target	Treatment used	Method	Application Rate	Total Area Treated (ha)
August & September	Grass and Insect Selective Weed Control	<ul style="list-style-type: none"> <li>Leopard 200 @ 195 mL/100L</li> <li>Talsta 250 @ 40 mL/100L</li> <li>MSO with LECI-TECH @ 500mL/100L</li> </ul>	Boom Spray	100 L/ha	35
September	Internal Tracks and Firebreaks – Non-selective weed control	<ul style="list-style-type: none"> <li>Glyphosate 450 @ 1.5 L/100L</li> <li>Metsulfuron @ 4 g/100L</li> </ul>	Boom Spray	100 L/ha	All Internal Tracks

No further selective weed control is included in the maintenance programme as grass species and insects no longer pose a significant threat to the revegetation in the 2018 direct seeded areas.

It is also anticipated that the revegetation in these areas will have grown to a height where a boom application of chemicals is no longer possible. Internal tracks and firebreaks will need another treatment event which is currently scheduled for April 2020.

### 3.2 TARGETED WEED CONTROL – REVEGETATION AREAS

Targeted weed control in the revegetation areas focused on *Gomphocarpus fruticosus* (Cotton Bush) in summer and *Lupinus angustifolius* (Blue lupin) and *Moraea flaccida* (One Leaf Cape Tulip) in spring 2019. Population sizes of each of these species remained consistent with previous years and no spread was observed during inspections and control events. An initial treatment of *Eucalyptus accedens* was also carried out in May 2019 and NGB have decided that no follow-up treatments will occur in 2020 as removal of this species has been deemed unnecessary. **Table 3** summarises the targeted weed control activities in 2019 and Figure shows the areas treated for each target.

**Table 3: Summary of Targeted Weed Control Activities between April and December 2019 in the Revegetation Areas.**

Date of application	Target	Treatment used	Method	Application Rate	Total Area Treated (ha)
May	<i>Gomphocarpus fruticosus</i> (Cotton Bush)		Brushcutting	N/A	2.04
May	<i>Eucalyptus accedens</i>	<ul style="list-style-type: none"> <li>Fightback @ 1L/60L of Diesel</li> </ul>	Basal bark spraying	N/A	2.36
September	<i>Lupinus angustifolius</i> (Sandplain lupin) and <i>Malvaceae</i> sp. control	<ul style="list-style-type: none"> <li>Triasulfuron 750 WG @ 12.5 g/100 L</li> <li>Brushwet @ 250 mL/100L</li> <li>Envirodye (Red) @ 300 mL/100 L</li> </ul>	Quickspray Line Spray	N/A	0.46
September	<i>Moraea flaccida</i> (One Leaf Cape Tulip) control	<ul style="list-style-type: none"> <li>Chlorsulfuron @ 2 g/100L</li> <li>Glyphosate 450 @ 1 L/100L</li> <li>Brushwet @ 250 mL/100L</li> <li>Envirodye (Red) @ 300 mL/100 L</li> </ul>	Quickspray Line Spray	N/A	0.33
July, August, December	<i>Gomphocarpus fruticosus</i> (Cotton Bush)	<ul style="list-style-type: none"> <li>Hand Pulling</li> </ul>	Opportunistic	N/A	N/A

Continued *Gomphocarpus fruticosus* (Cotton bush) control will occur opportunistically between January and April 2020. All other weed threats will require further control in spring/summer 2020/2021 and their control has been included in GAL's proposal for the 2020 to 2021 maintenance programme.



### 3.3 TARGETED WEED CONTROL – REMNANT VEGETATION

Targeted weed control in the remnant vegetation focused on *Juncus acutus* (Spiny rush) and *Lavendula stoechas* (French lavender) primarily in spring/summer 2019. Populations of *Gomphocarpus fruticosus* (Cotton bush), *Lupinus angustifolius* (Sandplain lupin) and *Moraea flaccida* (One leaf cape tulip) bordering the revegetation areas were also control during the events detailed in **Table 3**. **Table 4** provides a summary of timing of works, targets and treatment for the observed environmental weeds during 2019.

**Table 4: Summary of Targeted Weed Control Activities between April and December 2019 in the Remnant Vegetation.**

Date of application (2018)	Target	Treatment used	Method	Application Rate	Total Area Treated (ha)
May	<i>Gomphocarpus fruticosus</i> (Cotton bush)		Brushcutter	NA	2.7 ha
September	<i>Moraea flaccida</i> (Cape tulip)	<ul style="list-style-type: none"> <li>Chlorsulfuron @ 5g/100L</li> <li>Brushwet @ 250mL/100L</li> <li></li> </ul>	Spot Spraying	NA	0.19ha
September	<i>Lupinus angustifolius</i> (Sandplain lupin)	<ul style="list-style-type: none"> <li>Metsulfuron methyl 10g/100L</li> <li>Brushwet @ 250mL/100L</li> </ul>	Spot Spraying	NA	3.5 ha
October	<i>Juncus acutus</i> (Spiny rush)	<ul style="list-style-type: none"> <li>Glyphosate (Roundup Bioactive) @ 200ml/100L</li> </ul>	Spot Spraying	NA	0.18 ha
October	<i>Lavendula stoechas</i> (French lavender)	<ul style="list-style-type: none"> <li>Fightback 200ml/10L</li> </ul>	Spot Spraying	NA	1.2 ha

A follow-up control event for *Juncus acutus* (Spiny rush) and *Lavendula stoechas* (French lavender) will occur in February 2020 and another event may be required before April 2020 depending on observations during inspections.

### 3.4 WEED THREATS

#### 3.4.1 *Gomphocarpus fruticosus* (Narrow leaf cotton bush)

Control for *Gompholobium fruticosus* was undertaken in May, July, August and December 2019 (**Plate 1** and **Figure 3**) and will require ongoing management beyond the current scope of works. This is due to its long seed viability. Isolated plants continue to be observed across the entire project site during routine inspections and have been brushcut and hand pulled as a management control. The Woodman Environmental monitoring report also identified some populations that have since been controlled. It is assumed that areas of known infestation will continue to germinate and further spread due to the presence of a viable seed bank in the soil profile. This area will require annual control until revegetation

gains competitive advantage (Figure 3: *Gomphocarpus fruticosus* (Narrow leaf cotton bush) control 2019.Figure 3).



**Plate 1: Extent of *Gompholobium fruticosus* infestation on the boundary of the Wandoo area and drainage line, April 2019.**

A significant population of *Gompholobium fruticosus* was observed during an inspection in December 2018 along the creek zone between the two M (Wandoo) Land Management Units (**Plate 2** and **Figure 3**). Officially, this area is outside of the management scope but the area along the boundary of the revegetation area was controlled during the April 2019 control event to prevent spread. This population will require further treatment in order to control the entire population in time. This area is included in the proposal GAL provided NGB for the 2020 to 2021 maintenance programme.



Plate 2: *Gompholobium fruticosus* (Cotton Bush) observed in the remnant vegetation, April 2019.

### 3.4.2 *Lupinus angustifolius* (Blue lupin)

Populations of *Lupinus angustifolius* were treated in the revegetation and remnant vegetation areas in September 2019 (**Plate 3**, **Plate 4** and **Figure 4**). All recorded populations were consistent with previously treated populations with no significant spread being observed. The Blue lupin is not a declared weed species, however it can proliferate if untreated. With timely and scheduled weed control management of the species is easily achieved. Future control of this weed species will be required due to the long seed viability in the soil seedbank as suggested in the proposal GAL has provided NGB for the 2020 to 2021 Maintenance Programme.



Plate 3: Central *Lupinus angustifolius* (Blue Lupin) population (untreated), August 2019.



Plate 4: Central *Lupinus angustifolius* (Blue Lupin) population (treated), September 2019.

### 3.4.3 *Moraea flaccida* (Cape tulip)

Control of this species occurred in September 2019 and was timed well with flowering and the period of corm exhaustion (**Plate 5** and **Figure 4**). Follow up inspections at the infested sites and the wider area will be required as dormant corms can remain beneath soil for up to eight years (Moore *et al*, 2008 and Parsons *et al*, 2000). Individual plants treated in 2018 and 2019 may only represent a portion of that which currently persists in the soil seed bank. Future control will be required as suggested in the proposal GAL has provided NGB for the 2020 to 2021 Maintenance Programme.



**Plate 5: *Moraea flaccida* (One-leaf Cape Tulip) in the revegetation area, August 2019.**

#### **3.4.4 *Juncus acutus* (Spiny rush)**

Control of *Juncus acutus* is confined to the north eastern edge of the western wetland (**Figure 5**). This effort represents the third annual treatment for this species at Hotham Farm. Dead individuals for 2018 provide evidence of previous spray applications with the October 2019 treatment targeting new growth and isolated individuals. Complete eradication of this species is not yet evident, and this species requires further management beyond 2019 as suggested in the proposal GAL has provided NGB for the 2020 to 2021 maintenance programme.

#### **3.4.5 *Lavendula stoechas* (French lavender)**

The October 2019 weed control effort targeting *Lavendula stoechas* represents the fifth year targeting this species. Control events have seen a significant reduction in the *Lavendula* populations occurring along the north eastern edge of the western wetland (**Figure 5**). Control success has been measured by observing dead individuals presenting no new basal shoots (**Plate 6**). Successive herbicide applications have resulted in population control and reduced further recruitment. Seedlings do continue to germinate but these have been treated sporadically.

It is recommended that monitoring continue in this area and continued management may be required as seed can remain dormant in the soil. Continued control of this species has also been included in the GAL's proposal for the 2020 to 2021 maintenance programme.



Plate 6: *Lavendula stoechas* occurring along margins of western wetland, October 2019.

## 4 Direct Seeded Areas

The areas direct seeded in 2017 appear healthy and have continued to establish over approximately 246 ha. There has been prolific flowering and setting seed across the site, most notably from *Acacia* species, throughout 2019 (Error! Reference source not found.). Other flowering species noted were (but not limited to); *Hovea*, *Hakea*, *Melaleuca*, *Grevillea*, *Kennedia*, *Petrophile*, *Calothamnus*, *Anigozanthos*, *Gastrolobium*, *Lechenaultia* and *Viminaria*. Areas seeded in 2018 are indicating mixed results but there has been further germination and growth observed since December 2018, with some *Acacia* species flowering as well. Both the western and eastern *Gastrolobium* areas have grown well over 2019 with some currently above 60 cm tall. The larger central thicket indicates a mixed result with variation evident between the rows. There has been low germination observed in the L LMU's (Semi-Wet) areas and in the western S-SP Shallow Gravel. However, the seedlings that are present have grown well likely due to the rainfall received over winter 2018/2019 or both. Good germination and growth have been observed in all S-SP, Loamy Gravel areas direct seeded in 2018. The same has also been observed in the L-M, Semi-wet areas with some wetter areas being more variable. For reference **Figure 7** details the areas direct seeded in 2018 excluding the *Gastrolobium* sp. Thickets which are detailed in **Figure 8**.

Infill will be required in 2021 across most of the areas direct seeded in 2018 as well as some of poorer performing areas 2017 areas (e.g. S-SP Shallow Gravel). Seedling survival over summer 2019/2020 may also have an influence on which areas require seedlings. Following the completion of the monitoring report by Greg Woodman, GAL can develop a plan for the infill effort.

## 5 Monitoring and Inspection

Routine inspections were conducted onsite between May – December 2019. Observations parameters included:

- Pest fauna activity;
- Third party access and damage;
- Erosion assessment;
  - Known points of erosion are revisited and new points are recorded;
- Declared or significant weed outbreaks;
  - Species and locations are recorded;
  - Remedial actions recommended;
- Vegetation health:
  - Insect and/ or plant pathogen related damage or mortality; and
  - Qualitative assessments of scalp lines, soil moisture, plant size, density, diversity and health (colour, wilting).

### 5.1 PROGRESS REPORTING

Two formal Quarterly progress reports have been submitted to NGB in 2019. These reports have detailed project status in relation to contract milestones, scheduled activities, completed activities, key project issues and project budget. Reports included summarised observations, photographs and maps from monthly routine inspections and monitoring observation

### 5.2 PEST FAUNA OBSERVATIONS

No significant observations of pests were made in 2019. Kangaroo sightings have been regular and of roughly the same number suggesting the population is not increasing. There has been some observations of herbivory in the areas direct seeded in 2018 especially on the more palatable species such as *Anigozanthos manglesii* (**Plate 7**).



Plate 7: Signs of herbivory on *Anigozanthos manglesii* seedling, September 2019.

### 5.3 FENCE INSPECTIONS

Routine fence inspection for third party damage/ access to the Hotham Farm access were completed as part of routine inspections and overall the fence remains in good condition. GAL has reported minor maintenance concerns within formal progress reports. In April a fence breach was reported where a tree limb had fallen during high winds and landed on the fence (**Plate 8**). This was repaired and no other breaches were observed in 2019. There is however still a rill present on the southern fence line that has formed under the rabbit proof skirting. This rill hasn't worsened during the maintenance programme but may require addressing (**Plate 9**).





**Plate 8: Fence breach reported in the south-eastern corner of the site, April 2019.**



**Plate 9: Example of rill erosion undercutting rabbit mesh on southern fence line, October 2019.**

## 5.4 EROSION MONITORING

Erosion has decreased in paddock areas which may be attributed to the deflection of water by vegetation and seeding rows aligned to contours. Fire breaks and internal tracks running directly downslope continue to channel water, but observations indicate that rills have not worsened since April 2019. An observable no change may be resulting from stability provided by neighbouring vegetation. **Figure 9** details the locations of areas where significant erosion has been observed.



**Plate 10: Rill erosion on causeway between north-east paddock and greater restoration area, April 2019**

## 6 Scheduled Works

Task	Activity	Month
Broadacre Weed and Insect Control	<ul style="list-style-type: none"> <li>Internal Tracks and Firebreaks</li> </ul>	March
Targeted Weed Control – Remnant Vegetation	<ul style="list-style-type: none"> <li><i>Juncus acutus</i> (Spiny rush)</li> <li><i>Lavendula stoechas</i> (French lavender)</li> </ul>	February, April
	<ul style="list-style-type: none"> <li><i>Gomphocarpus fruticosus</i> (Cotton Bush)</li> </ul>	Opportunistic
Targeted Weed Control – Revegetation Areas	<ul style="list-style-type: none"> <li><i>Gomphocarpus fruticosus</i> (Cotton Bush)</li> </ul>	Opportunistic
Monitoring	<ul style="list-style-type: none"> <li>Routine Inspection</li> </ul>	Monthly
Reporting	<ul style="list-style-type: none"> <li>Quarterly Progress Report (Final)</li> </ul>	March

## 7 References

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Parsons, WT and Cuthbertson, EG (2000), *Noxious Weeds of Australia.* CSIRO Publishing

## 8 Appendix 1 – Mapping Figures

Figure 2: Grass and insect selective broadacre weed control, September 2019.



Figure 3: *Gomphocarpus fruticosus* (Narrow leaf cotton bush) control 2019.

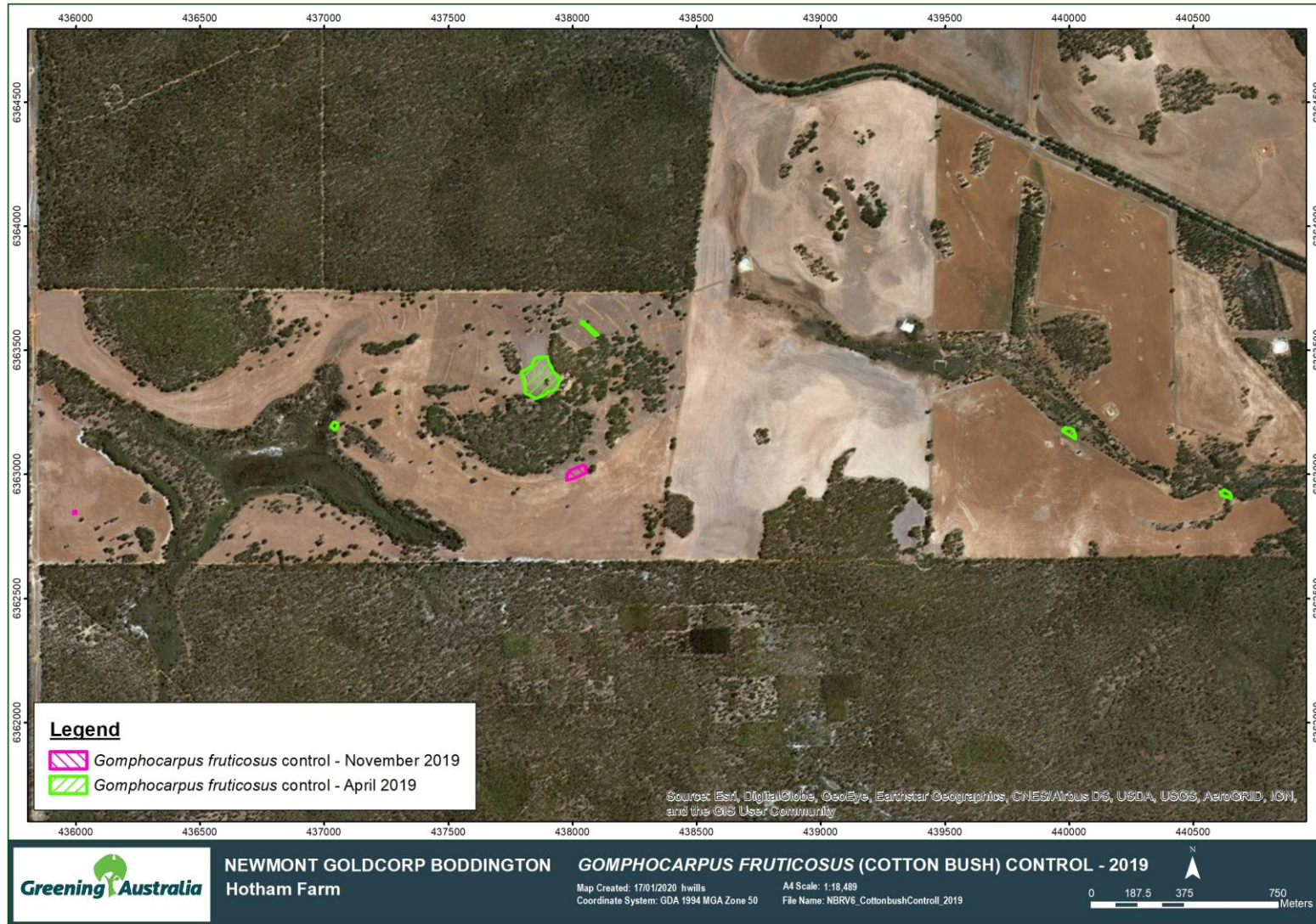


Figure 4: Targeted weed control, September 2019.



Figure 5: Location of *Lavendula stoechas* and *Juncus acutus* Control, October 2019.

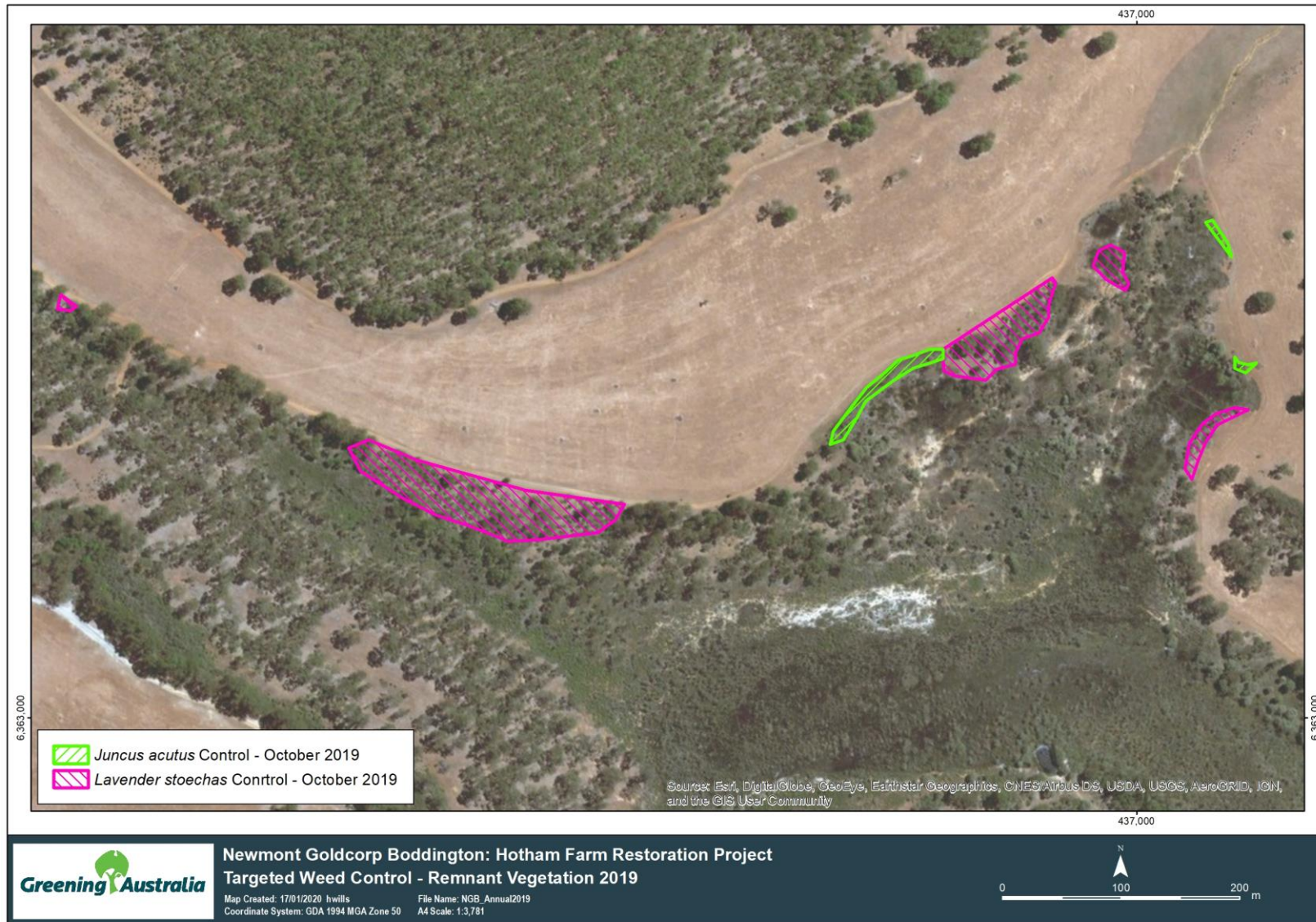


Figure 6: Broadacre control on Internal Tracks and Firebreaks, September 2019.





Figure 7: Position of LMU areas seeded at Hotham Farm, June 2018.

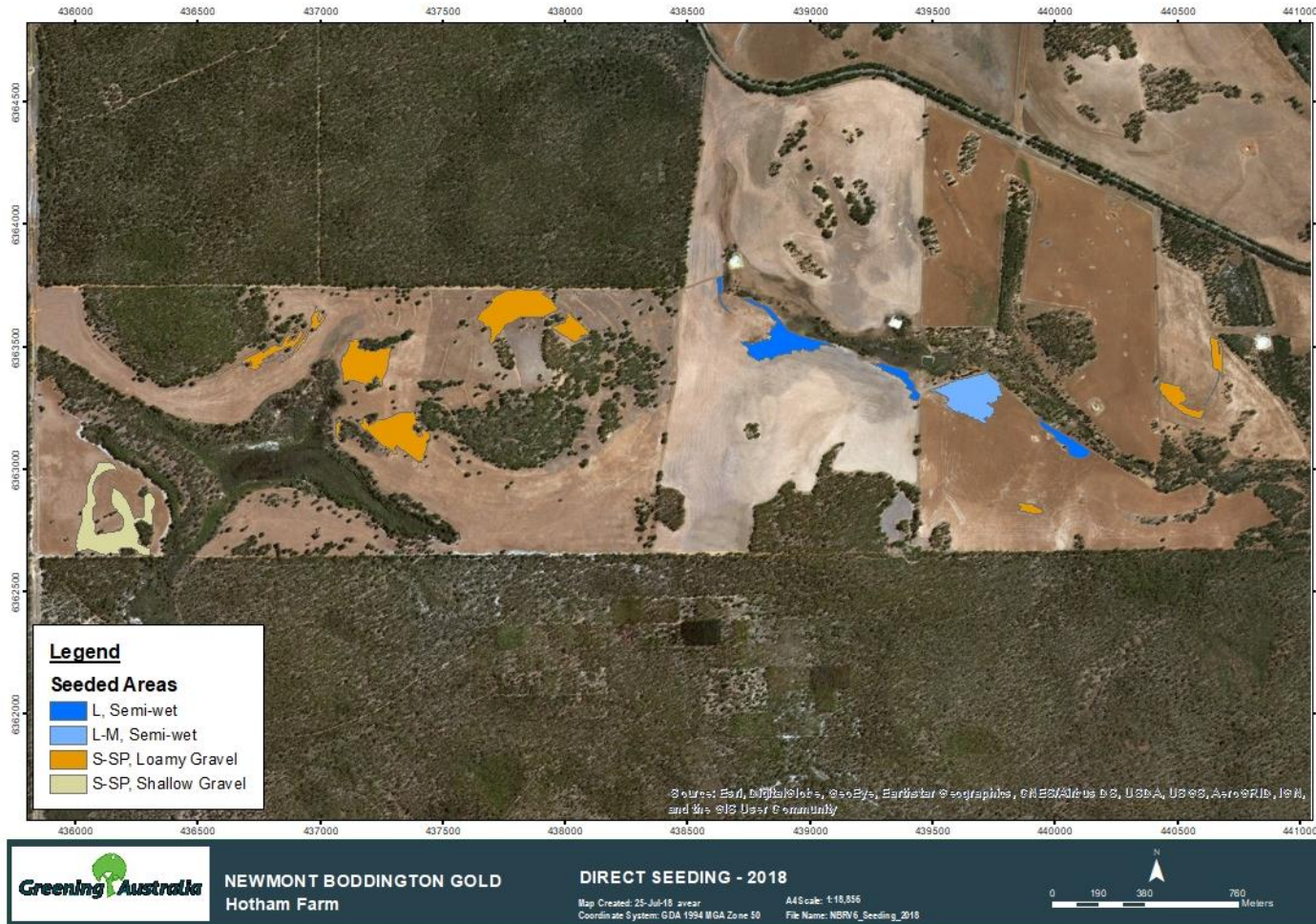


Figure 8: Position of *Gastrolobium calycinum* thickets in the Hotham Farm Landscape.

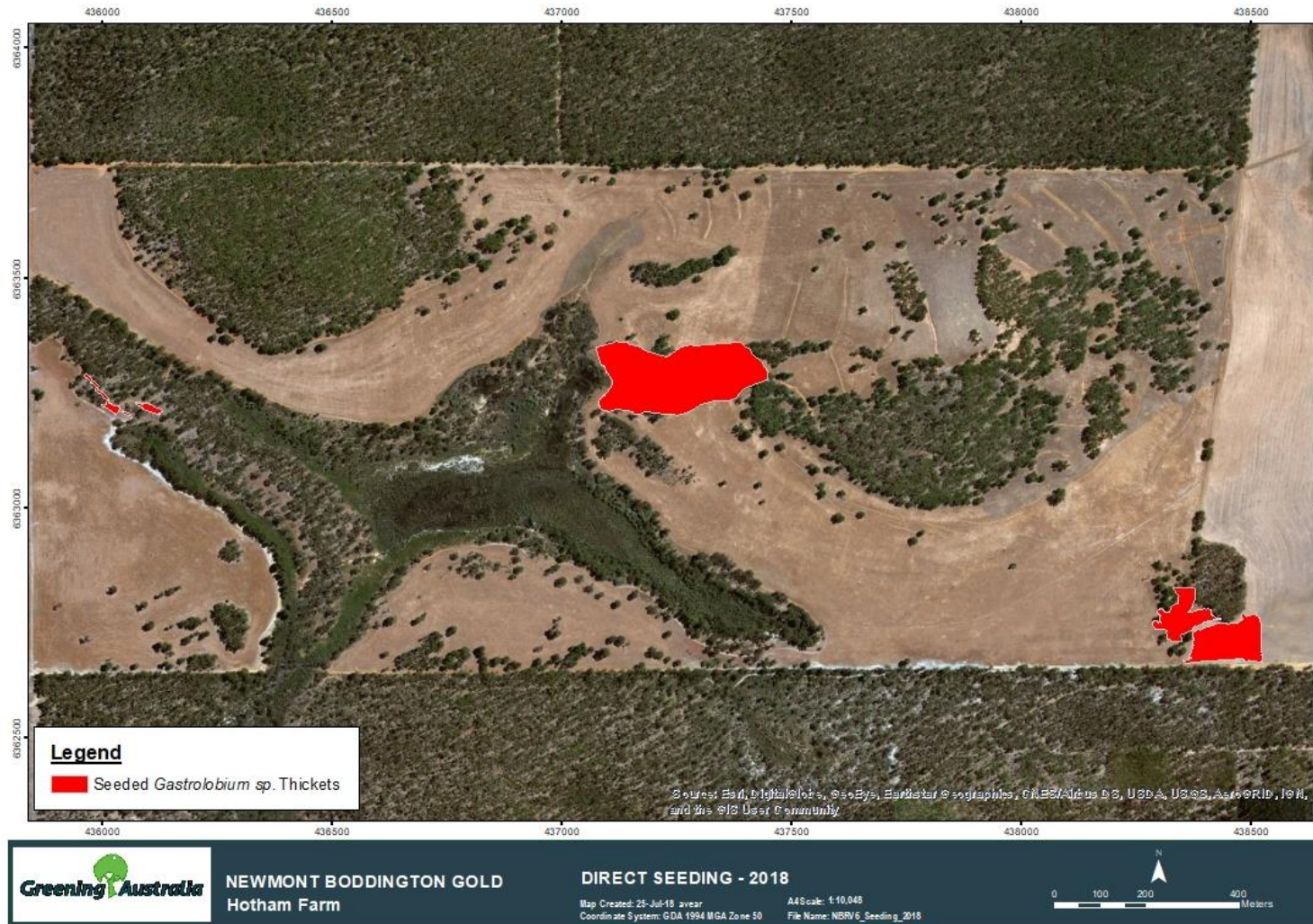


Figure 9: Position of Significant Erosion Features at Hotham Farm, December 2019.

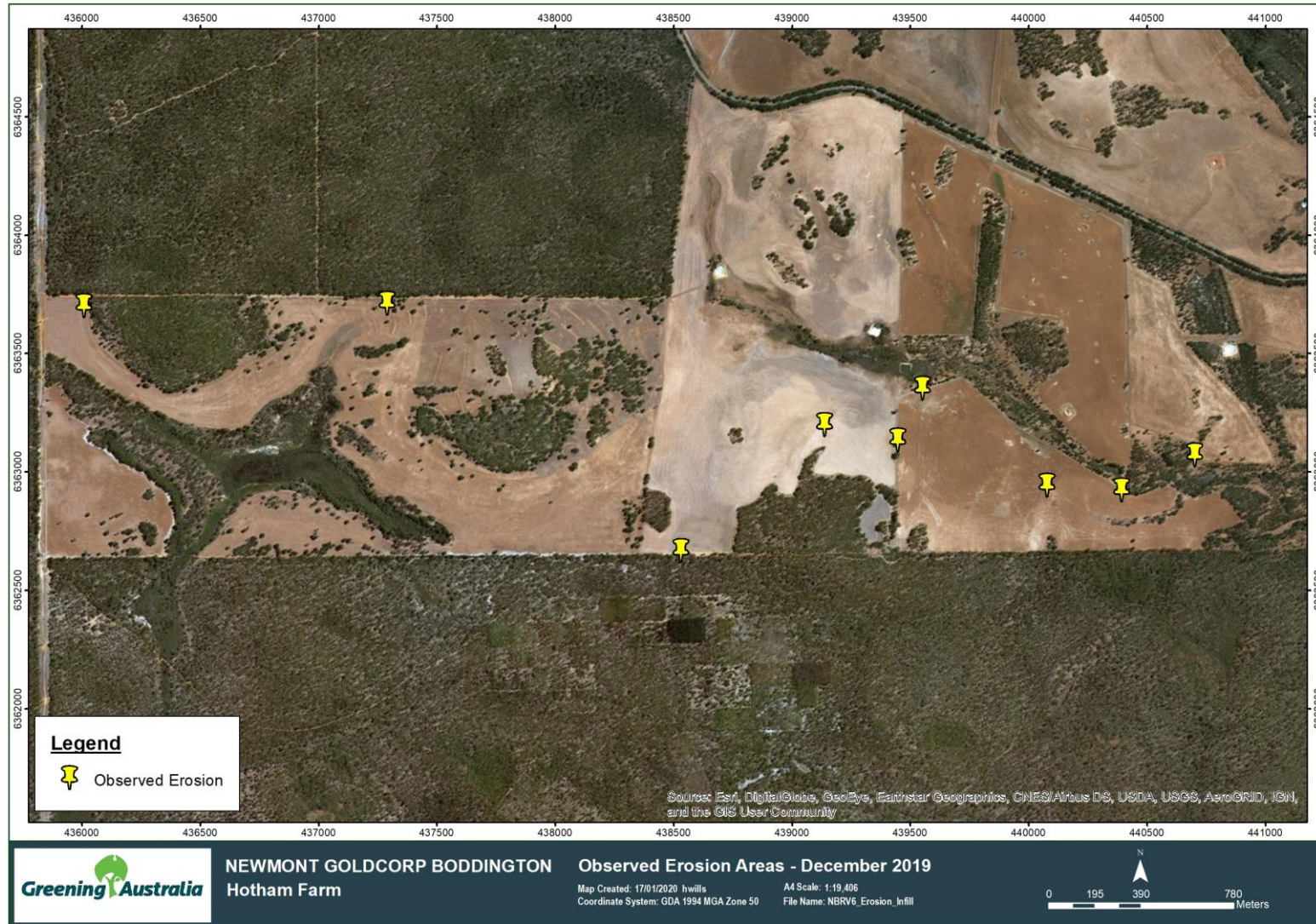


Figure 10: Examples of flowering and seeding species across Hotham Farm, 2019.



## 9 Appendix 2 – Recommended Management Actions for Maintenance Programme 2020.

Task	Action	Location	Timing
<b>Routine Inspections</b>	Inspection to inform ongoing management requirements for the term of revised scope.	Whole Site	Monthly
<b>Vertebrate Pest Control</b>	Kangaroo cull across Hotham Farm site to reduce herbivory on 2018 direct seeded areas.	Whole Site	Summer
<b>Broadacre Weed and Insect Control</b>	Track and Firebreak Maintenance	Internal tracks, fence lines and margins of remanent bushland	April, informed by routine inspections
<b>Targeted Weed Control</b>	Priority targets include: <ul style="list-style-type: none"> <li>• <i>Gomphocarpus fruticosus</i> (Narrow-leafed cotton bush)</li> </ul>	Known locations and new infestations	Ongoing, informed by routine inspections
<b>Remanent Vegetation Management</b>	Priority Targets include: <ul style="list-style-type: none"> <li>• <i>Lavendula stoechas</i> (French lavender)</li> <li>• <i>Juncus acutus</i> (Spiny Rush)</li> </ul>	Known locations and new infestations	February, informed by routine inspections

**Appendix 2.**

**Review Hotham Farm Restoration Program: Completion Criteria and Monitoring –  
Threshold Environmental, October 2019**

NBG Department:	Document Title:	Provided to:	Page Number
Sustainability and External Relations	EPBC 2012/6370 Annual Compliance Report June 2020	Department of Department of Agriculture, Water and the Environment	15

**Hotham Farm Restoration Programme  
Completion Criteria and Monitoring  
Review**

**Newmont Boddington Gold**



**THRESHOLD**  
environmental

# Review

## Hotham Farm Restoration Programme: Completion Criteria and Monitoring

Prepared by Justin Jonson  
Threshold Environmental Pty Ltd  
October 2019

Report prepared for:  
**Newmont Boddington Gold**

### **DISCLAIMER**

In undertaking this work, the author has made every effort to ensure the accuracy of the information reported. Any conclusion drawn or recommendations made in the report and maps are done in good faith and the author takes no responsibility for how this information is used subsequently by others and accepts no liability whatsoever for a third party's use of, or reliance upon, this specific report and associated maps.

### **CITATION**

Jonson, J. (2019) Review: Hotham Farm Restoration Programme: Completion Criteria and Monitoring, A project commissioned by Newmont Boddington Gold. Unpublished report. Threshold Environmental. Albany, Western Australia.



## Executive Summary:

The scope of this consultancy is a short review (3 days) of the 'Hotham Farm Restoration Programme: Completion Criteria and Monitoring' document in the context of/against the SERA Standards for Ecological Restoration; to provide feedback in the form of a report on any aspect of the completion criteria and monitoring methodology proposed that may not be consistent with the standards.

This review has found that the '*Hotham Farm Restoration Programme: Completion Criteria and Monitoring*' is a well-constructed and comprehensive framework that well aligns with the SERA Standards for Ecological Restoration. It should be acknowledged that the SERA Standards is a newly produced document, and so the current application and integration with the 'Hotham Farm Restoration Programme: Completion Criteria and Monitoring' document is a leading and innovative application to practice. In an effort to add value to this work, a number of suggestions and potential challenges to acknowledge are suggested for the consideration of NBG and the PAG. These include:

- reviewing the hierarchy of terms around Targets, Goals and Objectives
- avoiding duplicate metrics across different star rating classes
- considering minor changes in some Star Rating evidence/indicators
- possible integration of the Project planning and operations documentation
- taking into consideration challenges outside the realm of influence of the Project

Such feedback is offered in good faith and in positive context and does not suggest any shortfall in production of the document and overall methodology proposed.

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**BACKGROUND INFORMATION** (copied directly from the *Hotham Farm Restoration Programme: Completion Criteria and Monitoring* document to frame the current review)

*The Programme: 470 ha, comprising 170 ha of remnant vegetation (improve the ecological condition) and 300 ha of grazing and cropping land (restoration and management); Programme Area is bounded on three sides by Jarrah/Marri forest on Crown Land (State Forest) and Private Property.*

*The Project (administered by GA) sits within broader restoration Programme is an initial three-year stage that involves 1) capturing baseline data, 2) planning restoration actions and 3) implementing direct seeding, habitat management, infill planting and other contingency measures. This initial phase, while not having any fauna specific objectives sets the scene for the broader Programme by seeking to establish vegetation types that will, over time, form the basis for the target fauna habitats and will create a base for NBG to manage over the long term to ensure Programme objectives are met.*

*Ultimately the objective of the Programme at Hotham Farm is to meet the requirements of MS 971. ...to identify and focus a more comprehensive suite of objectives designed to ensure that the programme will fulfil the requirements of MS 971. Following workshop ...a commitment to the principles of ecological restoration within the National Standards for the Practice of Ecological Restoration in Australia (Standards Reference Group SERA 2017) prepared by the Society for Ecological Restoration Australasia (SERA). As such, "target, goals and objectives" have been identified for the Programme.*

(Woodman et al., 2018)

## 1. REVIEW

### 1.1 Targets, goals and objectives

The '*Hotham Farm Restoration Programme: Completion Criteria and Monitoring*' has effectively followed recommendations within the SERA Standards in the development of Completion Criteria Aims and Objectives that are S.M.A.R.T. (specific, measurable, achievable, reasonable and time-bound), which are well integrated within a recovery assessment framework developed with appropriate evidence based completion criteria measures. The completion criteria and overall framework clearly list Targets, Goals and Objectives for the Programme, as suggested in the SERA Standards. These items are well also integrated into the SERA Recovery assessment framework and clearly outlined monitoring approaches. While the current Programme Target and Goal/s are logical and fit nicely into the conceptual design of the Completion Criteria and Monitoring methodology, some further refinement of this hierarchy of terms may be considered to more closely align the terms with the nomenclature outlined in the Open Standards for the Practice of Conservation.

*(From the SERA Standards... see pg. 12 and pg. 20)*

**Target.** *Where the aim is full recovery, the target of a restoration project should align with the specific reference community to which the project is being directed—e.g. 'Box-Ironbark Forest'—and will include a description of the ecosystem attributes. In projects where substantial (but less than full) recovery is the aim, the target may not fully align with the reference.*

**Goal/s.** The goal or goals provide a finer level of focus in the planning hierarchy compared to the target. They describe the status of the target that you are aiming to achieve and, broadly, how it will be achieved. For example, goals in this hypothetical project may be to achieve:

- An intact and recovering composition, structure and function of remnants A and B within five years;
- 20 ha of revegetated linkages between the remnants within 10 years; and,
- 100% support of all stakeholders and neighbours within five years.

(Standards Reference Group SERA 2017)

In this instance, possible changes to the Programme Target could include replacing, ‘...a functioning ecosystem resembling a set of defined reference sites’, with ‘...a restored Jarrah/Marri forest ecosystem with structural and functional attributes similar to local reference sites’.

For development of a Programme Goal(s), these should be linked to the Programme’s Target and represent formal statements of the ultimate impacts and the desired status you aim to achieve over the long term (Open Standards for the Practice of Conservation 2013). In this instance, some minor changes and expansion to the Programme Goals could be as follows:

1. Undertake ecological restoration using direct seeding and hand planted seedlings to convert 300 ha of highly degraded agricultural land to a Jarrah/Marri forest ecosystem
2. Undertake weed management and infill plantings to restore 170 ha of degraded remnant vegetation to a Jarrah/Marri forest plant community
3. Provide an average of 200 foraging resource plant species for black-cockatoos across every 10 hectares of replanted area within 10 years of restoration
4. Provide foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale

Currently, the framework developed is logical and works well, so only minor adjustments may need to be considered. However, attention to the hierarchy of terminology for the Targets, Goals, Objectives, can assist with a more refined set of completion criteria that directly connect operational treatments with Project Objectives and Programme Goals.

(From the *Hotham Farm Restoration Programme: Completion Criteria and Monitoring* document)

**Programme Target**

*Hotham Farm will be restored from highly degraded agricultural land towards a functioning*

ecosystem resembling a set of defined reference sites. The restoration will achieve a 4 star recovery rating (Standards Reference Group SERA 2017).

**Programme Goal**

Through the ecological restoration of highly degraded agricultural lands, and the management and protection of existing remnant vegetation, the programme aims to restore ecosystem functions consistent with the surrounding vegetation types of the Northern Jarrah Forest.

**Primary Objectives**

The primary objectives of restoration of Hotham Farm (Section 1) as defined in MS 971 and the Land Offset Plan (NBG 2013) are:

- Provide a foraging resource for black-cockatoos within 10 years of restoration;
- Provide this resource within a short distance of established Jarrah / Marri Forest (i.e. black cockatoo breeding habitat) and permanent water resources; and
- Provide foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale.

**Inherent Objectives**

Inherent in the primary objectives for the Programme is a suite of outcomes that are required in order for the primary objectives to be met in the long term.

- Fulfils designated land uses including conservation and protection of water quality.
- Can be achieved using industry current leading practice.
- Returns vegetation groups appropriate to the land capabilities that are self-sustaining in the long term, resilient to natural disturbance events and are broadly representative of reference sites.
- Provides habitat for native fauna species with particular focus on species listed in Section 1.
- Is based on the findings of relevant research into the establishment of biodiversity, ecosystem function, and sustainability.
- Is aligned with NBG's whole-of-lease management approach including initiatives such as support for regional feral animal control, *Phytophthora dieback* management, flora study and other offset activities.
- Takes into account the views of regulatory authorities and all other relevant stakeholders.
- Results in no unacceptable off-site impacts.
- Results in management requirements (e.g. maintenance of access tracks, fire control) that are not greater than those of surrounding areas of State Forest, or where extra management actions may be required, a mechanism has been put in place for addressing these.

**Aspirational Objectives**

Aspirational objectives are those that NBG have identified for the Programme that are not necessary to demonstrate compliance with MS 971, but that NBG wish to pursue in order to ensure the long term ecological and conservation values of the Programme Area.

- **Biodiversity** - NBG in consultation with the PAG will endeavour to establish floral and faunal biodiversity levels in the Programme Area that are similar to the surrounding ecosystems in State Forest over the life of the Programme.
- **National Restoration Standards – SERA Principles** - NBG have chosen to adopt the principles of the National Restoration Standards to guide the planning and assessment of the Hotham Farm Restoration Programme. In accordance with the Programme Goal and Objectives presented previously **the Hotham Farm Restoration Programme aims to achieve a 4 star rating within a 15 year timeframe**, with the potential to achieve a 5 star rating given NBG’s aspirational objectives for the site.
  - All adjacent threats to the site are being managed or mitigated to an intermediate extent
  - The substrate of the site is maintaining conditions suitable for ongoing growth and recruitment of characteristic biota
  - The site supports a substantial diversity of characteristic biota (e.g. ~60% of reference) representing a wide diversity of species groups with no inhibition to ongoing development of biodiversity on the site by undesirable species
  - All strata are present and spatial patterning is evident with substantial trophic complexity developing, relative to the reference ecosystem
  - Substantial evidence exists of key functions and processes commencing including reproduction, dispersal and recruitment of desirable species
  - High level of connectivity with other natural areas has been established, observing control of pest species and undesirable disturbances

(Woodman et al., 2018)

## 1.2 Potential Refinement of Rating Systems

The ‘Hotham Farm Restoration Programme: Completion Criteria and Monitoring’ document is an innovative and leading example of how the SERA Standards recovery assessment system can be applied in practice. The delineation of Programme objectives and assignment of completion criteria is comprehensive and thorough. The selection of metric parameters, sub-parameters and variables is well aligned with the SERA Standards recovery assessment system. The Star Rating delineations are also well developed and show reasonable progress from a low state of recovery to full recovery.

Without the full background knowledge around the development of the ‘Hotham Farm Restoration Programme: Completion Criteria and Monitoring’ document, and associated discussions and decisions made around the selection of Star Rating delineations, the following feedback is provided for further consideration:

### 1.2.1 Duplicate metrics used for different Star Ratings

For a small number of recovery outcome variables, selected metrics were the same over two different Star Rating classes. To make best use of the Star Rating system’s capacity to track a continual

improvement gradient from a low state of recovery to full recovery, consider including incremental evidence-based indicators. See...

- *External exchanges>Landscape flows>Landform (2 Star, 3 Star, 4 Star)*
- *External exchanges>Landscape flows>Habitat links (2 Star, 3 Star)*
- *Absence of threats>Pollution>Water quality Soil quality (target levels to be developed following monitoring) (4 Star, 5 Star)*
- *Absence of threats>Over-utilisation>Land-use (2 Star, 3 Star)*

### 1.2.2 Suggested star rating class modifications

In review, the following are a number of suggested modifications to metric evidence/indicators that could be considered to improve integration of the star rating classes to the monitoring methodology and Programme Objectives.

#### ***External exchanges>Landscape flows>Landform System (pg.24)***

Consider use of 'gaps' as potential evidence/indicator for connectivity to monitor change over time.

For example:

- 1 Star
  - Anthropogenic Landforms result in habitat gaps >50m from surrounding ecosystems
  - Site hydrology discontinuous with surround landscape and throughflows obstructed by anthropogenic structures
- 2 Star
  - Anthropogenic Landforms result in habitat gaps >20m from surrounding ecosystems
  - Site hydrology processes connected to surround landscape in >50% of landform units
- 3 Star
  - Anthropogenic Landforms result in habitat gaps >20m from surrounding ecosystems in <50% of project area perimeter
  - Site hydrology processes connected to surround landscape in >80% of landform units
- 4 Star
  - Anthropogenic Landforms result in habitat gaps >20m from surrounding ecosystems in <80% of project area perimeter; some areas on contiguous vegetation with surrounding landform units present
  - Site hydrology processes connected to surround landscape in >80% of landform units
- 5 Star
  - Anthropogenic Landforms result no habitat gaps >10m from surrounding ecosystems;
  - Site hydrology processes connected to surround landscape across all landform units

**External exchanges>Gene flows>Linkage/vectors for movement of genetic material** (pg.24)

Through partnering with a research institution, completion criteria could also include the use of DNA evidence for gene flow in key indicator plant species found in surrounding ecosystems as an indicator for meeting 5 Star Rating. On another note for this parameter, and in regard to the lower levels of recovery states for this assessment area, it may be necessary to reconsider the indicators of, 'Small ground dwelling native fauna recorded utilising the site' at the 2 Star and 3 Star levels. Such bio-indicator occurrence values may warrant a minimum 4 Star rating, as they indicate a high level of recovery.

**External exchanges>Habitat links>Connectivity** (pg.24)

Consider using 'common edge' connectivity to further define ratings (keep 1 Star rating, as is).

- 2 Star
  - Site is adjacent to natural habitats, sharing >~20% common boundary
  - Colonisation by plants, avifauna and small ground dwellers possible with no habitat gaps >20m from adjacent natural habitats.
- 3 Star
  - Site is adjacent to natural habitats, sharing >~40% common boundary
  - Colonisation by plants, avifauna and small ground dwellers possible with no habitat gaps >10m from adjacent natural habitats.
- 4 Star
  - Site largely contiguous with surrounding habitats sharing >~60% common boundary
  - Colonisation by plants, avifauna and small ground dwellers possible with no habitat gaps >10m from adjacent natural habitats.
- 5 Star
  - Site habitats are contiguous with surrounding natural habitats
  - Site habitats reconnect previously fragmented habitats
  - Colonisation by plants, avifauna and small ground dwellers possible with no habitat gaps from adjacent natural habitats.

**1.3 Completion criteria development post-implementation**

Of note is an apparent challenge of Programme completion criteria and metric development being applied post Project implementation. The strength of the *Hotham Farm Restoration Programme – Completion Criteria and Monitoring* framework/document is well demonstrated in its comprehensive overarching Programme integration, and post-establishment monitoring/completion criteria recommendations. While at no fault to the document in review, in the context of cross referencing information presented with the SERA Standards for Ecological Restoration, of note is an apparent gap between the planning and implementation components of 'the Project' and the Targets, Goals and Objectives as outlined for 'the Programme'. The limited scope of the current review does not include



review of Greening Australia's Project planning and operational reporting, which could - in fact - be well integrated into the current review documentation. Section 3 of the SERA Standards, *Standards for ecological restoration activities—planning, implementation, monitoring and evaluation*, outline how restoration activities can inform and align with a greater programme, including the selection of specific Project prescriptions to meet specific Programme objectives and ultimate goals (Standards Reference Group SERA 2017). In this way, prescriptions outlined in Project operational procedures can be directly assessed during monitoring to review their efficacy, and subsequently form part of the completion criteria. For example, in the *Species composition>Desirable plants>Native species richness and composition* metric, a project goal of 're-establishment of 1500 individual plants of a known food source for Black-cockatoos' could enable an initial milestone to be delivered for the Project, that can then be meet a primary objective of the Programme. Another example is in the *Ecosystem function>Habitat & Interactions>Landscape function/retention of water and nutrients* outcome metric where direct seeding specifications for the Project comply with operations where... 'direct seeding strictly adheres to implementation on the contour'. This approach could then directly address a mid-level completion criteria rating outcome at the operational stage.

These suggestions are made to serve as examples, with knowledge that they may or may not suite the Programme. They are presented in good faith to add value to any future modifications or future works where this methodology is applied, and are not indicating any explicit short comings of the document in review.

#### **1.4 Meeting rating levels exclusive to the quality of on-ground works**

An additional point of consideration is around the challenge presented in meeting rating levels for scenarios that are beyond the control of the quality of the on-ground works. Below are several additional points for consideration which may improve the efficacy of the *Hotham Farm Restoration Programme – Completion Criteria and Monitoring* document, with specific acknowledgement to the stochastic and heterogeneous nature of natural systems.

- 1. Selection of observable variables for Star ratings which have distinct temporal requirements for development** (i.e. *Ecosystem function>Productivity/cycling>Soil nutrients*; soil biological activity; cover and depth of litter). Surface litter accumulation is a well-known and useful indicator, however meeting levels similar to those observed in reference ecosystems over short time frames may be overly ambitious for a 3 star rating.

In this case, incremental gains observed in annual litter accumulation similar to Landscape Function Analysis (LFA) techniques could be a useful metric to consider.

2. **The use of percentage thresholds to meet Star Ratings for mobile indicators** (i.e. *Species Composition*>*Desirable animals*). For this example, seasonal, annual and decadal variations in abundance observations for bio-indicator species can often occur. For some more elusive fauna (i.e. Black-cockatoos, Chuditch, Woylie, Brush-tailed Phascogale) meeting 60% of abundance levels observed in reference areas may not be achievable in project areas for reasons which do not reflect the quality of restoration delivery. Faunal occurrence and occupancy are often directly associated with proximity to existing occupied habitat. In this way, local occurrence distribution maps of climax bio-indicator species may provide more useful predictors of expected occupancy within project areas than the quality of works.

An alternative approach warranting consideration for lower star ratings is the inclusion/development of specific habitat attributes in the Project areas which are known to directly support bio-indicator fauna, and are modelled on observations from reference sites. Such habitat characteristics can serve as suitable proxies in the early stages of recover toward meeting different faunal species composition objectives over time.

3. **Accommodating for extreme weather events**

The star rating metrics developed for *Ecosystem function*>*Habitat & Interactions*>*Landscape function/retention of water and nutrients*, effectively address key parameters associated with ecosystem recovery and utilize the recovery wheel for development of a completion criteria well. However a challenge that may be presented in the future is the inevitability of extreme weather events, and their interference with the indicator evidence levels identified for this recovery variable. As erosion can occur even in long-undisturbed reference sites following extreme rainfall events, alternative indicators may be useful in accounting for such events when they occur within the rating system. For example, when reaching higher levels of recovery, 4 and 5 Star ratings could include some preventative management approaches. This could include execution of some form of site assessments to identify potential erosion 'breaking points' – locations in the environment where surface waters coalesce – and/or erosion control mitigation treatments in these locations (i.e. rock/debris piles; high vegetation stocking) to proactively account for future events.

**4. Highlight attributes (make explicit), sub-parameters and variables that require fire disturbance for assessment [as per *\*test areas burn trial* indicated in 5 Star rating for *Ecosystem function>Resilience/recruitment>Vegetation functions*]**

It seems evident that fire disturbance (i.e. burn trial) may be required to effectively test the resilience and regenerative capacity of replanted vegetation to recruit. Consider the usefulness of identifying the parameters/variables where fire disturbance is likely required to achieve an improved recovery state.

- *Ecosystem function>Productivity/cycling>Soil nutrients* (i.e. 4 Star – native legumes recruiting)
- *Ecosystem function>Resilience/recruitment>Vegetation functions* (i.e. 4 Star – 2nd generation plants recruiting)

**5. Identify attributes that are negatively affected by fire disturbance**

While some patch burning may be useful as part of the ongoing management of the Project areas, there will also be other locations in which fire will have negative consequences for achieving certain recovery states. Consider the usefulness of identifying the parameters/variables where fire disturbance will *negatively* affect desired change in evidence/indicators measured to track progress toward an improved recovery state.

- *Ecosystem function>Productivity/cycling>Soil nutrients* (i.e. litter levels)
- *Ecosystem function>Habitat & Interactions>Landscape function / retention of water and nutrients* (i.e. 4 Star – depth of litter levels)

## CONCLUSIONS

The '*Hotham Farm Restoration Programme: Completion Criteria and Monitoring*' aligns well with the SERA Standards for Ecological Restoration. In the process of working through this review, a number of areas where potential modifications could be incorporated to improve the efficacy and efficiency of the Programme. These include reviewing the hierarchy of terms around Targets, Goals and Objectives, avoiding duplicate metrics across different star rating classes, considering minor changes in some Star Rating evidence/indicators, possible integration of the Project planning and operations documentation, and taking into consideration challenges outside the realm of influence of the Project.

At the highest level, the '*Hotham Farm Restoration Programme: Completion Criteria and Monitoring*' is well constructed and has effectively integrated the SERA Standards into an operational framework in what seems to a very manageable approach. Ongoing modifications and integration of adaptive management suggestions to the methodology established will likely add value to the framework developed already, but this does not imply the document is not currently ready for application. Ultimately, ease of use, familiarity and ownership will be central to the success of this approach being applied to its best capacity. This external review suggests the initial steps of this process are being well achieved.

## REFERENCES

Standards Reference Group SERA (2017) *National Standards for the Practice of Ecological Restoration in Australia*. Society for Ecological Restoration Australasia. Second Edition October 2017. Available from URL: <http://www.seraustralasia.com/>

Woodman et al. (2018) Hotham Farm Restoration Programme: Completion Criteria and Monitoring. A document prepared for Newmont Boddington Gold.

**Appendix 3.**

**Hotham Farm Restoration Program Completion Criteria Monitoring 2018, Woodman Consulting, August 2019**

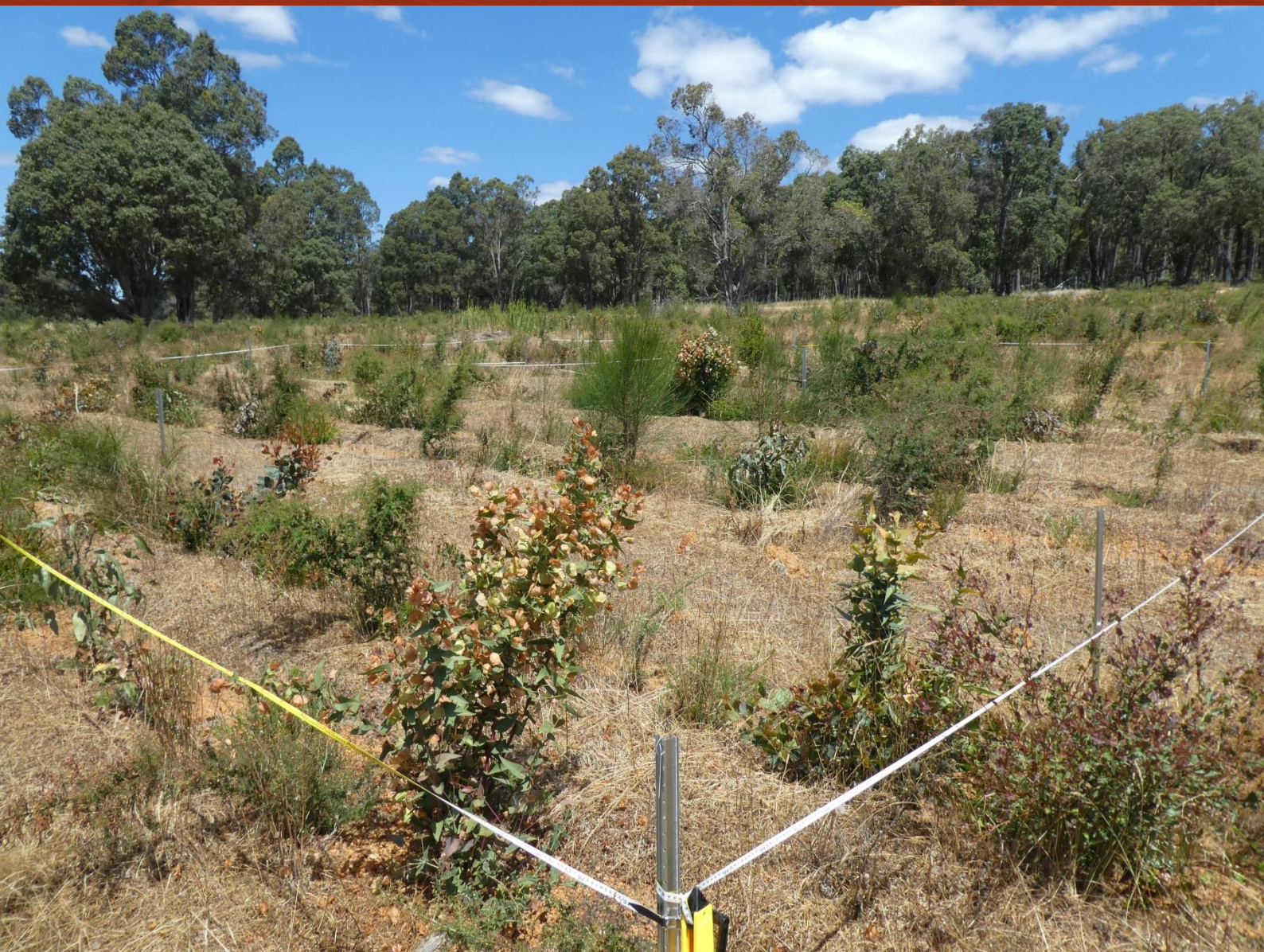
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Sustainability and External Relations	EPBC 2012/6370 Annual Compliance Report June 2020	Department of Department of Agriculture, Water and the Environment	16

# Hotham Farm Restoration Programme

## Completion Criteria Monitoring 2018

NEWMONT GOLDCORP BODDINGTON PTY LTD

AUGUST 2019



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**Hotham Farm Restoration Programme – Completion Criteria Monitoring 2018**

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## DEFINITIONS

Term	Definition
BoM	Bureau of Meteorology
CaCl <sub>2</sub>	Calcium chloride
cm	Centimetre
cm <sup>2</sup>	Centimetres squared
DBCA	Department of Biodiversity, Conservation and Attractions
dS	Decisiemens
DTPA	Diethylenetriaminepentaacetic acid
E	East
e.g.	For example
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPBC approval	<i>Environment Protection and Biodiversity Conservation Act 1999 approval</i>
etc.	Et cetera
Exc.	Exchangeable
g	Gram
GA	Greening Australia Ltd
GDA	Geocentric Datum of Australia
GPS	Global Positioning System
ha	Hectare
H <sub>2</sub> O	Water
i.e.	That is
KCl	Potassium chloride
kg	Kilogram
km	Kilometre
LMU	Land Management Unit (as per GA 2017 and GA 2018, used to define paddock restoration areas only)
Ltd	Limited
m	Metre
meq	Milliequivalents
mg	Milligram
mm	Millimetre
Mattiske	Mattiske Consulting Pty Ltd
MS	Ministerial Statement
N	North
NGB	Newmont Goldcorp Boddington mine
Newmont Goldcorp	Newmont Goldcorp Boddington Pty Ltd
P	Priority
PEP	Project Execution Plan
Pty	Proprietary
S	South
SERA	Society for Ecological Restoration Australasia
VU	Vegetation Unit (as per Mattiske 2013, used to define remnant vegetation areas only)
W	West
WA Herbarium	Western Australian Herbarium
Woodman Environmental	Woodman Environmental Consulting Pty Ltd
*	Denotes an introduced taxon
~	Approximately
>	Greater than
<	Less than
≥	Greater than or equal to

Term	Definition
%	Percent
°	Degrees
°C	Degrees Celsius

## EXECUTIVE SUMMARY

Newmont Goldcorp Boddington Pty Ltd (Newmont Goldcorp) operates the Newmont Goldcorp Boddington mine (NGB), located approximately 14 kilometres (km) west of the township of Boddington in the eastern extent of the Swan region of Western Australia. Expansion of the NGB pit areas was approved in 2014, with environmental conditions presented in Ministerial Statement Number (MS) 971. MS 971 identifies the requirement for NGB to offset the significant residual impact to 1,755 hectares (ha) of native vegetation which includes black-cockatoo foraging and breeding habitat; fragmentation of Woylie and Chuditch habitat; and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission.

NGB contracted Greening Australia Ltd (GA) to undertake restoration activities at the offset area, Hotham Farm ('Project Area') (Figure 1), over a three year period ending in 2018. Woodman Environmental were commissioned by NGB to prepare objectives for the restoration project design and a set of completion criteria and to implement a monitoring programme for the restoration at Hotham Farm ('The Project') as part of the completion criteria for the offset programme. The 2018 monitoring forms part of the baseline restoration monitoring (Year 0) for The Project and will be used to inform Newmont and stakeholders of the progress of the restoration toward meeting the agreed objectives.

A total of 30 plots were established in the restoration area and 16 in the remnant vegetation areas at the Project Area in 2018, at which soil penetrance measurements and samples for soil chemistry analysis were also taken. Additional monitoring included:

- 13 nursery row monitoring transects comprising species identified as potentially recalcitrant were established and assessed.
- Photo monitoring was conducted at 13 permanent photo points (10 of which had already been established by GA).
- Eight North to South (N-S) walk-through transects were monitored to identify introduced species infestations, areas of poor vegetation health, bare areas, damage from feral animals or pests, erosion, damage to fences, and additional species not recorded in plots.
- Recording of site conditions and issues was conducted during traverses around Hotham Farm in vehicle and on foot.

Overall, the completion criteria monitoring at the Project Area in 2018 found that the restoration within the paddock restoration areas was developing, although there were some concerns over the choice of some taxa seeded within the restoration overall and along the nursery rows, and the possible contamination of the seed mix with taxa incorrectly identified during seed collection. Assessment of analogue plots in the future may highlight further inconsistencies between the taxa composition of the restoration compared to reference sites. Comparisons between the remnant vegetation areas and paddock restoration area highlighted a low number of common species between remnant vegetation LMUs (Land Management Units) and paddock restoration area LMUs, as well as some disparity between vegetation parameters including plant density and species richness, although this may be influenced by the restoration age. The paddock restoration area is



currently incomplete with large areas missed from restoration works and some areas of poor performance requiring attention. The paddock restoration in areas of lateritic outcropping typically performed poorly or were not seeded at all and may require management action to ensure that restoration objectives are achieved. Similarly, some blocks of remnant vegetation that were in poor condition will require remediation actions in the future. Introduced species cover was consistently high within the paddock restoration area and kangaroos were observed, both of which will need to be addressed in order to minimise threats to the development of the paddock restoration and remnant vegetation areas.

## 1. INTRODUCTION

### 1.1 Overview

Newmont Goldcorp Boddington Pty Ltd (Newmont Goldcorp) (formerly Newmont Boddington Gold Pty Ltd) operates the Newmont Goldcorp Boddington mine (NGB), located approximately 14 kilometres (km) west of the township of Boddington in the eastern extent of the Swan region of Western Australia. Expansion of the NGB pit areas was approved in 2014, with environmental conditions presented in Ministerial Statement (MS) Number 971 and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval (EPBC approval) 2012/6370. Conditions 9.1 to 9.12 of MS 971 identify the requirement for NGB to offset the significant residual impact to 1,755 hectares (ha) of native vegetation which includes black-cockatoo foraging and breeding habitat, fragmentation of Woylie and Chuditch habitat, and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission. Condition 14 of EPBC approval 2012/6370 describes the requirement to offset the above impact through the acquisition of 470 ha of land and establishment of rehabilitation in a similar condition to the habitat cleared.

NGB contracted Greening Australia Ltd (GA) to undertake restoration activities at the offset area, Hotham Farm ('Project Area') (Figure 1), over a three-year period ending in 2018. This contract was extended for a further 12 months from April 2019 to April 2020. Woodman Environmental Consulting Pty Ltd (Woodman Environmental) prepared a set of objectives and completion criteria for the restoration project to guide its ongoing direction and to demonstrate when objectives had been achieved (Woodman Environmental 2018). Woodman Environmental were also commissioned by NGB to design and implement a monitoring programme for the restoration at Hotham Farm ('The Project') as part of the completion criteria for the offset programme. The 2018 monitoring forms part of the baseline restoration monitoring (Year 0) for The Project and will be used to inform Newmont and stakeholders of the progress of the restoration toward meeting the agreed objectives.

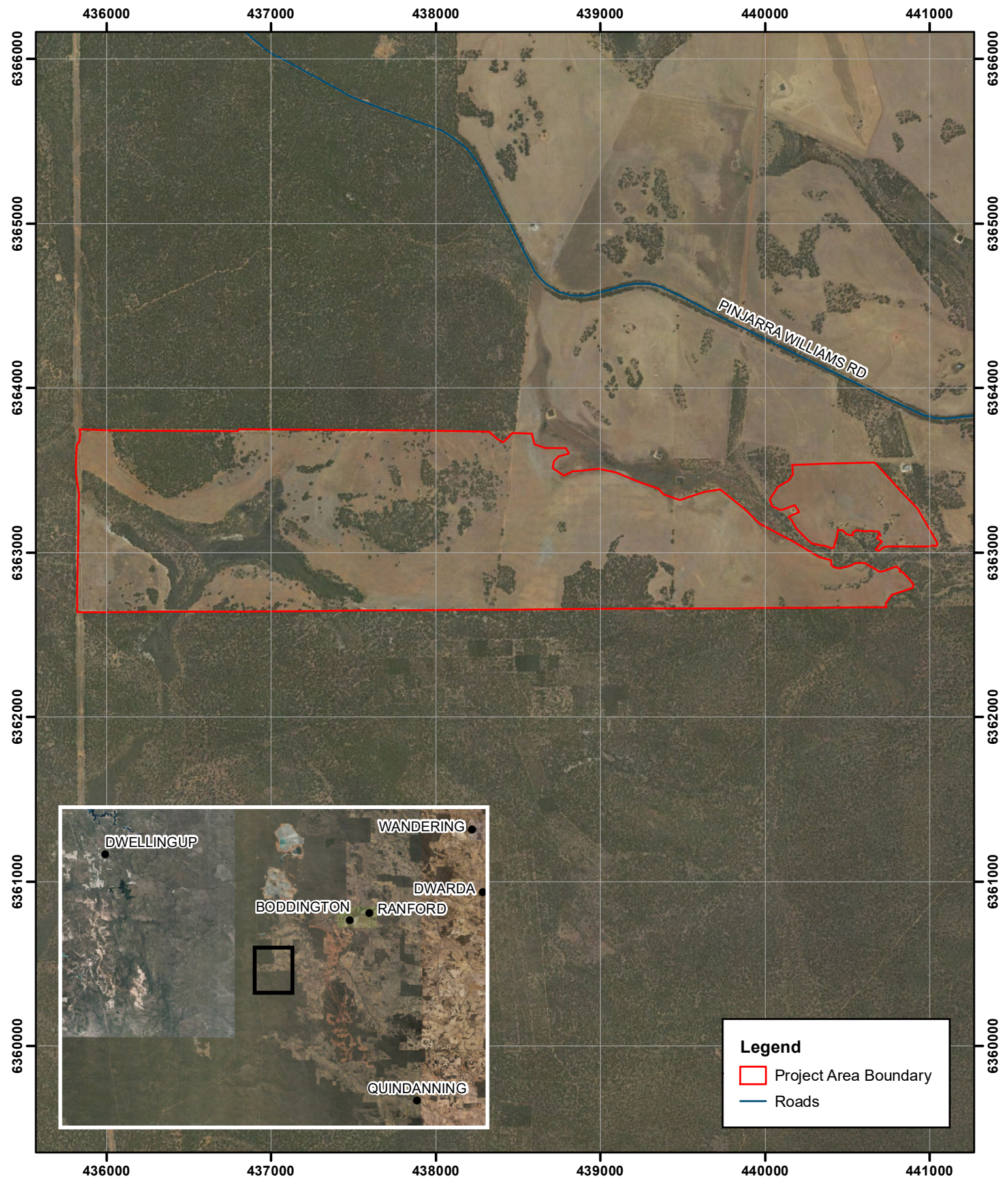
### 1.2 Project Aim and Objectives

The aim of The Project was to establish a monitoring program and assess the restoration progress at the Project Area in terms of vegetation, soil, erosion and introduced species as per the requirements of the completion criteria.

The objectives of the completion criteria monitoring and reporting were to:



- provide information on the current status of the restoration areas assessed at the Project Area in 2018, including the development of each area;
- provide information on the current status of the remnant vegetation areas assessed at the Project Area in 2018;
- identify and describe any factors that may affect restoration success, including prevalence of introduced species, soil penetrance and chemistry and presence of erosion, and recommend a course of action to address these factors.

This report presents the outcomes of the flora, vegetation, soil and erosion completion criteria monitoring undertaken at the Project Area in 2018.



**Legend**

- Project Area Boundary
- Roads

<p><b>Location of the Project Area</b></p>	Author: Marlee Starceвич	  <p><b>Figure</b></p> <p><b>1</b></p>
	WEC Ref: Newmont18-69-01	
Filename: Newmont18-69-01-f01.mxd		
Scale: 1:30,000 (A4)		
Projection: GDA 1994 MGA Zone 50		
Revision: 0 - 7 August 2019		
 <p><b>WOODMAN</b> ENVIRONMENTAL</p> <p>This map should only be used in conjunction with WEC report Newmont18-69-01.</p>		

## 2. OFFSET BACKGROUND

### 2.1 Offset Overview

NGB received approval for the Life of Mine Extension Project in June 2014 under EPBC approval 2012/6370 and MS 971 under the State *Environmental Protection Act 1986*. Conditions of these approvals related to the clearing of land associated with Waste Rock Dump expansions and construction of a second Residue Disposal Area at NGB. Conditions 9.1 to 9.12 of MS 971 identify the requirement for NGB to offset the significant residual impact to 1,755 ha of native vegetation which includes *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo) and *Calyptorhynchus banksii naso* (Forest Red-tailed Black-Cockatoo) foraging and breeding habitat, *Calyptorhynchus baudinii* (Baudin's Black-Cockatoo) foraging habitat; fragmentation of *Bettongia penicillata ogilbyi* (Woylie) and *Dasyurus geoffroii* (Chuditch) habitat; and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission.

Condition 14 sections b through e of the EPBC Act approval 2012/6370 describe the requirement to offset the above impacts through acquisition of 470 ha of land and rehabilitation to a condition similar to the cleared habitats as described in a Land Offset Plan, including: placing the land under a conservation covenant; ensuring the land parcels are a minimum of 90 ha in size and are situated within 50 km of the project site; and that there are detailed funding arrangements and a schedule for rehabilitation activities. Meeting the requirements of MS 971 will ensure compliance with the requirements of 2012/6370.

Hotham Farm, located in the Shire of Boddington, approximately 15 km south-west of Boddington and 110 km south-east of Perth, Western Australia (Figure 1), was chosen as a suitable offset location to satisfy the requirements of MS 971. The Project Area encompasses approximately 470 ha, composed of 170 ha of remnant vegetation and 300 ha of grazing and cropping land. The Project Area is bounded on three sides by Jarrah / Marri forest on Crown Land (State Forest) and Private Property. The western and southern boundaries abut Dwellingup State Forest, more than half of the northern border bounds private forest, and the remaining boundary area borders cleared agricultural land and provides site access from the north-east off Pinjarra-Williams Road.

The Offset Strategy requires that a Land Offset Plan be prepared to direct the management of all aspects of agreed offsets for the NGB Mine Expansion including the restoration and management of the Project Area ('The Programme'). The Programme comprises the restoration and management of approximately 300 ha of cleared pastoral land and to improve the ecological condition of 170 ha of remnant vegetation. Sitting within the broader restoration Programme is an initial three-year stage that involves capturing baseline data, planning restoration actions and implementing direct seeding, habitat management, infill planting and other contingency measures. This initial phase, while not having any fauna specific objectives, sets the scene for the broader Programme by seeking to establish vegetation types that will, over time, form the basis for the target fauna habitats and will create a foundation for NGB to manage over the long term to ensure Programme objectives are met.

Overall, the primary objectives of the Programme as defined in MS 971 and the Land Offset Plan are to:

- provide a foraging resource for black-cockatoos within 10 years of restoration;
- provide this resource within a short distance of established Jarrah / Marri Forest (i.e. black cockatoo breeding habitat) and permanent water resources; and
- provide foraging and refuge habitat and linkage for mammal species such as the Woylie and Brush-tailed Phascogale (*Phascogale tapoatafa*) (NGB 2013).

NGB contracted GA to undertake restoration activities at the Project Area over a three-year period including the development of a Project Execution Plan (PEP). The PEP addressed the objectives and completion criteria relating to the three-year project and discussed how these relate to the overall restoration programme objectives presented above. The following objectives are embodied within the PEP (GA 2017):

- Prepare a restoration plan detailing key activities to be undertaken within the initial three-year project period, designed to ensure restoration programme objectives can be achieved in the long term ( $\geq 10$  years);
- Define the boundaries of land management units (LMUs, defined in Section 3.2) at the Project Area based on soil type, topography, and associated or inferred vegetation types (as guided by vegetation mapping conducted by Mattiske Consulting Pty Ltd [Mattiske] in 2013 [Mattiske 2013]);
- Direct seed 300 ha of cleared agricultural land in the Project Area with seed mixes comprising suites of native species of local provenance that have been developed to meet the Programme Objectives;
- Identify and undertake management measures within remnant native vegetation in the Project Area to achieve improved ecological condition;
- Undertake monitoring and reporting of restoration performance to measure success of plant establishment and growth and identify any requirement for remedial management measures such as introduced species or pathogen control or the application of additional plant establishment strategies;
- Undertake infill planting and conduct other remedial measures as required to ensure that:
  - plant survival within the 300 ha of direct seeding has not declined by more than 10 percent (%) after infill planting and seeding is complete;
  - dominant species within each LMU are healthy and comprise more than 50 % of native plant cover;
  - introduced species cover within the 300 ha of direct seeded vegetation is no greater than 30 % on average;
  - vegetation condition within vegetation remnants is demonstrably improved over the baseline condition with respect to introduced species presence and native species presence and cover (note - these areas may be the subject of trials and therefore this objective may be met through the successful implementation of trials that improve ecological function and condition); and
  - there are no Declared and highly invasive introduced species present in the Project Area at the end of three years.

### 2.1.1 Offset Programme Objectives

In 2018, Woodman Environmental developed a comprehensive list of programme objectives for the Programme (Woodman Environmental 2018). These objectives were formed by the consolidation of the primary objectives as defined in MS 971; inherent objectives required in order for the primary objectives to be met in the long term; aspirational objectives that NGB wish to pursue in order to ensure the long term ecological and conservation values of the Project Area; and the principles of ecological restoration within the National Standards for the Practice of Ecological Restoration in Australia (prepared by the Society for Ecological Restoration Australasia [SERA], 2017).

These final, consolidated objectives are that the Programme:

- fulfils designated land uses including conservation and protection of water quality;
- can be achieved using industry current leading practice;
- returns vegetation groups appropriate to the land capabilities that are self-sustaining in the long term, resilient to natural disturbance events and are broadly representative of reference sites such that the following attributes are achieved:
  - all adjacent threats to the site are being managed or mitigated to an intermediate extent;
  - the substrate of the site is maintaining conditions suitable for ongoing growth and recruitment of characteristic biota;
  - the site supports a substantial diversity of characteristic biota (e.g. ~ 60 % of reference) representing a wide diversity of species groups with no inhibition to ongoing development of biodiversity on the site by undesirable species;
  - all strata are present and spatial patterning is evident with substantial trophic complexity developing, relative to the reference ecosystem;
  - substantial evidence exists of key functions and processes commencing including reproduction, dispersal and recruitment of desirable species;
  - high level of connectivity with other natural areas has been established, observing control of pest species and undesirable disturbances;
- provides habitat for native fauna species with particular focus on:
  - provision of a foraging resource for black-cockatoos within 10 years of restoration;
  - provision of this resource within a short distance of established Jarrah / Marri Forest (i.e. black-cockatoo breeding and foraging habitat) and permanent water resources; and
  - provision of foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale;
- is based on the findings of relevant research into the establishment of biodiversity, ecosystem function, and sustainability;
- is aligned with NGB's whole-of-lease management approach including initiatives such as support for regional feral animal control, *Phytophthora cinnamomi* dieback management, flora study and other offset activities;
- takes into account the views of regulatory authorities, neighbours and all other relevant stakeholders;
- results in no unacceptable off-site impacts; and

- results in management requirements (e.g. maintenance of access tracks, fire control) that are not greater than those of surround areas of State Forest, or where extra management actions may be required a mechanism has been put in place for addressing these.

### **2.1.2 Completion Criteria and SERA Assessment System**

Woodman Environmental developed a set of completion criteria to guide the ongoing direction of the Programme and to demonstrate when objectives had been achieved (Woodman Environmental 2018). Table 1 presents the completion criteria and evidence or method of evaluation to be applied against each Programme Objective (Section 2.1.1) for the Programme. In addition, NGB have chosen to adopt the SERA ecosystem recovery assessment system to inform and direct measurement of restoration progress and success. The SERA ecosystem recovery assessment system requires the development of metrics for each ecosystem parameter on an assessment wheel in order to rate the performance of the restoration against a 5 star rating system. Detailed criteria relating to each ecosystem parameter are outlined in Table 2.



**Table 1: Programme Completion Criteria and Evidence**

Objective No.	Objective Description	Completion Criteria	Metric	Timing
1	<i>Fulfils designated land uses including conservation and protection of water quality</i>	Conservation covenant in place	Covenant document supplied	At 15 years
		All other criteria met	Achievement of all other criteria documented by independent third party	At 15 years
2	<i>Can be achieved using industry current leading practice</i>	Leading practice methods employed	Documented by independent third party	At 15 years
3	<i>Returns vegetation groups appropriate to the land capabilities that are self-sustaining in the long term, resilient to natural disturbance events and are broadly representative of reference sites such that the following attributes are achieved:</i>			
	<i>a) All adjacent threats to the site are being managed or mitigated to an intermediate extent</i>	1) There are no Declared weeds ( <i>Biosecurity and Agriculture Management Act 2007</i> )	Monitoring Program	Annually
		2) Weed species diversity and cover is not significantly greater than adjacent reference sites and Invasive environmental weeds are absent	Monitoring Program	At 15 years
		3) Habitat values for the target conservation significant fauna have not been significantly affected by <i>Phytophthora cinnamomi</i> infestation or other pathogens (habitat species representation and vegetation health and cover)	Monitoring Program	At 15 years
		4) Pest fauna species populations are not greater than surrounding reference sites	Monitoring Program	At 15 years
	<i>b) The substrate of the site is maintaining conditions suitable for ongoing growth and recruitment of characteristic biota</i>	Soil bulk density, microflora, microbial activity, pH, electrical conductivity and macro/micro nutrients are not significantly different to adjacent reference sites	Monitoring Program / Research projects	At 15 years
	<i>c) The site supports a substantial diversity of characteristic biota (e.g. ~ 60 % of reference) representing a wide diversity of species groups with no inhibition</i>	1) Species richness of flora in site quadrats and recorded opportunistically is > 60 % of corresponding reference sites.	Monitoring Program	At 15 years
2) Faunal bio-indicator species presence on the restored site are similar to reference		Monitoring Program	At 15 years	

Objective No.	Objective Description	Completion Criteria	Metric	Timing
	<i>to ongoing development of biodiversity on the site by undesirable species</i>	ecosystems		
		3) Classification / ordination analyses indicate that restored site quadrats are approaching corresponding reference sites in terms of species composition similarity	Monitoring Program	During monitoring
		4) Litter levels are at least 50 % of reference site measurements and evidence of soil nutrient cycling exists	Monitoring Program / Research projects	7 years
	<i>d) All strata are present and spatial patterning is evident with substantial trophic complexity developing, relative to the reference ecosystem</i>	1) Functional and structural groups are represented in the site flora	Monitoring Program	7 years Species introductions following monitoring events and in response to results
		2) Vegetation strata on site resemble reference sites	Monitoring Program	Species composition at 7 years with evidence of structure development on a trajectory toward mature forest at 15 years
		3) All plant species are flowering and producing viable seed (except for recalcitrants known to produce little viable seed.)	Monitoring Program / Research projects	7 years or as introduced
	<i>e) Substantial evidence exists of key functions and processes commencing including reproduction, dispersal and recruitment of desirable species</i>	1) Vegetation, soil and fauna variables approaching reference site values (Criteria 3b, c, d are achieved)	Monitoring Program	See 3b, c, d
		2) Site vegetation types re-establish similar levels of species richness and cover following controlled burning	Monitoring Program / Research projects	At 15 years following a controlled burn test
	<i>f) High level of connectivity with other natural areas has been established, observing control of pest species and undesirable disturbances</i>	Site capable of successfully integrating with surrounding State Forest (Criterion 3e achieved)	Documented agreement with Land Management Agency	At 15 years)
	4	<i>Provides habitat for native fauna species with particular focus on:</i>		
	<i>a) Provide a foraging resource for black-cockatoos within 10 years of</i>	Forage species represented in the tree canopy and understorey on site at densities similar to reference	Monitoring Program	10 years

Objective No.	Objective Description	Completion Criteria	Metric	Timing
	<i>restoration</i>	sites		
	<i>b) Provide this resource within a short distance of established Jarrah / Marri Forest (i.e. black-cockatoo breeding habitat) and permanent water resources</i>	Completed	Hotham Farm location	Completed
	<i>c) Provide foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale</i>	Forage competency and habitat/linkage quality assessed as suitable to support Woylie, Chuditch and Brush-tailed Phascogale	Monitoring Program / Research projects	7 years
5	<i>Is based on the findings of relevant research into the establishment of biodiversity, ecosystem function, and sustainability</i>	Relevant research and literature cited in management and improvement plans and monitoring assessments	Documented by independent third party	15 years
6	<i>Is aligned with NGB's whole-of-lease management approach including initiatives such as support for regional feral animal control, Phytophthora dieback management, flora study and other offset activities</i>	Management support obtained for alignment of the Programme with NGB's corporate Sustainability and Stakeholder Engagement Policy	Documented in annual reports	Ongoing
7	<i>Takes into account the views of regulatory authorities and all other relevant stakeholders</i>	Stakeholder consultation undertaken to identify views and concerns	Documented in annual reports	Year 3
8	<i>Results in no unacceptable off-site impacts</i>	1) See Criteria for objectives 3a, f	Monitoring Program Operational records / annual reports Documented agreement with Land Management Agency	15 years
		2) Water quality leaving the site is similar to that entering the site and surrounding creeks in State Forest	Monitoring Program	7 years
9	<i>Results in management requirements (e.g.</i>	See Criterion for objective 3f	Documented agreement	15 years

Objective No.	Objective Description	Completion Criteria	Metric	Timing
	<i>maintenance of access tracks, fire control) that are not greater than those of surround areas of State Forest, or where extra management actions may be required, a mechanism has been put in place for addressing these</i>		with Land Management Agency	

**Table 2: Programme Completion Criteria and Metrics to Support the SERA Assessment System**

Parameter	Sub-parameter	Variable	Rating				
			1 Star	2 Star	3 Star	4 Star	5 Star
Species composition	Desirable plants	Native species richness and composition	<ul style="list-style-type: none"> <li>Native species richness 2 % of reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Native species richness 10 % of reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Native species richness 25 % of reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Native species richness &gt; 60 % of reference ecosystem</li> <li>&gt; 60 % species in common with reference ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Native species richness &gt; 80 % of reference ecosystem</li> <li>Species composition of high similarity* to reference ecosystem</li> </ul>
	Desirable animals	Native species richness and composition	<ul style="list-style-type: none"> <li>Early colonising fauna species present</li> <li>Climax bio-indicator species absent</li> </ul>	<ul style="list-style-type: none"> <li>Some early colonising species in decline</li> <li>Some climax bio-indicator species present; 20 % of such species at 20 % of density in reference ecosystem (Bio-indicator species to be defined following characterisation of</li> </ul>	<ul style="list-style-type: none"> <li>Majority of early colonising species in decline; each species &lt; 50 % of peak abundance</li> <li>Majority (&gt; 50 %) of climax bio-indicator species recorded consistently</li> <li>40 % of such species at ca. 40 % of abundance</li> </ul>	<ul style="list-style-type: none"> <li>All early colonising species in decline; each species &lt; 25 % of peak abundance</li> <li>&gt; 70 % of climax bio-indicator species recorded consistently.</li> <li>60 % of such species at ca. 60 % of abundance in reference</li> </ul>	<ul style="list-style-type: none"> <li>Early colonising species occur only as vagrants and on margins</li> <li>90 % of climax bio-indicator species recorded consistently</li> <li>80 % of such species at ca. 80 % of abundance in</li> </ul>

Parameter	Sub-parameter	Variable	Rating				
			1 Star	2 Star	3 Star	4 Star	5 Star
				reference ecosystems)	in reference ecosystems <ul style="list-style-type: none"> <li>Climax bio-indicator species to include black-cockatoos foraging, and Chuditch, Woylie and Brush-tailed Phascogale at c. 40 % of abundance in reference ecosystems</li> </ul> Assemblage similarity with reference ecosystems low to moderate	areas <ul style="list-style-type: none"> <li>Black-cockatoos, Chuditch, Woylie and Brush-tailed Phascogale included at 60 % of abundance level</li> <li>Assemblage similarity with reference ecosystems moderate</li> </ul>	reference ecosystems, including black-cockatoos, Chuditch, Woylie and Brush-tailed Phascogale <ul style="list-style-type: none"> <li>Black-cockatoos breeding in artificial hollows (if provided)</li> <li>Assemblage similarity with reference ecosystems high; overlap in metric</li> </ul>
	No undesirable species	Weeds and pest fauna	<ul style="list-style-type: none"> <li>Weed covers less than 50 %</li> <li>Pest fauna species (invertebrates and vertebrates) management underway</li> </ul>	<ul style="list-style-type: none"> <li>Weed covers less than 50 %</li> <li>No Declared Weeds present</li> <li>Ecosystem damage from pest animal and insect species not significant</li> <li>Pest fauna species (invertebrates and vertebrates) management</li> </ul>	<ul style="list-style-type: none"> <li>Weed covers less than 25 %</li> <li>No Declared Weeds present</li> <li>Ecosystem damage from pest animal and insect species not significant</li> <li>Pest fauna species (invertebrates and vertebrates) management</li> </ul>	<ul style="list-style-type: none"> <li>Weed covers less than 10 %</li> <li>No Declared Weeds present</li> <li>Pest fauna numbers not significantly higher than reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Weed covers not significantly* greater than reference ecosystems</li> <li>No Declared Weeds present</li> <li>Pest fauna numbers not significantly higher than reference ecosystem</li> </ul>

Parameter	Sub-parameter	Variable	Rating				
			1 Star	2 Star	3 Star	4 Star	5 Star
				underway	underway		
Community structure	All vegetation strata	Vegetation structural / functional groups	<ul style="list-style-type: none"> <li>• Dominant tree species present</li> </ul>	<ul style="list-style-type: none"> <li>• Tree species present</li> <li>• Tall shrub layer species present</li> </ul>	<ul style="list-style-type: none"> <li>• Tree species present</li> <li>• Tall shrub layer species present</li> <li>• Nitrogen fixers present</li> <li>• Low Shrub layer species present</li> </ul>	<ul style="list-style-type: none"> <li>• All structural / functional plant groups represented</li> <li>• Plant groups attaining forms similar to reference ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• Species composition of all structural / functional groups are similar* to reference ecosystems</li> </ul>
	All trophic levels	Biota diversity	<ul style="list-style-type: none"> <li>• Ant species colonising</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple insect species present</li> <li>• Herbivores recorded</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple insect species present</li> <li>• Herbivores recorded</li> <li>• Insectivores recorded</li> </ul>	<ul style="list-style-type: none"> <li>• All flora and fauna trophic levels are present on site</li> </ul>	<ul style="list-style-type: none"> <li>• All flora and fauna trophic levels are present on site with fauna utilising the site for foraging and breeding</li> <li>• Fauna and flora species similar to reference ecosystems</li> </ul>
	Spatial mosaic	Habitat diversity (Structural Complexity)	<ul style="list-style-type: none"> <li>• Single habitat types</li> </ul>	<ul style="list-style-type: none"> <li>• More than a single habitat present</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple habitats present reflecting site characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple vegetation types are present that reflect soils and topography</li> <li>• Foraging and breeding habitats present for higher order animals</li> </ul>	<ul style="list-style-type: none"> <li>• Vegetation types show high similarity* to reference ecosystems (soils, landscape position, strata present, species composition)</li> <li>• Species specific</li> </ul>

Parameter	Sub-parameter	Variable	Rating					
			1 Star	2 Star	3 Star	4 Star	5 Star	
								habitats present including denning, hollows etc.
Ecosystem function	Productivity / cycling	Soil nutrients	<ul style="list-style-type: none"> <li>No deficiencies in key nutrients</li> </ul>	<ul style="list-style-type: none"> <li>Native litter layer developing</li> </ul>	<ul style="list-style-type: none"> <li>Cover and depth of litter at levels similar to reference ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Cover and depth of litter at levels similar to reference ecosystems</li> <li>Native legumes recruiting</li> <li>No deficiencies in key nutrients</li> <li>Soil biological activity developing toward reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Cover and depth of litter at levels similar* to reference ecosystems</li> <li>Soil nutrients similar* to reference ecosystems</li> <li>Soil biological activity similar* to reference ecosystems</li> </ul>	
	Habitat & interactions	Landscape function / retention of water and nutrients	<ul style="list-style-type: none"> <li>No gully erosion following rain</li> <li>Rilling / sheet movement of soils evident</li> </ul>	<ul style="list-style-type: none"> <li>No gully erosion</li> <li>Minor rilling present</li> </ul>	<ul style="list-style-type: none"> <li>No recent erosion evident</li> <li>Landscape has water and nutrient capture zones</li> </ul>	<ul style="list-style-type: none"> <li>No recent erosion evident</li> <li>Landscape has water and nutrient capture zones</li> <li>Cover and depth of litter at levels similar to reference ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>No recent erosion evident</li> <li>Landscape has water and nutrient capture zones</li> <li>Cover and depth of litter at levels similar to reference ecosystems</li> </ul>	
	Resilience / recruitment	Vegetation functions	<ul style="list-style-type: none"> <li>No significant loss of vegetation from nutrient deficiency or</li> </ul>	<ul style="list-style-type: none"> <li>Key plant species flowering and setting seed</li> </ul>	<ul style="list-style-type: none"> <li>Plant recruitment recorded</li> <li>Fire resprouters present</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> generation plants recruiting</li> <li>Vegetation height and cover</li> </ul>	<ul style="list-style-type: none"> <li>Vegetation types show high similarity* to reference</li> </ul>	

Parameter	Sub-parameter	Variable	Rating					
			1 Star	2 Star	3 Star	4 Star	5 Star	
			pests				at 70 % of reference ecosystems • Re-sprouters / seeders at proportions similar to the reference ecosystem	ecosystems (strata present, species composition, height and cover values) • Vegetation shown to recover following fire (test area burn trial)
External exchanges	Landscape flows	Landform	<ul style="list-style-type: none"> <li>• Anthropogenic landforms discontinuous with surrounding environment</li> <li>• Site hydrology maintained via anthropogenic structures</li> </ul>	<ul style="list-style-type: none"> <li>• Landforms blend with surrounding environments</li> <li>• Hydrological processes connected to surrounding landscape via natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Landforms blend with surrounding environments</li> <li>• Hydrological processes connected to surrounding landscape via natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Landforms blend with surrounding environments</li> <li>• Hydrological processes connected to surrounding landscape via natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Landforms blend with surrounding environments</li> <li>• Hydrological processes connected to surrounding landscape via natural processes</li> </ul>	
	Gene flows	Linkage / vectors for movement of genetic material	<ul style="list-style-type: none"> <li>• Site is isolated from surrounding habitats</li> <li>• Genetic introduction from anthropogenic inputs only</li> </ul>	<ul style="list-style-type: none"> <li>• Site in proximity to natural habitats</li> <li>• Barriers to gene flow not greater than non-avian fauna exclusion</li> <li>• Small ground dwelling native fauna recorded utilising the site</li> </ul>	<ul style="list-style-type: none"> <li>• Site immediately adjacent to natural habitats</li> <li>• Barriers to gene flow not greater than non-avian fauna exclusion</li> <li>• Small ground dwelling native fauna recorded utilising the site</li> </ul>	<ul style="list-style-type: none"> <li>• Site immediately adjacent to natural habitats</li> <li>• Unimpeded gene flow in terms of pollinators and fauna dispersal</li> </ul>	<ul style="list-style-type: none"> <li>• Site habitats are contiguous with surrounding natural habitats with unimpeded gene flow in terms of pollinators and fauna dispersal</li> </ul>	



Parameter	Sub-parameter	Variable	Rating				
			1 Star	2 Star	3 Star	4 Star	5 Star
	Habitat links	Connectivity	<ul style="list-style-type: none"> <li>• Site is isolated from surrounding habitats</li> <li>• Unassisted colonisation by native flora</li> </ul>	<ul style="list-style-type: none"> <li>• Site is adjacent to natural habitats</li> <li>• Colonisation by plants, avifauna and small ground dwellers possible</li> </ul>	<ul style="list-style-type: none"> <li>• Site is adjacent to natural habitats</li> <li>• Colonisation by plants, avifauna and small ground dwellers possible</li> </ul>	<ul style="list-style-type: none"> <li>• Site largely continuous with surrounding habitats</li> <li>• No barriers to fauna movement</li> </ul>	<ul style="list-style-type: none"> <li>• Site habitats are contiguous with surrounding natural habitats</li> </ul>
Absence of threats	Contamination	Water quality Soil quality (target levels to be developed following monitoring)	<ul style="list-style-type: none"> <li>• Introduction of agricultural chemicals to the site has ceased</li> </ul>	<ul style="list-style-type: none"> <li>• Site soil and water concentrations of nutrients and/or agricultural chemicals is less than at site establishment</li> </ul>	<ul style="list-style-type: none"> <li>• Site soil and water quality not impeding ecosystem development in terms of pollutants or nutrients</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality leaving site is similar to water quality entering from adjacent forest</li> <li>• Site soils nutrients and chemistry are similar to reference ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality leaving site is similar to water quality entering from adjacent forest</li> <li>• Site soils nutrients and chemistry are similar to reference ecosystem</li> </ul>
	Invasive species	Weed covers Declared weeds Feral pests Phytophthora dieback	<ul style="list-style-type: none"> <li>• Weed control measures initiated</li> <li>• Declared and invasive weeds treated</li> <li>• Feral pest species control measures initiated</li> <li>• Dieback status unknown</li> </ul>	<ul style="list-style-type: none"> <li>• Weed covers less than 50%</li> <li>• No Declared weeds present</li> <li>• Ecosystem damage from pest animal and insect species not significant</li> <li>• Impacts from dieback understood</li> </ul>	<ul style="list-style-type: none"> <li>• Weed covers less than 25 %</li> <li>• No Declared or invasive weeds present</li> <li>• Ecosystem damage from pest animal and insect species not significant</li> <li>• Impacts from dieback addressed through selective species introduction</li> </ul>	<ul style="list-style-type: none"> <li>• Weed covers less than 10 %</li> <li>• No Declared weeds present</li> <li>• Pest fauna numbers not significantly higher than reference ecosystem</li> <li>• Impacts from dieback responding to management</li> </ul>	<ul style="list-style-type: none"> <li>• Weed covers similar* to reference ecosystems</li> <li>• No Declared Weeds present</li> <li>• Feral pest species site usage similar* to reference ecosystems</li> <li>• Dieback status / infestation levels not significantly greater than</li> </ul>

Parameter	Sub-parameter	Variable	Rating				
			1 Star	2 Star	3 Star	4 Star	5 Star
							surrounding forest.
	Over-utilisation	Land-use	<ul style="list-style-type: none"> <li>• Agricultural uses continued – reduced stocking rate</li> <li>• Tenure secured</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural uses discontinued</li> <li>• Tenure secured</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural uses discontinued</li> <li>• Tenure secured</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural uses discontinued</li> <li>• Tenure secured</li> <li>• Conservation covenant in place</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural uses discontinued</li> <li>• Conservation covenant in place</li> <li>• Tenure transferred to conservation agency / organisation</li> </ul>
Physical conditions (Section to be completed following collection of baseline data)	Water chemo-physical	pH, Ec, N, P, turbidity	•	•	•	•	• Quality of water leaving the site similar* to reference ecosystems for all major elements, pH and Ec.
	Substrate chemical	pH, Ec, N, P	•	•	•	•	• Soil chemistry parameters similar* to reference ecosystems
	Substrate physical	Impedance	•	•	•	•	• Soil physical parameters similar* to reference ecosystems

\* statistical measure of similarity to be applied based on monitoring data.

### 3. RESTORATION BACKGROUND

#### 3.1 VUs within the Remnant Vegetation Areas

A total of 13 vegetation units (VUs) were defined by Mattiske in their vegetation mapping assessment of the remnant vegetation in the Project Area distinguished by soil, topographic position, and vegetation (Mattiske 2013) (Figure 2). The VUs and their spatial extents within the Project Area are summarised in Table 3.

**Table 3: Vegetation Units and Soil Types of the Remnant Vegetation Areas in the Project Area (Mattiske 2013)**

VU	Topographic Position	Soil	Vegetation	Area (ha)
A1	Valley floors	Seasonally water-logged clays and clay loams	Mixed tall shrubland of <i>Melaleuca viminea</i> , <i>Melaleuca lateritia</i> , <i>Taxandria linearifolia</i> and <i>Astartea scoparia</i> over <i>Baumea juncea</i> and <i>Lepidosperma tetraquetrum</i> with occasional patches of <i>Banksia littoralis</i> and <i>Melaleuca raphiophylla</i> over low herbs	15.0
A2	Seasonally wet valley floors	Seasonally water-logged clays and clay loams	Low open woodland of <i>Melaleuca raphiophylla</i> over <i>Astartea scoparia</i> and low herbs	5.3
AC	Seasonally wet valley floors	Clay loams	Open woodland of <i>Eucalyptus wandoo</i> and <i>Eucalyptus rudis</i> over <i>Juncus pallidus</i> , <i>Astartea scoparia</i> , <i>Taxandria linearifolia</i> and <i>Lepidosperma tetraquetrum</i> over herbs	3.2
AY	Valley floors	Clay loams	Open woodland of <i>Eucalyptus rudis</i> and <i>Eucalyptus wandoo</i> over <i>Acacia saligna</i> , <i>Hakea prostrata</i> and <i>Hypocalymma angustifolium</i>	10.5
D	Lower slopes	Clay loams	Open forest of <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> over <i>Hakea lissocarpha</i> , <i>Macrozamia riedlei</i> , <i>Acacia alata</i> , <i>Babingtonia camphorosmae</i> , <i>Hypocalymma angustifolium</i> and <i>Phyllanthus calycinus</i>	5.6
L	Lower slopes	Clay and clay loams	Open woodland of <i>Eucalyptus patens</i> with some <i>Eucalyptus wandoo</i> over <i>Xanthorrhoea preissii</i> , <i>Macrozamia riedlei</i> , <i>Trymalium ledifolium</i> , <i>Acacia saligna</i> and <i>Hakea prostrata</i>	10.2
M	Mid to upper slopes and ridges	Clay loams with some gravel	Open woodland of <i>Eucalyptus wandoo</i> over <i>Trymalium ledifolium</i> , <i>Macrozamia riedlei</i> and <i>Hakea lissocarpha</i>	5.4
MG	Mid to upper slopes and ridges	Clay loams over shallow granite	Open woodland of <i>Eucalyptus wandoo</i> over <i>Trymalium ledifolium</i> , <i>Macrozamia riedlei</i> , <i>Pericalymma ellipticum</i> , <i>Hypocalymma angustifolium</i> , <i>Grevillea bipinnatifida</i> , <i>Allocasuarina humilis</i> and <i>Hakea lissocarpha</i>	4.7
R	-	Sandy gravels associated with nearby shallow outcropping	Open woodland of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over <i>Trymalium ledifolium</i> , <i>Phyllanthus calycinus</i> and <i>Hypocalymma angustifolium</i>	13.3

VU	Topographic Position	Soil	Vegetation	Area (ha)
S	Slopes and ridges	Sandy gravels	Open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> with admixtures of <i>Allocasuarina fraseriana</i> , <i>Banksia grandis</i> and <i>Persoonia longifolia</i> over <i>Acacia celastrifolia</i> , <i>Hovea chorizemifolia</i> , <i>Daviesia preissii</i> , <i>Leucopogon capitellatus</i> and <i>Styphelia tenuiflora</i>	24.2
SP	Slopes and ridges	Sandy gravels to gravel soils	Open forest of <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Allocasuarina fraseriana</i> with admixtures of <i>Banksia grandis</i> over <i>Lasiopetalum cardiophyllum</i> , <i>Acacia celastrifolia</i> , <i>Styphelia tenuiflora</i> , <i>Daviesia decurrens</i> and <i>Trymalium ledifolium</i>	27.0
Y	Lower slopes	Clay and clay loam	Open woodland of <i>Eucalyptus wandoo</i> over <i>Gompholobium marginatum</i> , <i>Acacia nervosa</i> , <i>Babingtonia camphorosmae</i> , <i>Hypocalymma angustifolium</i> , <i>Macrozamia riedlei</i> , <i>Phyllanthus calycinus</i> and <i>Gastrolobium calycinum</i>	1.0
Z	Slopes	Sandy loam to sandy loam gravel	Open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over <i>Macrozamia riedlei</i> , <i>Xanthorrhoea preissii</i> , <i>Hakea lissocarpa</i> and <i>Phyllanthus calycinus</i>	0.4

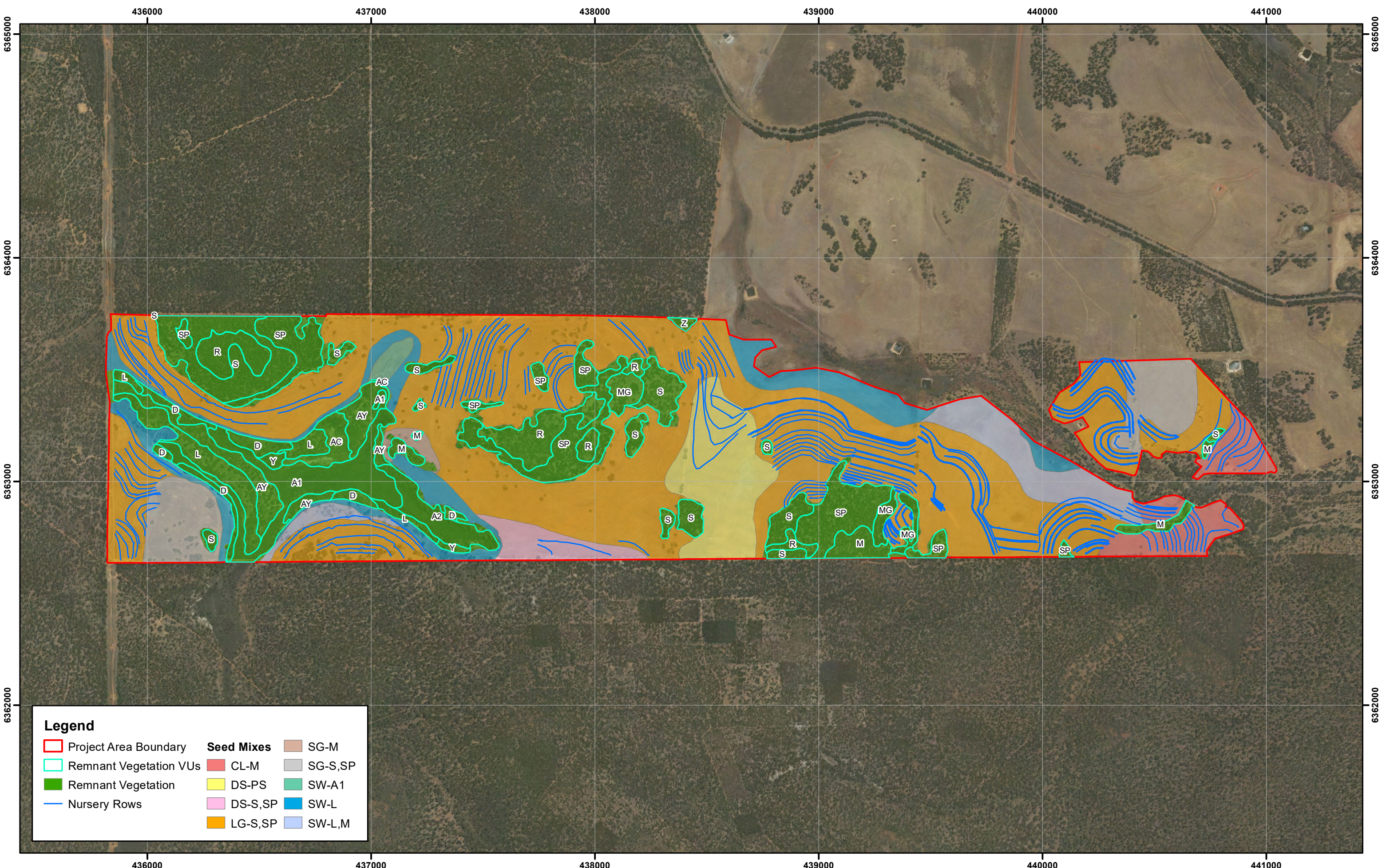
### 3.2 LMUs and Seed Mixes within the Paddock Restoration Area

A total of six LMUs were inferred by GA within the paddock restoration area of the Project Area as guided by Mattiske's vegetation mapping assessment of the surrounding remnant vegetation (Mattiske 2013). These LMUs were further separated into nine zones of different seed mixes as defined by specific soil type and topographic position. In addition, *Gastrolobium* thickets were proposed in three locations as potential shelter provision for Woylies (Figure 2). These were targeted on the deep sands, loamy gravel and semi-wet areas and were created by altering the seed mixes by concentrating *Gastrolobium calycinum* seeds. Table 4 presents the LMUs and associated seed mixes of the paddock restoration area, their inferred vegetation, soil type, topographic position and spatial extent, and the soil type, topographic position and spatial extent of the *Gastrolobium* thickets.

**Table 4: Definition of LMUs and Seed Mixes of the Paddock Restoration Area in the Project Area (GA 2018)**

LMU	Seed Mix	Soil Type and Description	Inferred Vegetation from Vegetation Mapping of Surrounding Vegetation (Mattiske 2013)	Topographic Position	Area (ha)
A1	SW-A1	SW: Semi-wet Non-saline soils, seasonally waterlogged to 30 - 80 cm with thin sandy topsoil and dark grey/brown silty/sandy clay loams	A1: Mixed tall shrubland of <i>Melaleuca viminea</i> , <i>Melaleuca lateritia</i> , <i>Taxandria linearifolia</i> and <i>Astartea scoparia</i> over <i>Baumea juncea</i> and <i>Lepidosperma tetraquetrum</i> with occasional patches of <i>Banksia littoralis</i> and <i>Melaleuca raphiophylla</i> over low herbs	Lower slopes, valley floors	2.0
L	SW-L	SW: Semi-wet Non-saline soils, seasonally waterlogged to 30 - 80 cm with thin sandy topsoil and dark grey/brown silty/sandy clay loams	L: Open woodland of <i>Eucalyptus patens</i> with some <i>Eucalyptus wandoo</i> over <i>Xanthorrhoea preissii</i> , <i>Macrozamia riedlei</i> , <i>Trymalium ledifolium</i> , <i>Acacia saligna</i> and <i>Hakea prostrata</i>	Lower slopes, valley floors	29.0
L,M	SW-L,M	SW: Semi-wet Non-saline soils, seasonally waterlogged to 30 - 80 cm with thin sandy topsoil and dark grey/brown silty/sandy clay loams	L,M: Open woodland of <i>Eucalyptus patens</i> and <i>Eucalyptus wandoo</i> over <i>Xanthorrhoea preissii</i> , <i>Macrozamia riedlei</i> , <i>Trymalium ledifolium</i> , <i>Acacia saligna</i> , <i>Hakea lissocarpha</i> and <i>Hakea prostrata</i>	Lower slopes, valley floors	17.9
M	CL-M	CL: Clay loam Brown/grey sand over non-alkaline sandy clay loam to clay at 30 - 80 cm with gravel in some areas	M: Open woodland of <i>Eucalyptus wandoo</i> over <i>Trymalium ledifolium</i> , <i>Macrozamia riedlei</i> and <i>Hakea lissocarpha</i>	Hillslopes	16.0
	SG-M	SG: Shallow gravel Ironstone gravel soil over cemented gravels (ferricrete), rock or other hard or permanently cemented layers at 80 cm		Lower slopes, valley floors	1.8
PS	DS-PS	DS: Deep sands Yellow sands greater than 80 cm deep, absence of laterite rocks and pebbles at < 40 cm	PS: Open forest of <i>Allocasuarina fraseriana</i> , <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Banksia grandis</i> over <i>Adenanthos barbiger</i> and <i>Leucopogon capitellatus</i>	Lower to upper slopes, hillcrests	24.1

LMU	Seed Mix	Soil Type and Description	Inferred Vegetation from Vegetation Mapping of Surrounding Vegetation (Mattiske 2013)	Topographic Position	Area (ha)
S,SP	DS-S,SP	DS: Deep sands Yellow sands greater than 80 cm deep, absence of laterite rocks and pebbles at < 40 cm	S,SP: Open forest of <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Allocasuarina fraseriana</i> with admixtures of <i>Allocasuarina fraseriana</i> , <i>Banksia grandis</i> and <i>Persoonia longifolia</i> over <i>Lasiopetalum cardiophyllum</i> , <i>Acacia celastrifolia</i> , <i>Hovea chorizemifolia</i> , <i>Daviesia decurrens</i> , <i>Daviesia preissii</i> , <i>Leucopogon capitellatus</i> , <i>Styphelia tenuiflora</i> and <i>Trymalium ledifolium</i>	Lower to upper slopes, hillcrests	7.5
	LG-S,SP	LG: Loamy gravel Ironstone gravel soil, with a predominantly loamy matrix, often grading to clay at > 30 cm; grey/yellow shallow sand over red/yellow-brown loamy gravel soils with some rocky areas		Lower to upper slopes	215.2
	SG-S,SP	SG: Shallow gravel Ironstone gravel soil over cemented gravels (ferricrete), rock or other hard or permanently cemented layers at 80 cm; grey/yellow shallow sand over rocky, sandy loam		Lower to upper slopes, hillcrests	21.9
Gastrolobium thickets	DS: Deep sands Yellow sands greater than 80 cm deep, absence of laterite rocks and pebbles at < 40 cm			Lower to upper slopes, hillcrests	2.5
	LG: Loamy gravel Ironstone gravel soil, with a predominantly loamy matrix, often grading to clay at > 30 cm; grey/yellow shallow sand over red/yellow-brown loamy gravel soils with some rocky areas			Lower to upper slopes	1.5
	SW: Semi-wet Non-saline soils, seasonally waterlogged to 30 - 80 cm with thin sandy topsoil and dark grey/brown silty/sandy clay loams			Lower slopes, valley floors	1.5



**Legend**

Project Area Boundary	<b>Seed Mixes</b>	SG-M
Remnant Vegetation VUs	CL-M	SG-S,SP
Remnant Vegetation	DS-PS	SW-A1
Nursery Rows	DS-S,SP	SW-L
	LG-S,SP	SW-L,M

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**Remnant Vegetation VUs and Paddock Restoration Area  
Seed Mix Zones and Nursery Rows in the Project Area**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич	<b>Figure</b>  2
WEC Ref: Newmont18-69	
Filename: Newmont18-69-01-f02.mxd	
Scale: 1:15,000 (A3) Grid: MGA Zone 50	

### 3.3 Restoration Works Summary

Restoration works were undertaken in the Project Area by GA between September 2016 and October 2018 and included site preparation, infill seeding and tubestock planting within paddock areas (GA 2018). The restoration works are summarised in Table 5.

**Table 5: Summary and Schedule of Restoration Works**

Activity	Period of Work		
	2016	2017	2018
Introduced species/insect control	September	February, June, August – November	August, October
Seed treatment and preparation		May	
Site and soil preparation		June	
Direct seeding		June – September	?
<i>Macrozamia riedlei</i> planting		July	
Nursery row tubestock planting		July – August	
Pest Animal Control		August	
Gastrolobium thicket seeding			June

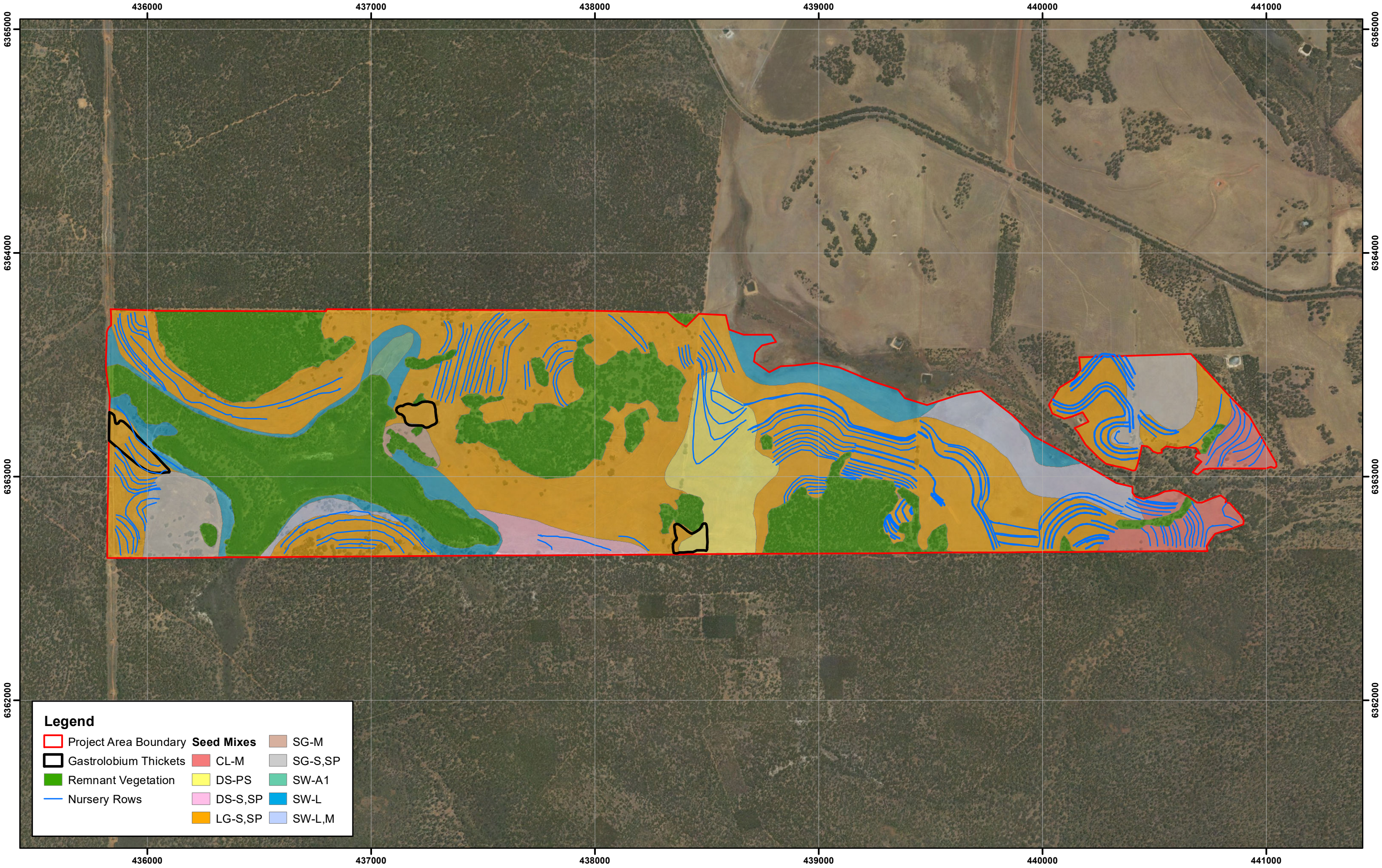
Direct seeding was conducted using a commercial native vegetation seeder (CommVeg Seeder) towed behind a tractor. The CommVeg Seeder performs a mini-scalp, breaks the soil to a depth of 200 mm, ploughs compacted soil, direct seeds to a depth of 7 mm for fine seed and 20 mm for coarse seed (delivered with soil additives), and lightly presses the surrounding soil. Two parallel seeding rows (1.35 m apart) were installed on a single pass along contour lines and seeding rows of opposite passes were placed approximately 1.5 m apart. Slight modifications to this process were required when direct seeding within the rocky SG-S,SP seed mix zone and during direct drilling whereby seed rows were installed perpendicular to the contour lines (GA 2018). Seeding of seed mixes was contained within the associated seed mix zone boundary (Figure 3). The composition of the seed mixes is provided in Appendix A (GA 2017; GA 2018).

Direct seeding and tubestock planting of potentially recalcitrant species (as defined by GA) and those that were considered to not compete well when combined with more dominant species was conducted along 'nursery rows'. Nursery rows were established within the CL-M, DS-PS, LG-S,SP and SG-S,SP LMU seed mix zones with the volume of seed used for direct seeding being equal to the volume of seed required to cover approximately 10 % of the associated seed mix zone. The method of direct seeding was the same as described above. Tubestock planting was conducted at intervals of 8 metres (m) to 23 m along the nursery rows (Figure 3). The list of species established along nursery rows is provided in Appendix B.

Gastrolobium thickets were established in three locations, comprising a total area of 5.8 ha (Figure 3). Thickets were created by concentrating the volume of *Gastrolobium calycinum* seed in the DS-PS and LG-S,SP seed mixes (GA 2017).

*Macrozamia riedlei* nuts were manually planted using a pottiputki in clusters of three to five distributed randomly throughout the seeding rows within the CL-M, DS-S,SP, LG-S,SP, SG-S,SP and SW-L LMU seed mix zones.





**Legend**

Project Area Boundary	<b>Seed Mixes</b>	SG-M
Gastrolobium Thickets	CL-M	SG-S,SP
Remnant Vegetation	DS-PS	SW-A1
Nursery Rows	DS-S,SP	SW-L
	LG-S,SP	SW-L,M

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**Summary of Proposed Restoration Works in the Project Area**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич

WEC Ref: Newmont18-69

Filename: Newmont18-69-01-f03.mxd

Scale: 1:15,000 (A3) Grid: MGA Zone 50

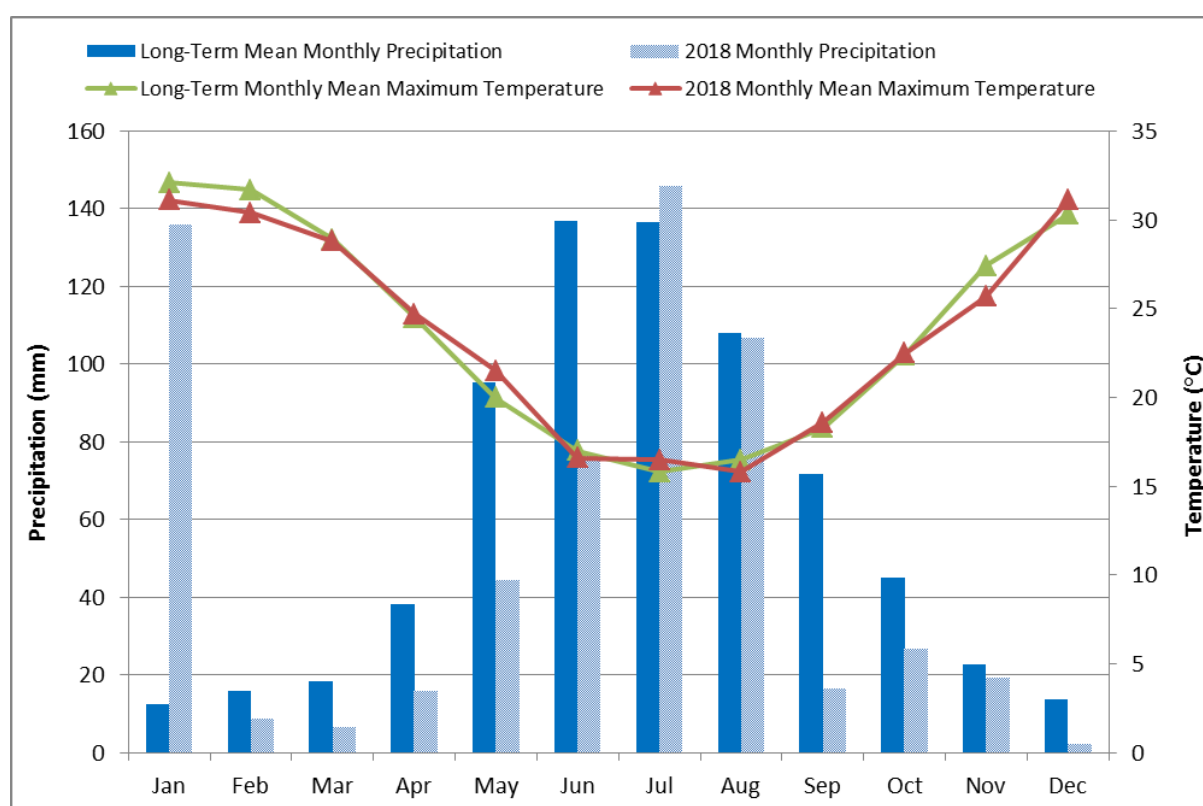
**Figure**

**3**

## 4. CLIMATE

The Project Area is located in the Swan Region in the Southwest Province of Western Australia. The Swan Region is characterised by a dry Mediterranean climate with mild wet winters and hot dry summers. There are 5 to 6 dry months per year (where evaporation exceeds precipitation), with the region generally receiving between 600 to 1200 millimetres (mm) of precipitation annually (Beard 1990).

Figure 4 displays monthly precipitation totals and average maximum temperature for the months preceding the completion criteria monitoring, as well as long-term average monthly maximum temperature (1998 to 2018) and average monthly precipitation (1897 to 2018) recorded for Wandering (temperature) and Marradong (precipitation), the nearest meteorological stations to Hotham Farm with long-term data (BoM 2018).



**Figure 4: Average Daily Maximum Temperature and Total Precipitation for January to December 2018, and Long-term Average Monthly Maximum Temperature and Precipitation for Wandering (Temperature) and Marradong (Precipitation) (BoM 2018)**

Long-term monthly maximum temperatures at Wandering peak in January and February (32.1 °C and 31.7 °C, respectively). Long-term average monthly precipitation at Marradong peaks from late autumn to early spring (May to September), with the highest precipitation on average being received in June (136.8 mm). This period is considered to be the most relevant in terms of promoting plant growth in the southwest region. Precipitation received at Marradong from May to September 2018 was below the long-term average (391.0 mm compared to the long-term average of 548.8 mm), although significant precipitation was received in January 2018 (136.0 mm compared to the long-term average of 12.5 mm). With the exception of January and July, all months in 2018 received below average precipitation.

Average monthly maximum temperatures recorded for 2018 were relatively consistent with the long-term monthly averages, with the average temperature of May through September only being 1.4 °C above the long-term average for this period.

## 5. METHODS

### 5.1 Personnel and Licencing

Table 6 lists the personnel involved in fieldwork and plant identifications for The Project. All personnel undertaking the field survey have experience in conducting rehabilitation monitoring and vegetation surveys in the southwest. All plant material was collected under the scientific licences pursuant to the *Wildlife Conservation Act 1950* (WC Act) Section 23C and 23F as provided in Table 6. Personnel involved in plant identifications have had extensive previous experience in plant identifications for flora of the southwest.

**Table 6: Personnel and Licencing Information**

Personnel	Role	Flora Collecting Permit (WC Act (WA))
Bethea Loudon	Field survey (team leader); plant identifications	SL012318 (Section 23C) 143-1718 (Section 23F)
David Coultas	Field survey (team leader)	SL012319 (Section 23C) 141-1718 (Section 23F)
Emalyn Loudon	Field survey	-
Julia Mattner	Field survey	-
Kim Kershaw	Field survey	SL012315 (Section 23C) 141-1718 (Section 23F)
Marco Pratisoli	Field survey	SL012458 (Section 23C)
Marlee Starcevich	Field survey (project manager / team leader); plant identifications	SL012321 (Section 23C)

### 5.2 Plant Collection and Identification

Specimens of any unknown or difficult to identify taxa were collected and pressed for later identification at the Western Australia Herbarium (WA Herbarium). External experts were consulted for any specimens considered to be difficult to identify or of taxonomic interest. Specimens that could not be confidently identified were submitted to the WA Herbarium identification service.

Taxon nomenclature follows *FloraBase* (WA Herbarium 1998-) with all names checked against the current Department of Biodiversity Conservation and Attractions (DBCA) *Max* database to ensure their validity. The conservation status of each taxon was checked against *FloraBase*, which provides the most up-to-date information regarding the conservation status of flora taxa in Western Australia.

Specimens of interest, including significant flora taxa, range extensions of taxa and potential new taxa, will be sent to the WA Herbarium for consideration for vouchering as soon as practicable. This process is via donation and the WA Herbarium may not voucher all specimens in accordance with its own requirements. The specimen vouchering will be supported by completed Threatened and Priority Flora Report Forms submitted to DBCA (Species and Communities Branch) in the case of listed significant flora (e.g. Threatened and Priority flora taxa).

## 5.3 Monitoring Methods

Field work for the completion criteria monitoring at the Project Area was undertaken over the following periods:

- 26<sup>th</sup> – 30<sup>th</sup> November 2018; and
- 10<sup>th</sup> – 14<sup>th</sup> December 2018.

The method for assessing the restoration at the Project Area was conducted as outlined in the *Completion Criteria and Monitoring* report (Woodman Environmental 2018) and detailed below. Field data (vegetation, soil and erosion) was collected to provide information on key aspects of the current condition of the restoration (including plant cover and density, species richness, vegetation structure, litter cover, soil penetrance and chemistry, and extent of erosion if present).

### 5.3.1 Flora and Vegetation

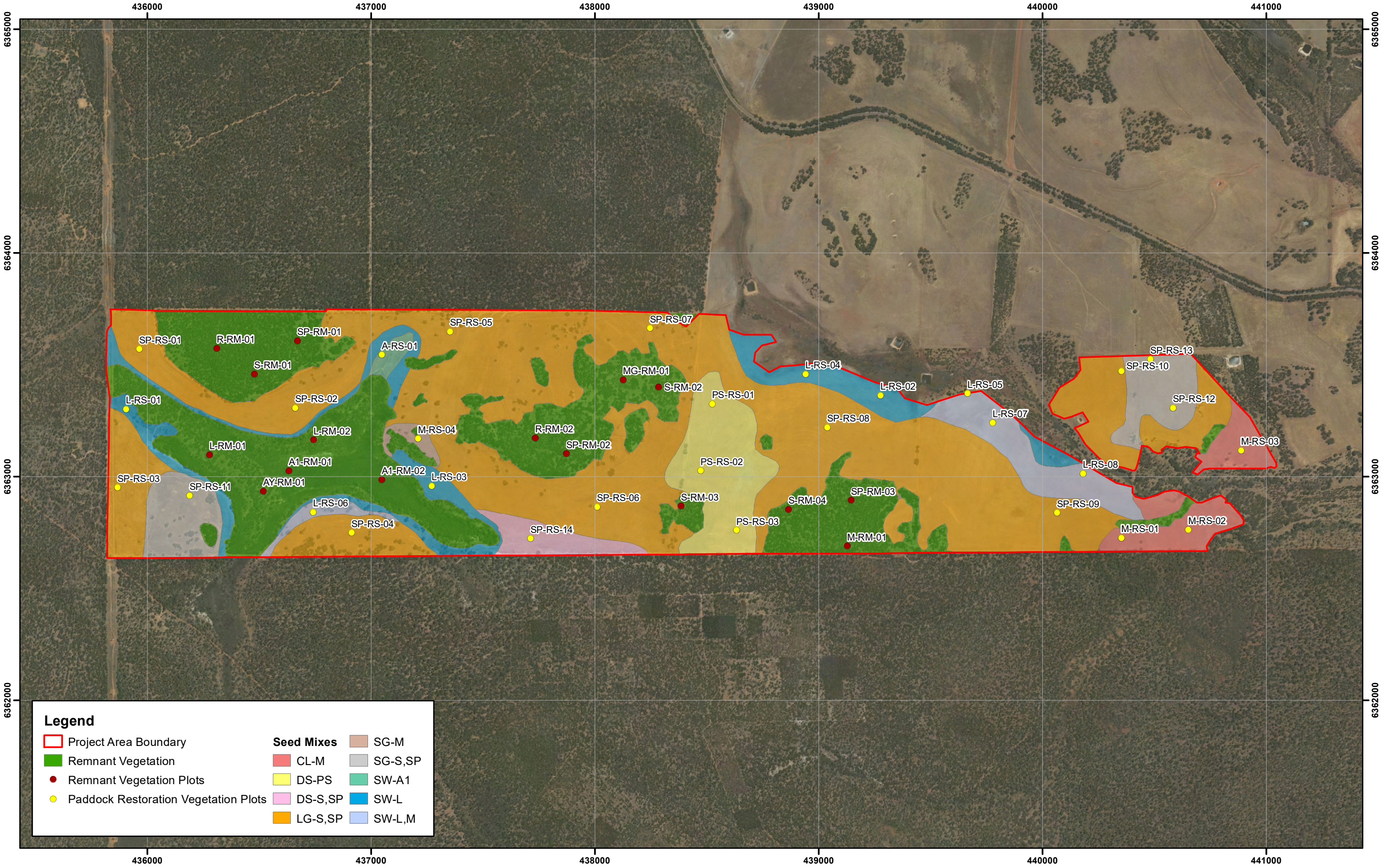
Vegetation and flora parameters were assessed in 2018 using a combination of the following activities:

- Performance Monitoring – assessment of permanent plots / quadrats within seed mix zones (paddock restoration area) and VUs (remnant vegetation areas); and
- Nursery Row Review – assessment of transects along nursery rows.

#### 5.3.1.1 Vegetation Plots

A total of 30 vegetation monitoring plots were established in the paddock restoration area and 16 in the remnant vegetation areas. Sampling density within the paddock restoration area was a minimum of one plot for every 10 ha of restoration and then weighted to account for differences in the areas of seed mix zones across the Project Area.

Plot locations are presented in Figure 5 and Appendix C. The design of the plots was a modified Bright design as presented in Figure 6. All plots were established on a North-South-East-West (N-S-E-W) orientation with the exception of Plot L-RS-01 that was placed in a narrow section of LMU L. All plots measured 20 m x 20 m and were marked with fence droppers. Within each plot a total of 20 quadrats (measuring 2 m x 2 m) were established using fence droppers. A photograph to the SE and Global Positioning System (GPS) coordinates (Geocentric Datum of Australia 1994 [GDA94], zone 50) were taken from the NW corner and a metal tag with a unique identifier number was affixed to the NW corner fence dropper.



**Legend**

Project Area Boundary	<b>Seed Mixes</b>	SG-M
Remnant Vegetation	CL-M	SG-S,SP
Remnant Vegetation Plots	DS-PS	SW-A1
Paddock Restoration Vegetation Plots	DS-S,SP	SW-L
	LG-S,SP	SW-L,M

WOODMAN ENVIRONMENTAL

**Location of Vegetation Monitoring Plots in the Project Area**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич

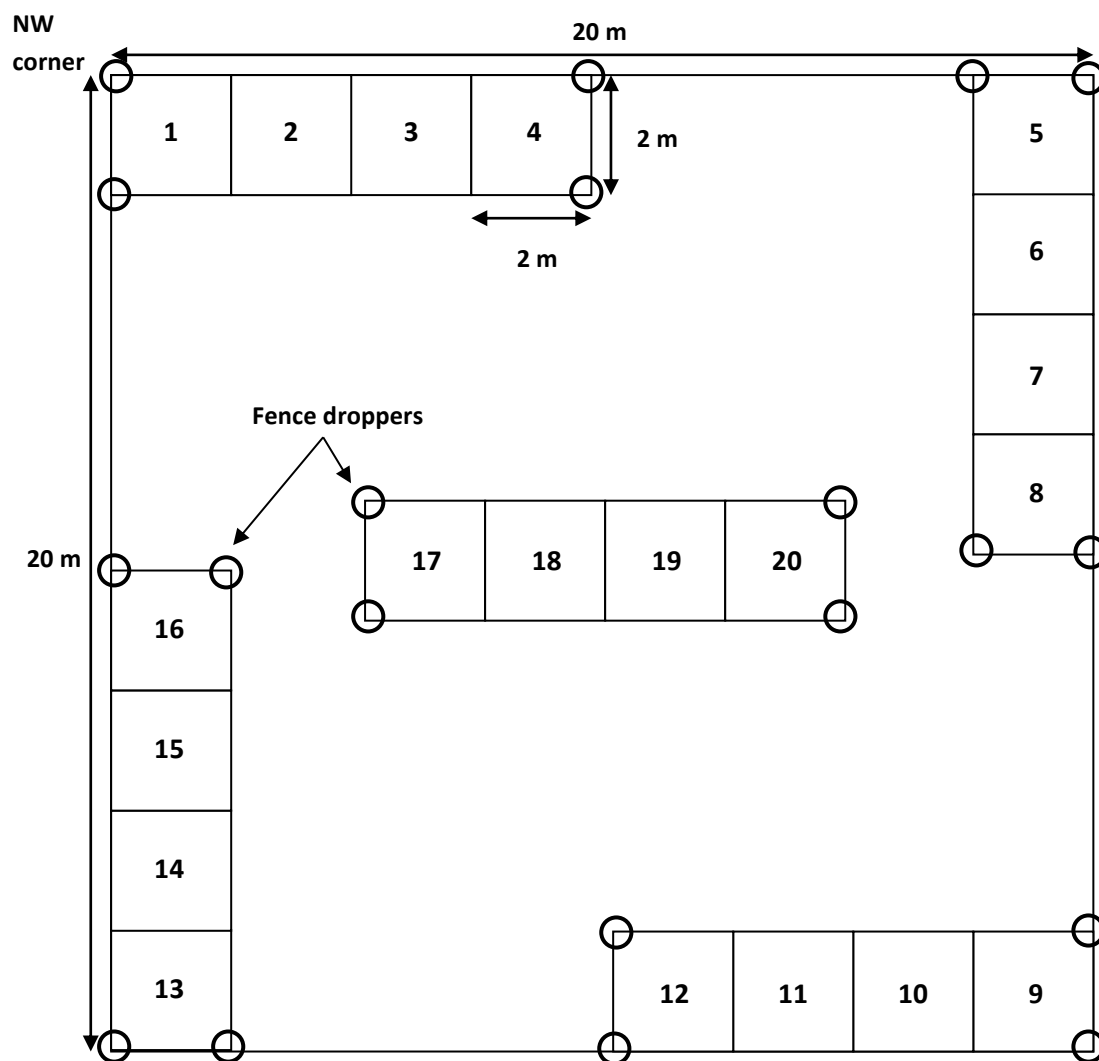
WEC Ref: Newmont18-69-01

Filename: Newmont18-69-01-f05.mxd

Scale: 1:15,000 (A3) Grid: MGA Zone 50

**Figure**

**5**



**Figure 6: Plot Design Utilised in the Project Area for the Assessment of Flora and Vegetation**

Within each plot the following information was recorded:

- Counts (alive and dead), foliage cover (alive and dead) (as a percentage of each plot, %) and average height (m) of each tree taxon (separated into three height classes for each taxon: < 0.5 m, 0.5 m – 1.3 m, and > 1.3 m);
- Additional species not recorded within the 2 x 2 m quadrats (native taxa only in paddock restoration plots, native and introduced taxa in remnant vegetation plots);
- Introduced taxa present in the plot (paddock restoration plots only);
- The overall cover of live foliage (separated into native taxa foliage cover, introduced taxa foliage cover and total foliage cover in paddock restoration plots) and leaf litter (%); and
- Comments about the general condition of the plot, including qualitative notes on cover, diversity, density, substrate, etc.

Within each quadrat the following information was recorded:

- Counts (alive and dead), foliage cover (alive and dead) (as a percentage of each quadrat, %) and average height (m) of each perennial plant species rooted in the quadrat (native perennial taxa only in paddock restoration plots, native and introduced perennial taxa in remnant vegetation plots). Where plants were rooted outside the quadrat but had foliage overhanging the quadrat they were given a count of '0';
- Foliage cover (alive and dead) (%) and average height (m) of each annual plant species rooted in the quadrat (native annual taxa only in paddock restoration plots, native and introduced annual taxa in remnant vegetation plots); and
- The overall cover of live foliage (separated into native taxa foliage cover, introduced taxa foliage cover and total foliage cover in paddock restoration plots) and leaf litter (%).

### 5.3.1.2 Nursery Row Transects

Five 50 m sections of nursery row lines were randomly selected in each LMU within which nursery rows were present, with the exception of the PS LMU (DS-PS seed mix zone) that had very few nursery row lines. A total of 13 nursery row transects were established in 2018 along one of paired parallel nursery row seeding rows. Their locations are presented in Figure 7 and Appendix D. The beginning and end of the 50 m transects were marked with capped star pickets. The 0 m and 50 m star pickets had GPS coordinates recorded and were labelled with a unique identifier number using a white paint-marker pen. A photograph was taken at each end star picket looking along the nursery row towards the other star picket.

Along each nursery row transect each plant (or small clump of individuals of the same taxon) identified as recalcitrant by GA (2018) was marked with a pin flag labelled with a unique identifier number using a tag marker pen. The following information was recorded for each marked plant (or plants):

- Species;
- Count (if more than one individual in a small clump);
- GPS coordinates;
- Height (cm) (or average height if more than one individual in a small clump);
- Reproductive status (i.e. sterile, flowering or fruiting);
- Health rating score (4 to 0, as presented in Table 7); and
- Additional notes on any other observable features of the plant considered relevant to its condition.



**Table 7: Plant Condition Rating Scale**

Condition	Numerical Rating	Definition
Healthy	4	Healthy foliage (green)
Slightly stressed	3	Slight discolouration (yellowing) in foliage but majority of foliage healthy; may have some dead leaves
Stressed	2	Marked discolouration (yellowing or browning) in foliage (< 50 % of foliage) with some loss of foliage occurring
Very stressed	1	Majority of foliage (> 50 % of foliage) discoloured (yellowing or browning) with desiccation or loss of foliage occurring
Dead - recent	0	Foliage present, brown and desiccated
Dead - moderate	0	Foliage absent; bark and fine twigs present
Dead - old	0	Foliage and fine twigs absent; bark may still remain or be absent

### 5.3.2 Soil

The following soil parameters were assessed in 2018 as part of The Project:

- Soil Chemistry Monitoring – assessment of samples at vegetation monitoring plots within seed mix zones (paddock restoration area) and VUs (remnant areas); and
- Soil Penetrance Monitoring – assessment of penetrance at vegetation monitoring plots within seed mix zones (paddock restoration area) and VUs (remnant areas).

#### 5.3.2.1 Soil Chemistry

Soil chemistry was assessed across the paddock restoration and remnant vegetation areas to provide a baseline against which ecosystem development can be measured over time.

Three approximately 300 gram (g) soil samples were taken via 10 subsamples from the top 5 cm of the soil profile at three locations adjacent to each vegetation monitoring plot. A total of 138 soil samples were taken in 2018. Soil samples were sent to CSBP Analytical Laboratories for soil chemistry analysis where the following tests were conducted as part of the 'Comprehensive Analysis Package':

- Colour;
- Gravel (%);
- Texture;
- Ammonium Nitrogen (milligram per kilogram [mg/kg]);
- Nitrate Nitrogen (mg/kg);
- Phosphorus (Colwell) (mg/kg);
- Potassium (Colwell) (mg/kg);
- Sulphur (potassium chloride-40 [KCl-40]) (mg/kg);
- Organic Carbon (Walkley-Black) (%);
- Electrical Conductivity (decisiemens per metre [dS/m]);
- pH (calcium chloride [CaCl<sub>2</sub>]);
- pH (water [H<sub>2</sub>O]);
- Trace Elements (diethylenetriaminepentaacetic acid [DTPA]) (Copper, Iron, Manganese and Zinc) (mg/kg);

- Exchangeable Cations (exc.) (Aluminium, Calcium, Magnesium, Potassium and Sodium) (milliequivalents per 100 grams [meq/100 g]); and
- Boron (hot CaCl<sub>2</sub>) (mg/kg).

### 5.3.2.2 Soil Penetrance

Surface soil penetrance was assessed across the paddock restoration and remnant vegetation areas to provide a baseline against which soil structure development can be measured over time.

Soil penetrance measurements were collected using a Geotester PP-200 Pocket Penetrometer. Replicate measurements were taken from 10 random locations within and adjacent to each vegetation monitoring quadrat in the remnant vegetation areas, and from 10 random locations in seeding rows ('furrow'), between parallel seeding rows ('window') and between seeding row passes ('paddock') in the paddock restoration areas. Any leaf litter on the soil surface was removed prior to taking penetrance measurements and areas of outcropping were avoided. Soil penetrance in plots with clayey, sandy clay or clayey sand soil was measured using a 10 cm diameter tip while plots with sandy soils was measured using a 20 cm diameter tip. The penetrometer was gently pushed into the soil until the tip of the device had penetrated the soil surface to a depth of 6 mm (indicated by an engraved line or narrowing of the tip), after which the force (kg) was recorded and the penetrometer reset. Force measurements were then converted to kilograms per square cm (kg/cm<sup>2</sup>).

## 5.3.3 Supplementary Monitoring

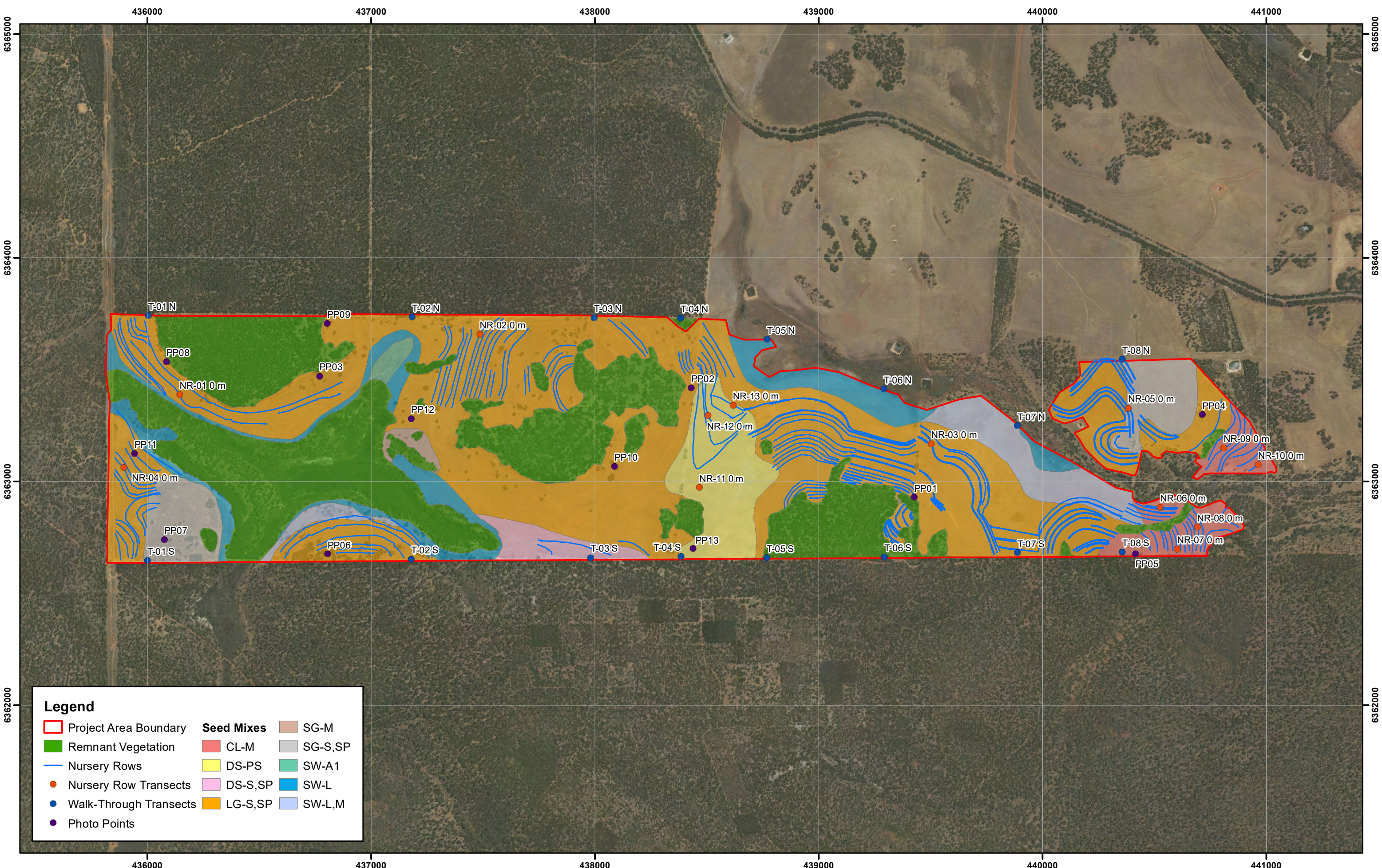
### 5.3.3.1 Photo Points

A total of 13 photo points were monitored in 2018, including 10 photo points already established by GA (Figure 7, Appendix E). Three additional photo points were established in the three *Gastrolobium* thicket areas using capped star pickets. GPS coordinates were recorded at the photo point and the star pickets were labelled with a unique identifier number using a white paint-marker pen. Four photographs were taken at each photo point (in a N, E, S and W direction) and comments recorded on the condition of the restoration.

### 5.3.3.2 Walk-Through Transects

Walk-through assessments were conducted to identify introduced species infestations, areas of poor vegetation health, bare areas, damage from feral animals or pests, erosion, damage to fences, and additional species not recorded in plots.

A total of eight N-S walk-through transects were established in 2018. The locations of the walk-through transects are presented in Figure 7 and Appendix F. The transects were placed to dissect areas of the restoration that were not being assessed by vegetation plots, nursery row transects or photo points while being approximately evenly spaced across the length of the northern and southern boundaries of the Project Area. The N and S ends of the transects were marked with capped star pickets. Both star pickets had GPS coordinates recorded and were labelled with a unique identifier number using a white paint-marker pen. A photograph was taken at each star picket looking along each transect. Transects were walked in a straight N-S line and the track recorded with a GPS unit.



**Legend**

Project Area Boundary	<b>Seed Mixes</b>	SG-M
Remnant Vegetation	CL-M	SG-S,SP
Nursery Rows	DS-PS	SW-A1
Nursery Row Transects	DS-S,SP	SW-L
Walk-Through Transects	LG-S,SP	SW-L,M
Photo Points		



**Location of Nursery Row Transects, Walk-Through Transects and Photo Points in the Project Area**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич
WEC Ref: Newmont18-69-01
Filename: Newmont18-69-01-f07.mxd
Scale: 1:15,000 (A3) Grid: MGA Zone 50

**Figure**  
**7**

The following information was recorded along each transect:

- Introduced species cover estimates every 50 m (%) and the dominant weed species;
- Significant introduced species locations (% or count and weed species);
- Length, width and depth of erosion features (m) in the form of rills (< 0.3 m deep) and gullies ( $\geq$  0.3 m deep);
- Bare areas (dimensions in m where bare areas are significant);
- Additional species not recorded in plots;
- Notes on diseased or dead plants (with comments on possible causes);
- Evidence of feral animal activity; and
- Damage to fences and tracks.

Photographs and GPS coordinates were recorded where any major issues were identified during the walk-through assessment.

### 5.3.3.3 General Site Assessment

General site assessments were conducted during traverses around the Project Area in vehicle and on foot to identify introduced species infestations, areas of poor vegetation health, bare areas, damage from feral animals or pests, erosion, damage to fences, and additional species not recorded in plots. The following information was recorded during the general site assessments:

- Significant introduced species locations (% or count and weed species);
- Length, width and depth of erosion features (m) in the form of rills (< 0.3 m deep) and gullies ( $\geq$  0.3 m deep);
- Bare areas (dimensions in m where bare areas are significant);
- Additional species not recorded in plots;
- Notes on diseased or dead plants (with comments on possible causes);
- Evidence of feral animal activity; and
- Damage to fences and tracks.

Photographs and GPS coordinates were recorded where any major issues were identified during the general site assessment.

### 5.3.3.4 Seed Mix Zone Boundaries

A review of the seed mix zone boundaries was conducted in the field to correct any deviations from the GA data. Where there was an interface between two or more seed mix zones, the interface was walked and the track recorded with a GPS unit. Notes were taken during the walk to assist with the interpretation of field results. Boundaries between the remnant vegetation and paddock restoration areas were not walked.

## 5.3.4 Data Management and Calculations

### 5.3.4.1 Data Management

All data collected from the vegetation plot monitoring was entered into VegMonitor, a bespoke database created for the storage, collation and manipulation of survey data by Woodman Environmental and checked for accuracy. All other raw data was entered into Microsoft Excel. Within the dataset, entities were assigned a '?' in front of a genus or species name when this was the most likely taxonomic identity, i.e. the individual was most likely the taxonomic identity but there was insufficient material to accurately confirm the identification. Entities that could confidently be assigned a genus but could not be identified to species level were assigned identifications of 'genus sp.' or 'genus ?species'. In the paddock restoration area this uncertainty was often a result of immature material, as many taxa require flowering or other reproductive material to complete a full identification. This method will make the correlation between previous data and plants in the field easier during future monitoring events. The uncertain species names may be resolved once the restoration becomes more mature.

### 5.3.4.2 Data Analysis

#### 5.3.4.2.1 Vegetation Plots

Data analysis for the vegetation plots specifically addressed five main parameters: native plant density, native foliage cover, native species richness, trees, and dominant species. The following assessments and calculations were performed to ascertain the results presented in Section 6. Review against the completion criteria and SERA assessment system values was conducted for the paddock restoration where there was sufficient data to do so.

#### **Native Plant Density**

Native plant density performance was calculated as the mean number of native perennial plants per quadrat recorded in each plot within a VU or seed mix zone. There are no quantitative completion criteria or SERA assessment system values set for this parameter. However, the completion criteria state that vegetation strata on site will resemble reference sites.

#### **Native Foliage Cover**

Native foliage cover performance was calculated as the mean native perennial foliage cover per quadrat recorded in each vegetation plot within a VU or seed mix zone. The SERA assessment system awards four stars for this parameter if native foliage cover is 70 % of reference ecosystems and five stars if it is of 'high similarity' (SERA 2017). Litter cover is also assessed as the mean litter cover per quadrat recorded in each vegetation plot. Litter layer development is an important process involved in the cycling of nutrients and the completion criteria state that litter levels will be at least 50 % of reference site litter levels.

#### **Native Species Richness**

Native species richness performance was calculated as the mean number all native taxa (perennial and annual) recorded in all vegetation plots (as recorded from quadrats)

within a VU or seed mix zone. The completion criteria value for this parameter is > 60 % of the mean value recorded in the corresponding reference sites. The SERA assessment system awards four stars if native species richness is > 60 % of reference ecosystems and if there are > 60 % of species in common with the reference ecosystem. Five stars are awarded if native species richness is > 80 % of reference ecosystems and if species composition is of 'high similarity' to the reference ecosystem (SERA 2017).

## Trees

Tree performance was addressed via tree density and tree foliage cover parameters:

- Tree density was reviewed for all VUs and seed mix zones for the purposes of assisting with addressing Black Cockatoo habitat establishment and to provide an overview of tree presence and establishment. The tree density performance was calculated by averaging the total number of trees (seedlings, saplings and mature trees) recorded in each vegetation plot within a VU or seed mix zone and was subsequently converted to the number of trees per hectare.
- Tree foliage cover performance was calculated by averaging the total foliage cover of trees (seedlings, saplings and mature trees) recorded in each vegetation plot within a VU or seed mix zone.

There are no quantitative completion criteria or SERA assessment system values set for this parameter. However, the completion criteria state that vegetation strata on site will resemble reference sites. Therefore, tree density, height and cover will form part of the final completion criteria requirements.

## 5.4 Deviations from the Scope of Works

A number of deviations from the original scope of works for The Project were made during the field work component. They are outlined below:

- Analogue vegetation plots were not established due to time limitations associated with implementation of the monitoring methods. These should be established and monitored in spring 2019.
- Soil microbial activity and microflora were not assessed as the field work schedule did not align with the ideal timing for these tests. Sampling and analyses on these parameters should be conducted in winter 2020.
- Due to the large number of trees within the vegetation monitoring plots and their health generally classed as good, health rankings were not assigned to each individual tree within plots. However, comments on the overall health of the vegetation within and surrounding the plots were recorded during plot monitoring.
- Specimens of each taxon within the paddock restoration area were not collected due to the young age of the vegetation. Collection of plants of this age would have resulted in many cases in material that did not contain all of the desired characteristics for full identification. In the majority of cases high levels of confidence in the *in-situ* taxa identifications did not necessitate collections of specimens. In the coming years when the paddock restoration develops and

plants become reproductively mature, specimens can be taken to confirm their identity.

## 6. RESULTS

### 6.1 Review of Project Area Boundaries and General Paddock Restoration Performance

The field review of the Project Area boundaries found some deviations to the original GA data (GA 2018), including modifications to the boundaries of the seed mix zones and Gastrolobium thickets, and large areas that were not seeded, as well as areas within the paddock restoration area that were performing poorly (Section 6.5.1). The spatial extents of the seed mix zones, Gastrolobium thickets, and poorly performing areas are summarised in Table 8 and are presented in Figure 8. The field review also identified wide bare buffers between the paddock restoration area and the remnant vegetation areas as well as along the perimeter of the Project Area that were used as access during restoration activities. These buffers were approximately five to ten metres wide. Major buffers have been included within the Table 8 calculations and are presented on Figure 8. Other minor buffers are also present that have not been calculated but effectively reduce the spatial extent of the restoration area and potentially limit the connectivity between the paddock restoration vegetation and the adjacent remnant vegetation.

**Table 8: Spatial Extent of Areas in the Project Area as per GA Data (GA 2018) and following 2018 Site Review**

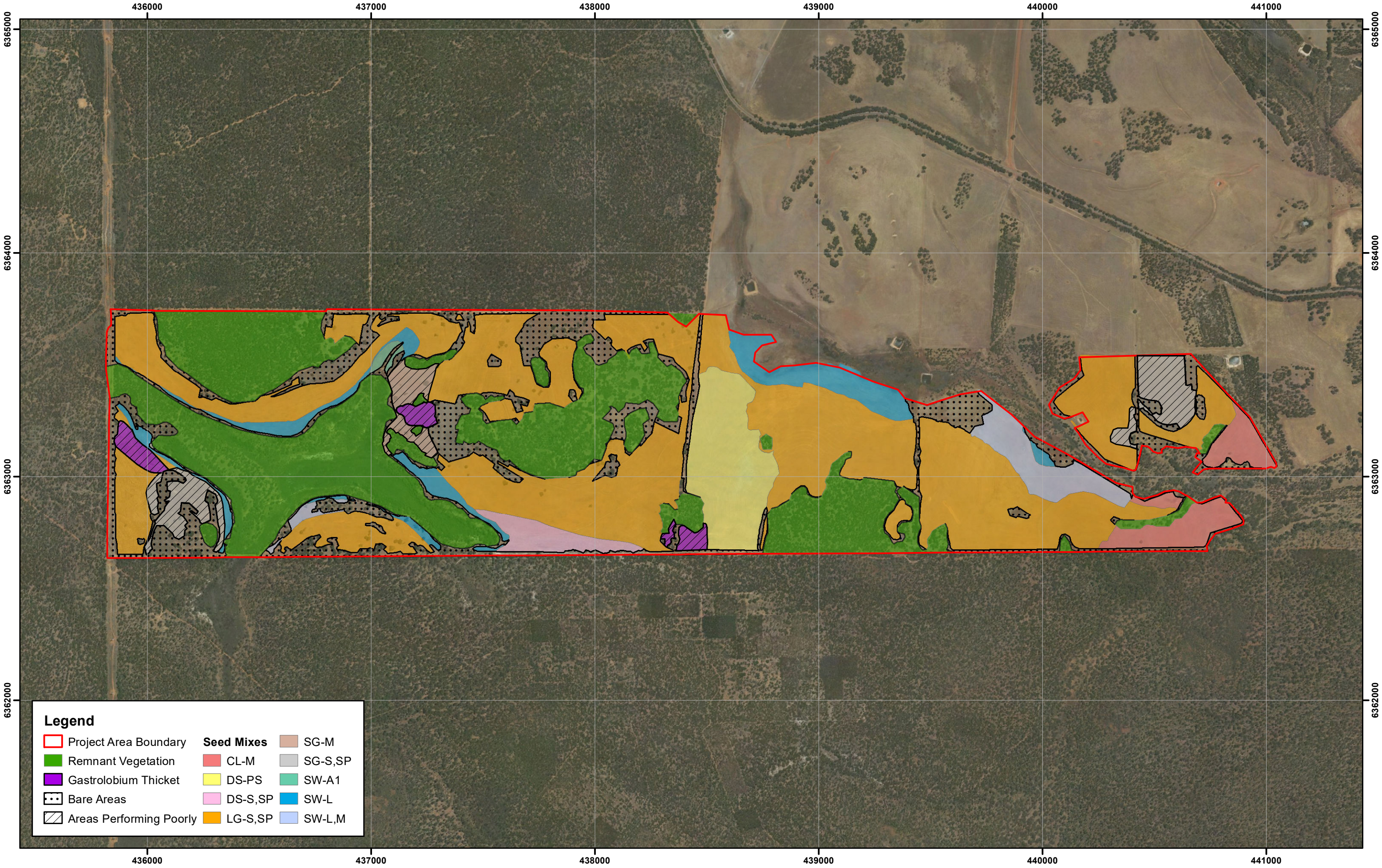
Boundary		Area (ha)		
		Original (GA 2018)	2018 Site Review	Difference
Remnant Vegetation		170.0	135.6	-34.4
Seed Mix Zone	CL-M	16.0	12.9	-3.1
	DS-PS	24.1	23.2	-0.9
	DS-S,SP	7.5	6.1	-1.4
	LG-S,SP	215.2	172.9	-42.3
	SG-M	1.8	4.7	+2.9
	SG-S,SP	21.9	12.9	-9.0
	SW-A1	2.0	0.9	-1.1
	SW-L	29.0	20.3	-8.7
	SW-L,M	17.9	11.3	-6.6
Gastrolobium Thicket	Western	2.5	2.3	-0.2
	Central	1.5	1.5	0
	Eastern	1.5	1.6	+0.1

The vegetation plot monitoring (Section 6.2), photo point monitoring (Section 6.4), and walk-through transects and general site assessment (Section 6.5.1) identified areas in the paddock restoration area that were performing poorly. Table 9 summarises the restoration performance of each of the seed mix zones in the Project Area.



**Table 9: Summary of Seed Mix Zone Restoration Performance**

Seed Mix Zone	Restoration Performance	Description of Restoration Performance
CL-M	Okay	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, dominated by <i>Acacia</i> species in some areas</li> </ul>
DS-PS	Okay	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> species</li> </ul>
DS-S,SP	Okay	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>Tops of some plants scorched in some areas</li> </ul>
LG-S,SP	Poor-Okay	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>Some areas not seeded or performing poorly where lateritic outcropping is present</li> <li>Tops of some plants scorched in some areas</li> </ul>
SG-M	Poor	<ul style="list-style-type: none"> <li>Area seeded more recently than rest of restoration; restoration progress lagging behind rest of paddock restoration area</li> </ul>
SG-S,SP	Poor	<ul style="list-style-type: none"> <li>Area not seeded or performing poorly due to significant lateritic outcropping</li> </ul>
SW-A1	Okay	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Viminaria juncea</i></li> </ul>
SW-L	Poor	<ul style="list-style-type: none"> <li>Restoration mostly very sparse</li> <li>Dominated by <i>Viminaria juncea</i> in some areas</li> </ul>
SW-L,M	Poor-Okay	<ul style="list-style-type: none"> <li>Large areas of this seed mix zone not seeded</li> <li>Restoration very sparse in some areas</li> <li>Dominated by <i>Acacia</i> species and <i>Viminaria juncea</i> in some areas</li> </ul>
Gastrolobium thickets	Poor	<ul style="list-style-type: none"> <li>Area seeded more recently than rest of restoration; restoration progress lagging behind rest of paddock restoration area</li> </ul>



Legend		
Project Area Boundary	<b>Seed Mixes</b>	SG-M
Remnant Vegetation	CL-M	SG-S,SP
Gastrolobium Thicket	DS-PS	SW-A1
Bare Areas	DS-S,SP	SW-L
Areas Performing Poorly	LG-S,SP	SW-L,M



**Reviewed Boundaries in the Project Area including Areas Performing Poorly and Bare Areas**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич
WEC Ref: Newmont18-69-01
Filename: Newmont18-69-01-f08.mxd
Scale: 1:15,000 (A3) Grid: MGA Zone 50

**Figure**  
**8**

## 6.2 Flora and Vegetation

### 6.2.1 Remnant Vegetation Areas

#### 6.2.1.1 Overview

A total of 251 species from 57 families were recorded within the remnant vegetation areas in the Project Area in 2018, including 209 native taxa. The priority taxon *Tetraria* sp. Blackwood River (A.R. Annels 3043) (Priority [P] 3) (refer to Appendix G for a description of the conservation codes used for Western Australian flora) and *Schoenus* sp. South coast (R. Davis 10239), both of which represent significant range extensions to the known ranges of these taxa<sup>1</sup>, were recorded in the remnant vegetation areas. The full species list from the remnant vegetation areas (including opportunistic records from the walk-through transect assessment) is presented in Appendix H and the VU by species matrix in Appendix I. The S VU was the most species rich with a total of 104 taxa (including introduced species) while the A1 VU was the most species poor with a total of 19 taxa (including introduced species) (Table 10).

**Table 10: Summary of Species Richness within VUs in the Remnant Vegetation Areas**

	VU							
	A1	AY	L	M	MG	R	S	SP
Total taxa	19	64	94	53	35	100	104	92
Total native taxa	17	54	80	39	21	88	77	77
Total introduced taxa	2	10	14	14	14	12	27	15

#### 6.2.1.2 Completion Criteria Assessment

A total of 244 species from 53 families were recorded within vegetation plots in the remnant vegetation areas in 2018. The plot by species matrix is presented in Appendix J.

Figure 9 to Figure 12 and Appendix K summarises the plant density, live foliage cover, species richness (native taxa only), tree density and tree height classes recorded within vegetation plots in the remnant vegetation areas in 2018. The A1 VU had the lowest average plant density but the highest average foliage cover. This VU also had the least diverse vegetation plots. Tree density was highest in the S VU while the SP VU had the highest tree species richness.

<sup>1</sup> The identities of specimens of both of these taxa were confirmed by the WA Herbarium through the WA Herbarium identification service.

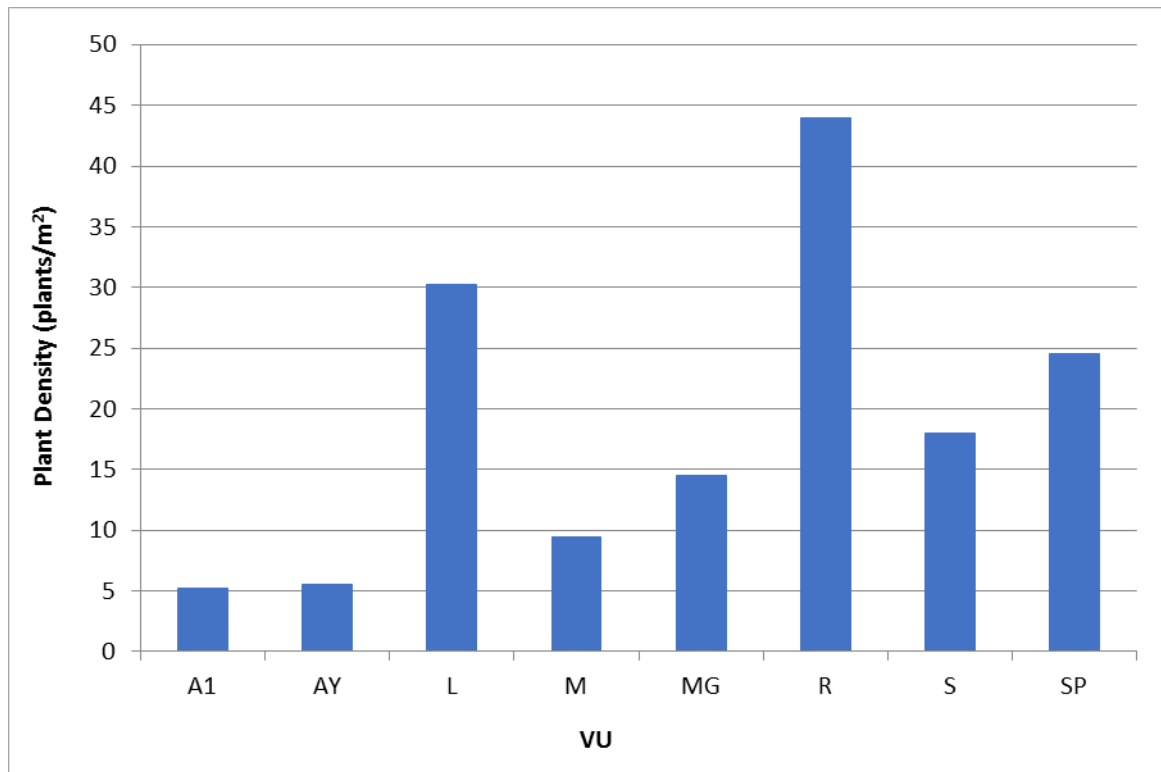


Figure 9: Average Plant Density within VUs in the Remnant Vegetation Areas

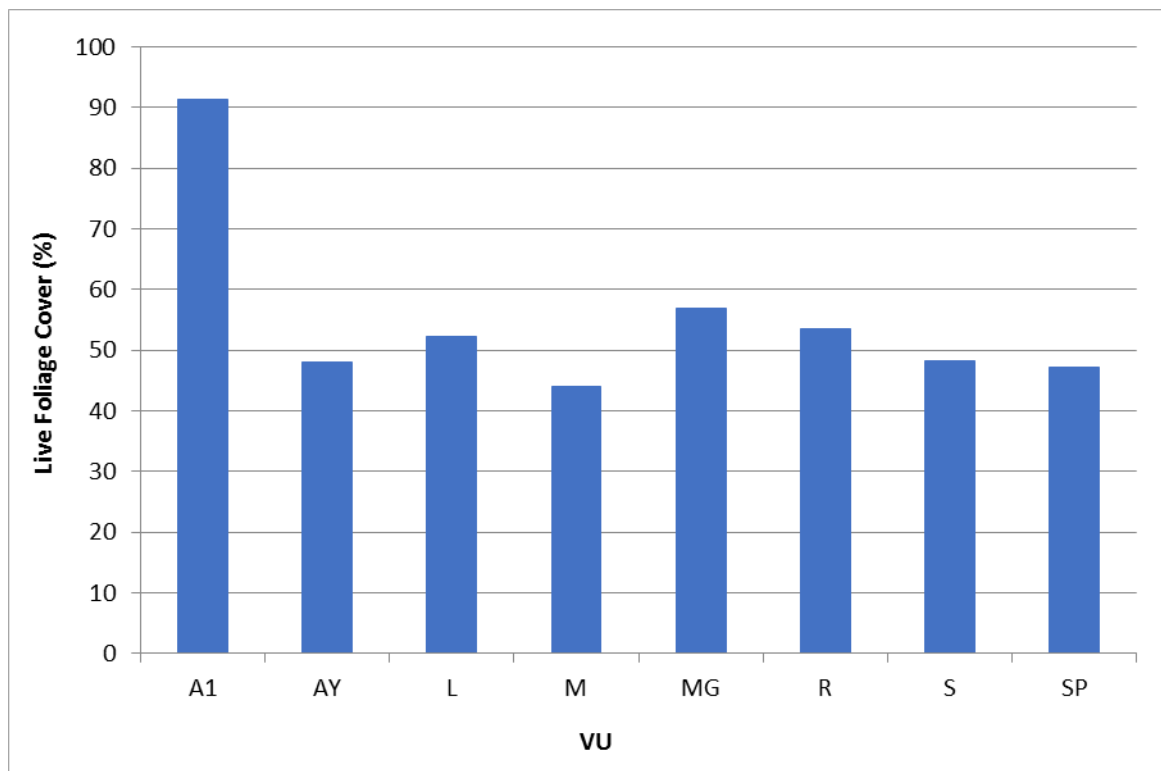
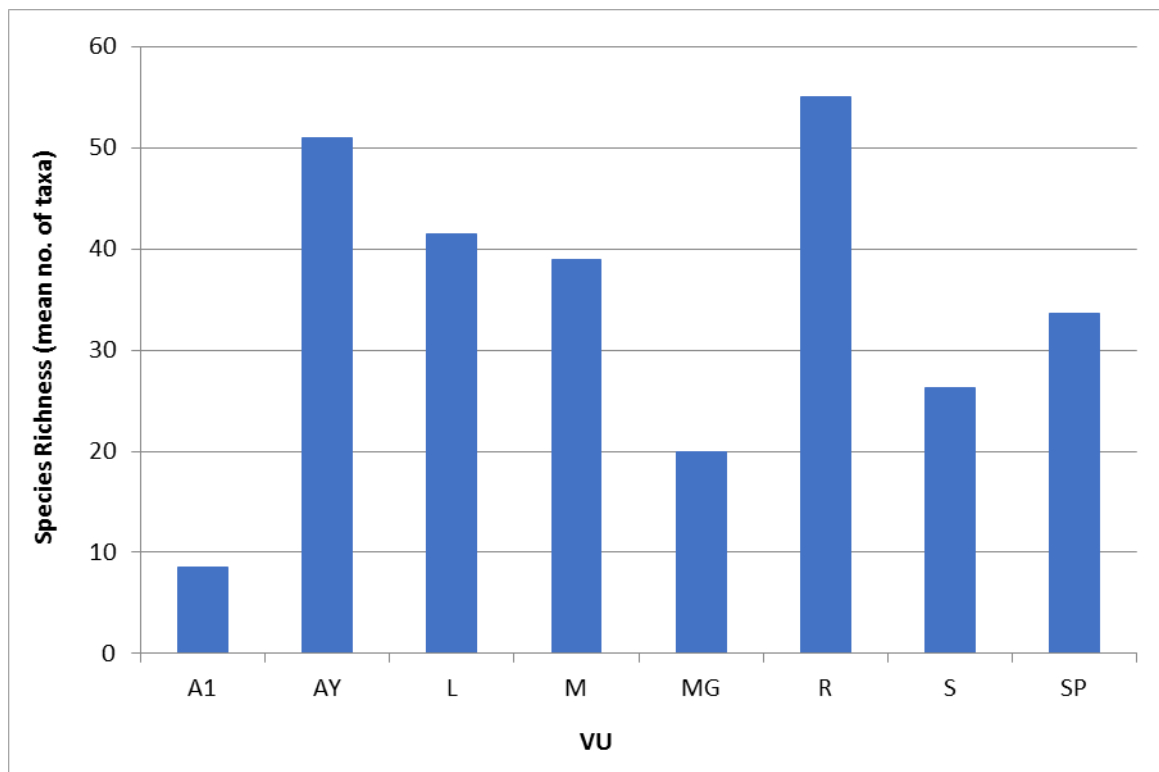
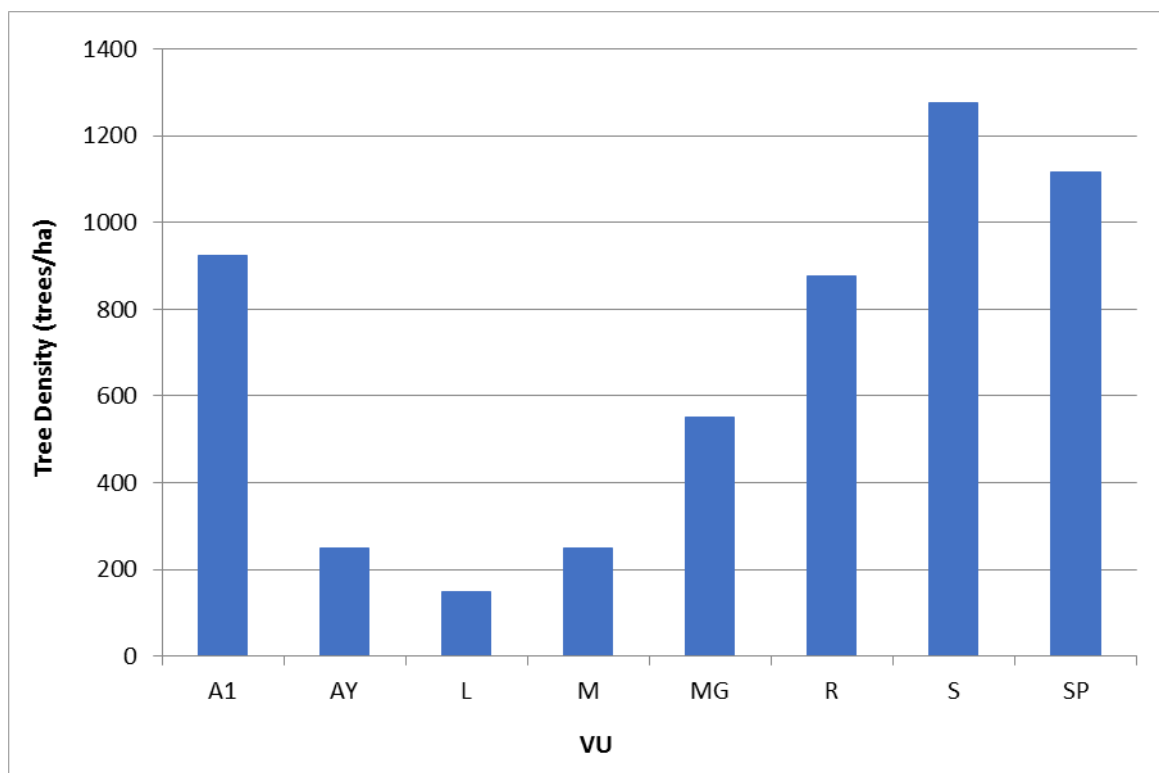


Figure 10: Average Live Foliage Cover within VUs in the Remnant Vegetation Areas



**Figure 11: Average Species Richness (Native Taxa Only) within VUs in the Remnant Vegetation Areas**



**Figure 12: Average Tree Density within VUs in the Remnant Vegetation Areas**

### 6.2.1.3 Introduced Species and Pests

A total of 42 introduced species from 17 families were recorded within the remnant vegetation area, including the declared pest species *Gomphocarpus fruticosus*. Refer to Appendix H for the full list of introduced species recorded within the remnant vegetation areas (including opportunistic records from the walk-through transect assessment) and Appendix I for the VU by species matrix. The S VU contained the highest number of introduced species with a total of 27 taxa while the A1 VU contained the lowest number of introduced species with a total of 2 taxa (Table 10). A more detailed description of the variation in introduced species cover across the Project Area is presented in Section 6.5.1.

No pest or feral fauna were observed within the remnant vegetation areas.

## 6.2.2 Paddock Restoration Area

### 6.2.2.1 Overview

A total of 181 species from 41 families, including 132 native taxa, were recorded within the paddock restoration area. The full species list (including opportunistic records from the walk-through transect assessment) is presented in Appendix L and the seed mix zone by species matrix in Appendix M. A total of 51 native taxa were common between the remnant vegetation areas and the paddock restoration areas (Appendix N).

Only 73 taxa of the 132 taxa included in seed mixes for the paddock restoration works were recorded at least once within the paddock restoration (55 %). However, an additional 36 native taxa not on the seed list or tubestock planting list for the paddock restoration works were recorded at least once within the paddock restoration.

The LG-S,SP seed mix zone was the most species rich with a total of 126 taxa (including introduced species) while the SG-M seed mix zone was the most species poor with a total of 33 taxa (including introduced species) (Table 11).

**Table 11: Summary of Species Richness within Seed Mix Zones in the Paddock Restoration Area**

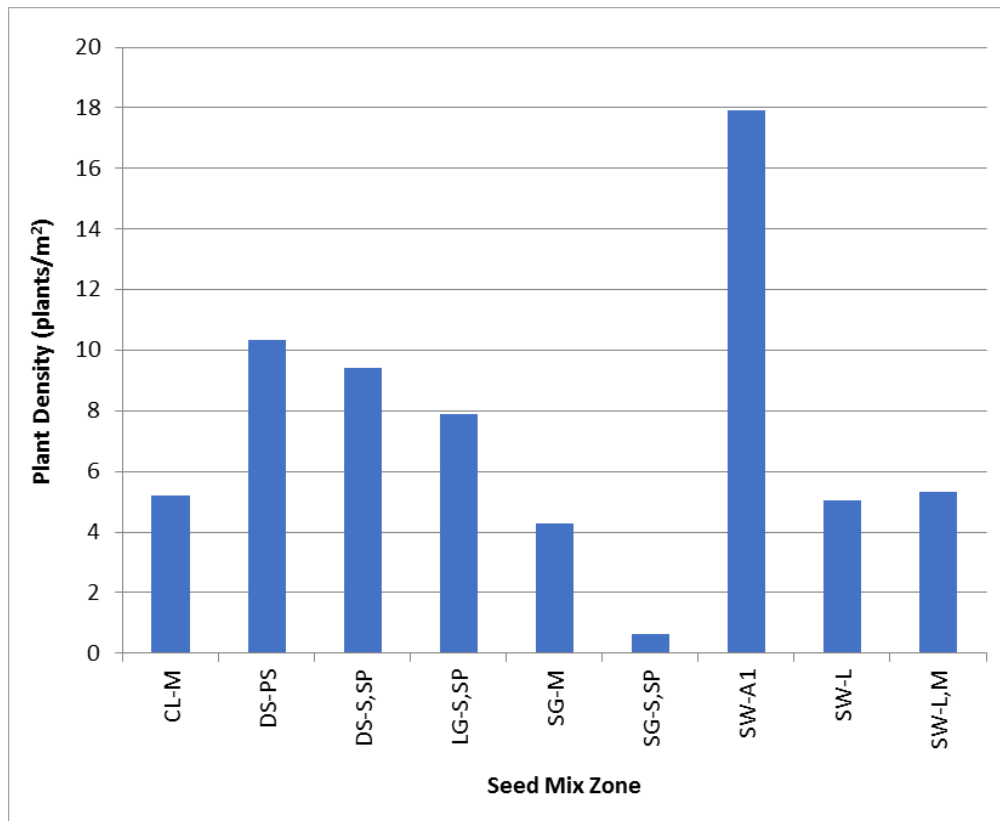
	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
Total taxa	50	101	75	62	33	49	126	35	45
Total native taxa	34	68	56	37	23	35	91	20	37
Total introduced taxa	16	33	19	25	10	14	35	15	8

### 6.2.2.2 Completion Criteria Assessment

A total of 164 species from 38 families were recorded within vegetation plots in the paddock restoration area. The plot by species matrix for taxa recorded within vegetation plots is presented in Appendix O.

Figure 13 to Figure 16 and Appendix P summarises the plant density, live foliage cover (native taxa only), species richness (native taxa only), tree density and tree height classes recorded within the paddock restoration area vegetation plots. The SG-S,SP seed mix zone

had the lowest average plant density and average live foliage cover. This seed mix zone also had the least diverse vegetation plots, both in terms of overall native taxa and tree taxa. The SG-M seed mix zone also had relatively low plant density, live foliage cover, species richness and tree density. The SW-A1 and DS-PS seed mix zones recorded the highest plant density and species richness values.



**Figure 13: Average Plant Density within Seed Mix Zones in the Paddock Restoration Area**

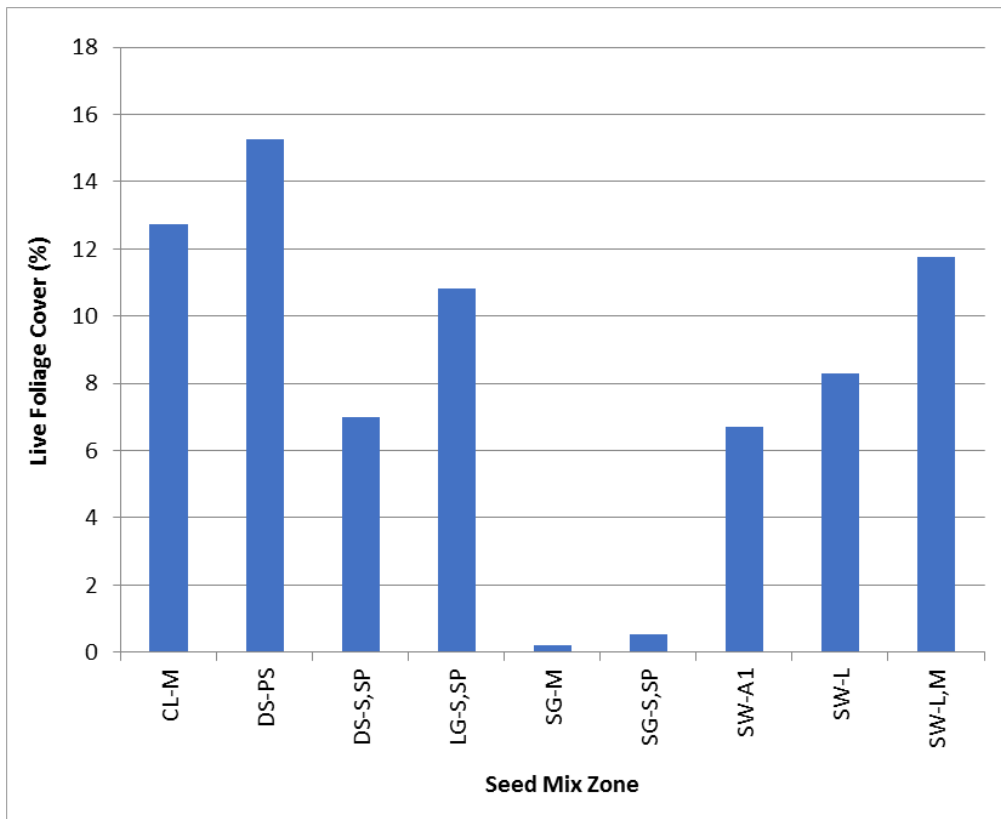


Figure 14: Average Live Foliage Cover (Native Taxa Only) within Seed Mix Zones in the Paddock Restoration Area

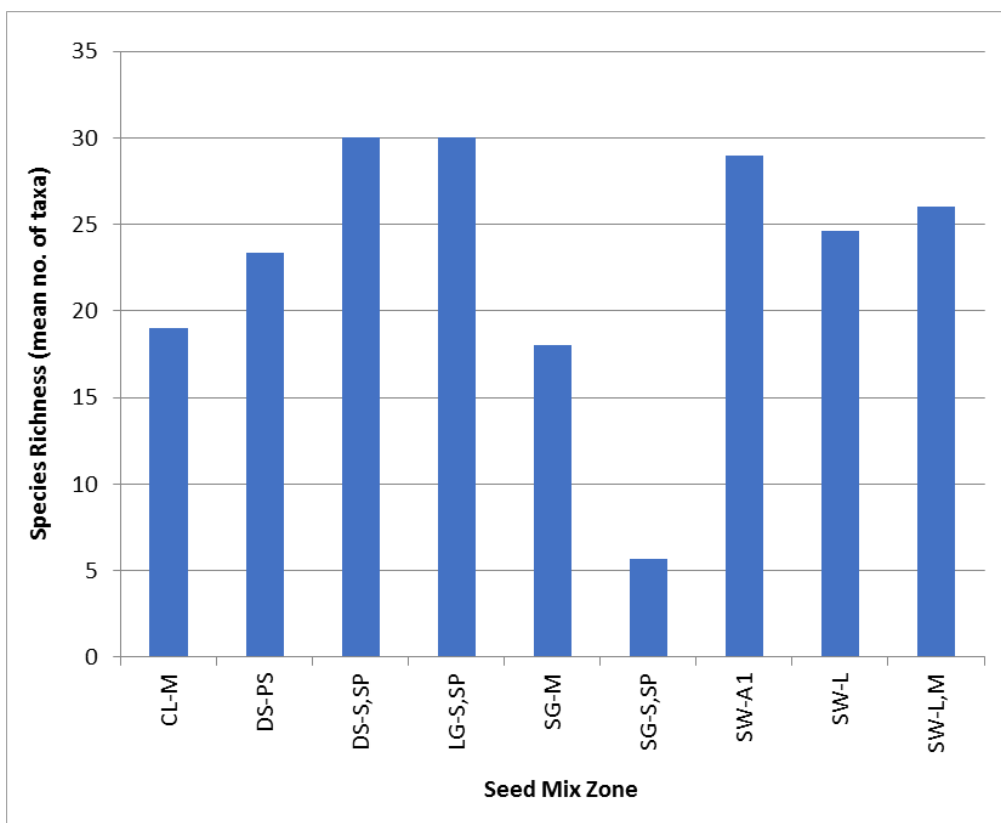


Figure 15: Average Species Richness (Native Taxa Only) within Seed Mix Zones in the Paddock Restoration Area



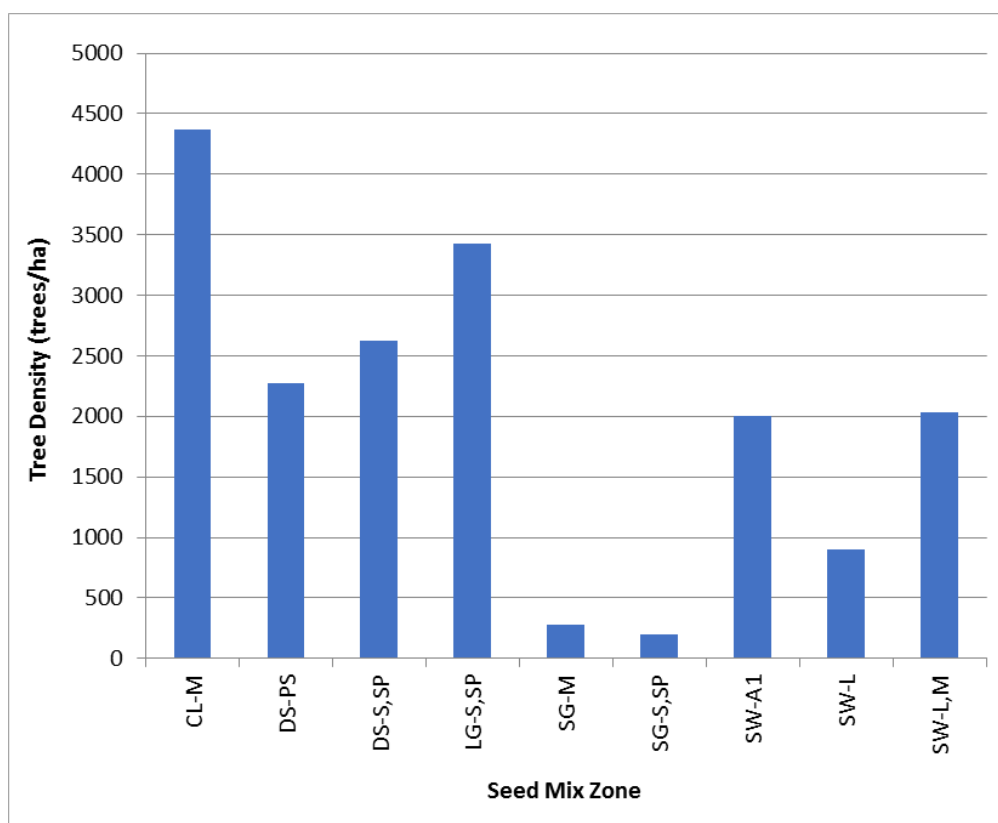


Figure 16: Average Tree Density within Seed Mix Zones in the Paddock Restoration Area

### 6.2.2.3 Nursery Row Transects

Appendix Q presents the raw data from the nursery row transects review. A summary of taxa seeded or planted into the nursery rows vs. taxa recorded during the nursery row review is presented in Appendix R. Most nursery rows were dominated by one taxon as presented in Table 12 as the number of plants of the dominant taxon as a proportion of all plants recorded along the transect. The majority of plants along the nursery row transects were healthy with the exception of the annual taxon *Podolepis lessonii* that was close to the end of its natural life cycle. Many taxa were reproductively mature. A small number of additional taxa not listed in the seed mix or tubestock list for nursery rows within the associated LMU or nursery rows in general were occasionally observed along the nursery row transects.

**Table 12: Summary of Nursery Row Transect Review Results**

LMU	Seed Mix Zone	Number of Transects	Taxa Introduced vs. Recorded (%)	Average Species Richness	Average Number of Plants	Dominant Taxon (Proportion of all Taxa)	Average Health Ranking
M	CL-M	5	37.5	4.8	74.8	<i>Acacia drummondii</i> subsp. <i>drummondii</i> (84.6 %)	3.9
PS	DS-PS	3	42.9	12.0	322.7	<i>Bossiaea eriocarpa</i> (53.7 %)	3.8
S,SP	LG-S,SP	3	52.4	13.7	147.7	<i>Hypocalymma angustifolium</i> (39.5 %)	3.7
	SG-S,SP	2		9.5	105.0	<i>Acacia drummondii</i> subsp. <i>drummondii</i> (33.5 %)	3.9

Of the 50 taxa seeded or planted along the nursery rows, 26 taxa were recorded during the nursery row review, while nine taxa were recorded during the nursery row review but not within the paddock restoration plots (Table 13).

**Table 13: Taxa Introduced into Nursery Rows and their Abundance in the Nursery Row Transects and Paddock Restoration Vegetation Plots**

Taxon planted or seeded	Count in Nursery Row Transects	Count in Paddock Restoration Plots
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	519	178
<i>Allocasuarina humilis</i>	16	74
<i>Anigozanthos manglesii</i>	5	27
<i>Astroloma ciliatum</i>	0	0
<i>Astroloma compactum</i>	0	0
<i>Astroloma epacridis</i>	0	0
<i>Banksia grandis</i>	28	41
<i>Banksia sessilis</i>	1	2
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	16	3
<i>Boronia fastigiata</i>	0	0
<i>Bossiaea eriocarpa</i>	486	57
<i>Bossiaea ornata</i>	40	41
<i>Conostylis setigera</i> subsp. <i>setigera</i>	1	1
<i>Eucalyptus marginata</i>	0	141
<i>Gompholobium marginata</i>	55	87
<i>Gompholobium preissii</i>	26	5
<i>Hakea incrassata</i>	1	0
<i>Hakea lissocarpha</i>	72	18
<i>Hakea undulata</i>	14	68
<i>Hibbertia amplexicaulis</i>	1	0
<i>Hovea trisperma</i>	20	10
<i>Hypocalymma angustifolium</i>	296	216
<i>Isopogon dubius</i>	3	0
<i>Labichea punctata</i>	0	0
<i>Lechenaultia biloba</i>	0	2
<i>Lepidosperma apricola</i>	0	2
<i>Lepidosperma asperatum</i>	0	0
<i>Lepidosperma squamatum</i>	1	0

Taxon planted or seeded	Count in Nursery Row Transects	Count in Paddock Restoration Plots
<i>Lepidosperma tenue</i>	2	0
<i>Leucopogon capitellatus</i>	0	0
<i>Leucopogon nutans</i>	0	0
<i>Leucopogon propinquus</i>	0	0
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	1	0
<i>Macrozamia riedlei</i>	0	0
<i>Orthrosanthus laxus</i>	0	0
<i>Patersonia occidentalis</i>	0	1
<i>Petrophile heterophylla</i>	10	16
<i>Phyllanthus calycinus</i>	321	99
<i>Pimelea preissii</i>	0	3
<i>Podolepis lessonii</i>	72	0
<i>Ranunculus colonorum</i>	0	0
<i>Stackhousia monogyna</i>	0	0
<i>Stackhousia scoparia</i>	0	0
<i>Stylidium affine</i>	0	1
<i>Tetraria capillaris</i>	1	0
<i>Tetraria octandra</i>	1	0
<i>Thysanotus multiflorus</i>	0	0
<i>Trachymene pilosa</i>	0	0
<i>Tricoryne elatior</i>	0	0
<i>Tripterococcus brunonis</i>	0	0

#### 6.2.2.4 Introduced Species and Pests

A total of 49 introduced species from 19 families were recorded within the paddock restoration area, including the declared pest species *Gomphocarpus fruticosus*. Refer to Appendix L for the full list of introduced species recorded within the paddock restoration area (including opportunistic records from the walk-through transect assessment) and Appendix M for the seed mix zone by species matrix. The LG-S,SP seed mix zone contained the highest number of introduced species with a total of 35 taxa while the DS-S,SP seed mix zone contained the lowest number of introduced species with a total of 8 taxa (Table 11). A more detailed description of the variation in introduced species cover across the Project Area is presented in 6.5.2.

A number of kangaroos (male, female and juvenile) were observed within the paddock restoration area. No other pests or feral animals were observed.

## 6.3 Soil

### 6.3.1 Soil Chemistry

Appendix S presents the raw data from the soil chemistry analyses. The results are summarised in Table 14. This data is baseline information to be used as comparison data in future monitoring events. As no reference site data at analogue plots has been collected to date no further analysis of this data has been undertaken at this time.

**Table 14: Summary of Soil Chemistry Results**

LMU /VU	Area	Ammonium Nitrogen (mg/kg)	Boron (mg/kg)	Conductivity (dS/m)	Copper (mg/kg)	Exc. Aluminium (meq/100 g)	Exc. Calcium (meq/100 g)	Exc. Magnesium (meq/100 g)	Exc. Potassium (meq/100 g)	Exc. Sodium (meq/100 g)	Iron (mg/kg)	Manganese (mg/kg)	Nitrate Nitrogen (mg/kg)	Organic Carbon (%)	pH [CaCl <sub>2</sub> ]	pH [H <sub>2</sub> O]	Phosphorus (mg/kg)	Potassium (mg/kg)	Sulfur (mg/kg)	Zinc (mg/kg)
A	Paddock	3.33	0.57	0.08	0.17	0.82	1.74	0.73	0.10	0.28	47.4	2.93	4.67	4.52	4.63	5.57	9.00	33	5.70	0.12
A1	Remnant	<b>69.50</b>	<b>3.93</b>	<b>1.00</b>	<b>0.71</b>	<b>0.02</b>	<b>10.34</b>	<b>12.08</b>	<b>0.23</b>	<b>9.17</b>	<b>257.2</b>	<b>51.0</b>	<b>&lt; 1</b>	<b>3.88</b>	<b>5.50</b>	<b>6.13</b>	<b>43.33</b>	<b>68</b>	<b>436.57</b>	<b>1.00</b>
AY	Remnant	<b>5.00</b>	<b>0.87</b>	<b>1.01</b>	<b>0.43</b>	<b>0.08</b>	<b>5.38</b>	<b>6.46</b>	<b>0.26</b>	<b>4.02</b>	<b>66.6</b>	<b>121.0</b>	<b>5.50</b>	<b>3.93</b>	<b>5.23</b>	<b>5.80</b>	<b>3.50</b>	<b>113</b>	<b>23.07</b>	<b>0.14</b>
L	Remnant	<b>4.67</b>	<b>0.50</b>	<b>0.19</b>	<b>0.30</b>	<b>0.52</b>	<b>1.07</b>	<b>1.08</b>	<b>0.16</b>	<b>0.86</b>	<b>115.0</b>	<b>29.9</b>	<b>2.25</b>	<b>2.11</b>	<b>4.53</b>	<b>5.62</b>	<b>2.60</b>	<b>68</b>	<b>14.93</b>	<b>0.07</b>
	Paddock	14.00	0.42	0.08	0.90	0.71	2.92	0.53	0.23	0.26	45.2	37.4	12.08	3.71	4.58	5.54	37.38	102	8.36	0.63
M	Remnant	<b>12.67</b>	<b>2.26</b>	<b>0.11</b>	<b>1.17</b>	<b>0.16</b>	<b>18.62</b>	<b>5.56</b>	<b>0.53</b>	<b>0.48</b>	<b>60.0</b>	<b>17.7</b>	<b>5.00</b>	<b>5.02</b>	<b>4.97</b>	<b>5.83</b>	<b>13.00</b>	<b>289</b>	<b>9.43</b>	<b>0.72</b>
	Paddock	7.00	0.59	0.08	1.07	1.00	4.77	0.66	0.28	0.26	75.0	15.6	19.45	5.11	4.65	5.52	48.17	127	6.79	0.50
MG	Remnant	<b>3.00</b>	<b>0.64</b>	<b>0.04</b>	<b>1.01</b>	<b>0.55</b>	<b>3.52</b>	<b>1.61</b>	<b>0.49</b>	<b>0.20</b>	<b>64.3</b>	<b>11.5</b>	<b>3.00</b>	<b>3.56</b>	<b>4.63</b>	<b>5.80</b>	<b>5.67</b>	<b>229</b>	<b>4.60</b>	<b>0.16</b>
P	Remnant	<b>8.33</b>	<b>0.62</b>	<b>0.04</b>	<b>0.71</b>	<b>0.30</b>	<b>7.43</b>	<b>1.60</b>	<b>0.20</b>	<b>0.12</b>	<b>67.3</b>	<b>21.3</b>	<b>3.33</b>	<b>4.54</b>	<b>4.95</b>	<b>6.02</b>	<b>5.50</b>	<b>103</b>	<b>4.05</b>	<b>0.29</b>
PS	Paddock	4.33	0.38	0.04	1.36	0.38	3.07	0.53	0.20	0.15	35.6	5.7	7.33	3.31	4.80	5.86	52.89	93	5.22	0.88
S	Remnant	<b>7.75</b>	<b>1.07</b>	<b>0.06</b>	<b>1.06</b>	<b>0.32</b>	<b>11.94</b>	<b>4.01</b>	<b>0.40</b>	<b>0.22</b>	<b>60.6</b>	<b>27.0</b>	<b>10.57</b>	<b>4.48</b>	<b>5.29</b>	<b>6.21</b>	<b>9.08</b>	<b>180</b>	<b>5.20</b>	<b>0.67</b>
SP	Remnant	<b>4.78</b>	<b>0.78</b>	<b>0.03</b>	<b>0.51</b>	<b>0.16</b>	<b>8.66</b>	<b>2.59</b>	<b>0.23</b>	<b>0.17</b>	<b>59.1</b>	<b>13.2</b>	<b>5.50</b>	<b>4.04</b>	<b>5.07</b>	<b>6.17</b>	<b>5.11</b>	<b>111</b>	<b>6.17</b>	<b>0.38</b>
	Paddock	7.90	0.40	0.05	0.34	0.52	4.29	0.55	0.26	0.15	43.2	10.7	8.00	3.81	4.85	5.88	28.76	121	6.38	0.46

### 6.3.2 Soil Penetrance

Appendix T presents the raw data from the soil penetrance monitoring. The results are summarised in Table 15 and Table 16. VU/LMU L recorded high average soil penetrance values for both the remnant vegetation and paddock restoration areas, indicating a denser soil profile, while VU/LMU SP recorded low average soil penetrance values for both areas. VU/LMU M recorded the greatest average soil penetrance values in the paddock restoration area but the lowest average soil penetrance values in the remnant vegetation area, potentially indicating that agricultural processes have compacted this soil type to a larger extent than the remaining soils. For all paddock restoration plots, soil penetrance values were lowest in the windrow and highest in the furrow. Overall, soil penetrance values recorded were greater in the remnant vegetation areas than the paddock restoration area, indicating a looser soil structure in areas following agricultural practises.

**Table 15: Summary of Soil Penetrance Results within the Remnant Vegetation Areas**

VU	Average force (kg/cm <sup>2</sup> )
A1	NA
AY	11.2
L	11.2
M	5.3
MG	10.5
R	8.5
S	6.9
SP	5.5
<b>Average</b>	<b>8.5</b>

**Table 16: Summary of Soil Penetrance Results within the Paddock Restoration Area**

LMU	Average force (kg/cm <sup>2</sup> )			
	Furrow	Windrow	Paddock	Average
A	5.0	3.8	11.5	<b>6.6</b>
L	7.3	3.3	9.9	<b>6.9</b>
M	10.0	3.0	9.5	<b>7.8</b>
PS	6.1	1.3	8.1	<b>5.3</b>
SP	6.2	2.8	8.9	<b>6.2</b>
<b>Average</b>	<b>6.9</b>	<b>2.9</b>	<b>9.6</b>	<b>6.5</b>

### 6.4 Photo Points

The raw data from the photo point monitoring is presented in Appendix U. The paddock restoration pictured in photographs from photo points 2, 3, 4, 6 and 10 appeared to be performing poorly, either as a result of lateritic outcropping or an apparent lack of seeding. These photo points represent seed mix zones LG-S,SP, DS-PS and SG-S,SP. The restoration in the vicinity of photo points 7, 11, 12 and 13 appeared to have been seeded more recently and therefore was still developing. These photo points represent seed mix SG-S,SP and the *Gastrolobium* thickets. The data from the photo point monitoring was used to prepare Figure 8. Note that the GA photo points were typically placed on the remnant vegetation

side of access tracks and therefore the foreground of these photo point photos often include the access track itself.

## 6.5 Walk-Through Transects and General Site Assessment

### 6.5.1 Paddock Restoration Area Performance

Bare and poorly-performing areas were recorded in the paddock restoration area during the walk-through transects (Appendix V) and general site assessment (Appendix W). These were generally associated with areas of significant lateritic outcropping or shallow depth to substrate in the LG-S,SP and SG-S,SP seed mix zones; an apparent lack of seeding in the SW-L seed mix zones; and very recent seeding in the SG-M seed mix zone and *Gastrolobium* thicket areas. The data from the walk-through transects and general site assessment was used to prepare Figure 8 and Table 19.

### 6.5.2 Introduced Species

#### 6.5.2.1 Remnant Vegetation Areas

Introduced species cover varied across the remnant vegetation areas depending on the size of the remnant vegetation patches and degree of disturbance to each. Generally speaking, the western remnant vegetation patches were large and relatively intact with less evidence of disturbance and had lower introduced species cover. The eastern remnant vegetation patches were smaller, had greater disturbance evident and had higher introduced species cover. This was evident in the results from the walk-through transects (Appendix V) where the average introduced species cover recorded within remnant vegetation areas was lowest in the western patches and greatest in the eastern patches, which generally corresponded to the condition of these patches (Table 17; condition ranking defined in Table 18).

**Table 17: Average Introduced Species Cover and Condition Ranking recorded within Remnant Vegetation Areas along Walk-Through Transects**

Walk-Through Transect	Average Introduced Species Cover (%)	Location of Transect	Condition of Remnant Vegetation
T-01	1	Intersects north-western arm of large swamp in south-western portion of the Project Area	Very Good to Excellent
T-02	27	Intersects south-western arm of large swamp in south-western portion of the Project Area and two small remnant vegetation patches	Degraded to Very Good
T-03	43	Intersects large central woodland remnant vegetation patch	Degraded to Good
T-04	-	No large remnant vegetation patches intersected in this transect	-
T-05	-	No large remnant vegetation patches intersected in this transect	-
T-06	58	Intersects large woodland remnant vegetation patch along southern boundary of the Project Area	Degraded to Good
T-07	-	No large remnant vegetation intersected in this transect	-
T-08	-	No large remnant vegetation intersected in this transect	-

**Table 18: Vegetation Condition Scale for the South-West and Interzone Botanical Provinces (EPA 2016)**

Condition Ranking	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

### 6.5.2.2 Paddock Restoration Area

The paddock restoration area hosted a consistently very high cover of introduced species and weed cover estimates recorded along the walk-through transects ranged from 60 % to 90 %. The cover and composition of introduced species did not change markedly between seed mix zones (Table 19; Appendix V).

**Table 19: Average Introduced Species Cover recorded within Paddock Restoration Area along Walk-Through Transects**

Walk-Through Transect	Average Introduced Species Cover (%)
T-01	70
T-02	87
T-03	79
T-04	82
T-05	77
T-06	90
T-07	85
T-08	93

A total of 27 individuals of the declared pest *Gomphocarpus fruticosus* were recorded within the paddock restoration area during the general site assessment. Their locations are provided in Appendix W.

### 6.5.3 Landform Stability

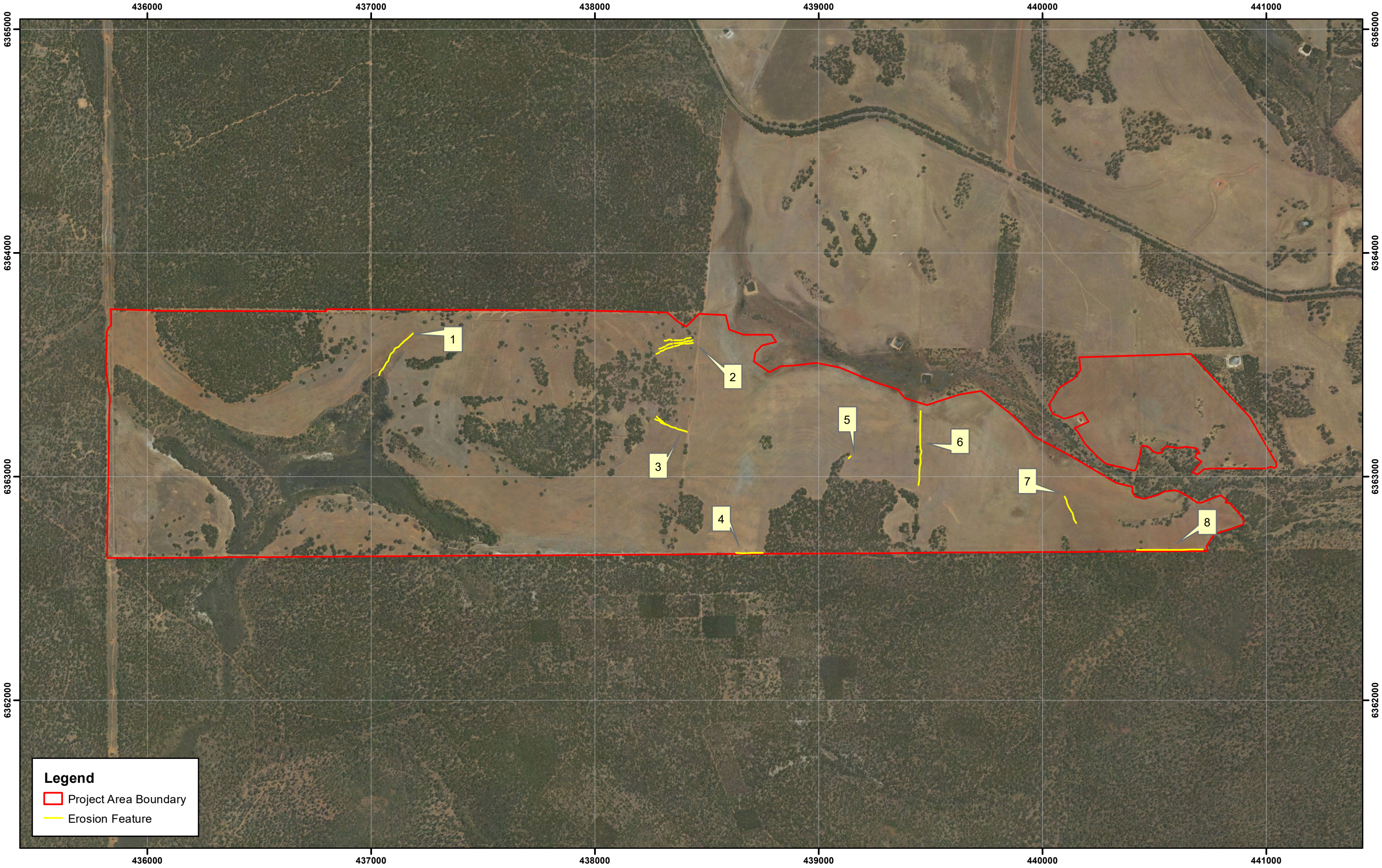
Two rill and six gully erosion features totalling 1,740 m in length were observed during the walk-through transects (Appendix V) and general site assessment (Appendix W). Of these

eight erosion features, four were associated with access tracks. The remaining four erosion features were located within the paddock restoration area and were associated with natural drainage contours. Erosion control structures were present at erosion features 2 and 3 but were insufficient to control the movement of surface water. The locations of all erosion features observed in 2018 are presented in Figure 17 with a description of each provided in Table 20.

**Table 20: Summary of Erosion Features Observed within the Project Area**

Erosion Feature	Type of Erosion	Erosion Dimensions (m)			Comment
		Length	Width	Depth	
1	Gully	248	4.0	0.7	Begins near track as a rill then transitions to a gully that extends to remnant vegetation area along natural drainage contour
2	Gullies	390	2.0	0.8	Three parallel gullies originating from upslope diversion drain
3	Rills	206	0.2	0.1	Two rills converging and running downslope around drainage embankment to main access track
4	Rill	120	0.4	0.1	Rill extending downslope parallel to track
5	Gully	14	0.3	0.4	Short gully running parallel to track
6	Gully	334	0.4	0.6	Gully running parallel to track until southern extent where it fans out as outwash
7	Gully	130	1.3	0.7	Gully extending through paddock restoration area near track. Becomes narrower at middle to only 0.4 m wide but 0.6 m deep. Transitions to a rill 0.3 m wide and 0.2 m deep at end
8	Gully	296	0.5	0.3	Gully and rills on edge of fence line and track. Transitions to narrow rills closer to hill crest
<b>Total length</b>		<b>1738</b>			





**Legend**

- Project Area Boundary
- Erosion Feature



**Location of Erosion Features Observed in the Project Area in 2018**

Revision: 0 - 7 August 2019

This map should only be used in conjunction with WEC report Newmont18-69-01.

Author: Marlee Starceвич

WEC Ref: Newmont18-69-01

Filename: Newmont18-69-01-f17.mxd

Scale: 1:15,000 (A3) Grid: MGA Zone 50

**Figure**

**17**

## **7. ASSESSMENT AGAINST COMPLETION CRITERIA AND SERA ASSESSMENT SYSTEM**

The following section presents an assessment against The Programme completion criteria (Table 21) and SERA Assessment System (Table 22; Figure 17) using the data collected during the 2018 completion criteria monitoring. Where there was insufficient data to address an aspect of the SERA Assessment System a 1 star rating has been assigned.

The assessment against The Programme completion criteria found that Objectives 1, 3, 4, 5, 6, 7, 8 and 9 have either in part or wholly not met criteria, while there is insufficient data at this time to assess against Objective 2. This result is not unexpected as the criteria relate to the final goal of the Programme and this assessment is the first following restoration works. In addition, reference site data at analogue plots has not as yet been collected, preventing any comparisons with reference ecosystems. It is expected that criteria will be achieved over time as the Programme progresses and adaptive management processes at the site affect improvements in habitat development. However, management actions to increase the area of restoration to meet the 470 ha target will be required initially.

The assessment against the SERA Assessment System gave an average rating of 2 stars. Once again, the lack of reference ecosystem data has prevented a full assessment of progress against all principles and the 2 star result is consistent with existing conditions and early outcomes of the Programme.

**Table 21: 2018 Assessment against Programme Completion Criteria**

Objective No.	Objective Description	Completion Criteria	2018 Result	Completion Criteria Met or Not Met
1	<i>Fulfils designated land uses including conservation and protection of water quality</i>	Conservation covenant in place	Conservation covenant not in place	Not met
		All other criteria met	-	Insufficient data
2	<i>Can be achieved using industry current leading practice</i>	Leading practice methods employed	-	Insufficient data
3	<i>Returns vegetation groups appropriate to the land capabilities that are self-sustaining in the long term, resilient to natural disturbance events and are broadly representative of reference sites such that the following attributes are achieved:</i>			
	a) <i>All adjacent threats to the site are being managed or mitigated to an intermediate extent</i>	1) There are no Declared weeds ( <i>Biosecurity and Agriculture Management Act 2007</i> )	3 x * <i>Gomphocarpus fruticosus</i> individuals recorded	Not met
		2) Weed species diversity and cover is not significantly greater than adjacent reference sites and Invasive environmental weeds are absent	-	Insufficient data
		3) Habitat values for the target conservation significant fauna have not been significantly affected by <i>Phytophthora cinnamomi</i> infestation or other pathogens (habitat species representation and vegetation health and cover)	-	Insufficient data
		4) Pest fauna species populations are not greater than surrounding reference sites	-	Insufficient data
	b) <i>The substrate of the site is maintaining conditions suitable for ongoing growth and recruitment of characteristic biota</i>	Soil bulk density, microflora, microbial activity, pH, electrical conductivity and macro/micro nutrients are not significantly different to adjacent reference sites	-	Insufficient data
	c) <i>The site supports a substantial diversity of characteristic biota (e.g. ~ 60 % of reference) representing a wide diversity of species groups with no inhibition to ongoing development of</i>	1) Species richness of flora in site quadrats and recorded opportunistically is > 60 % of corresponding reference sites.	-	Insufficient data
2) Faunal bio-indicator species presence on the restored site are similar to reference ecosystems		-	Insufficient data	

Objective No.	Objective Description	Completion Criteria	2018 Result	Completion Criteria Met or Not Met
	<i>biodiversity on the site by undesirable species</i>	3) Classification / ordination analyses indicate that restored site quadrats are approaching corresponding reference sites in terms of species composition similarity	-	Insufficient data
		4) Litter levels are at least 50 % of reference site measurements and evidence of soil nutrient cycling exists	-	Insufficient data
	<i>d) All strata are present and spatial patterning is evident with substantial trophic complexity developing, relative to the reference ecosystem</i>	1) Functional and structural groups are represented in the site flora	-	Insufficient data
		2) Vegetation strata on site resemble reference sites	-	Insufficient data
		3) All plant species are flowering and producing viable seed (except for recalcitrants known to produce little viable seed.)	Some taxa not yet reproductively mature	Not met
	<i>e) Substantial evidence exists of key functions and processes commencing including reproduction, dispersal and recruitment of desirable species</i>	1) Vegetation, soil and fauna variables approaching reference site values (Criteria 3b, c, d are achieved)	-	Insufficient data
		2) Site vegetation types re-establish similar levels of species richness and cover following controlled burning	-	Insufficient data
	<i>f) High level of connectivity with other natural areas has been established, observing control of pest species and undesirable disturbances</i>	Site capable of successfully integrating with surrounding State Forest (Criterion 3e achieved)	Incomplete linkage between site and surrounding State Forest. Boundary fence in place preventing some fauna movement	Not met
4	<i>Provides habitat for native fauna species with particular focus on:</i>			
	<i>a) Provide a foraging resource for black-cockatoos within 10 years of restoration</i>	Forage species represented in the tree canopy and understorey on site at densities similar to reference sites	-	Insufficient data
	<i>b) Provide this resource within a short distance of established Jarrah / Marri Forest (i.e. black-cockatoo breeding habitat) and permanent</i>	Completed	Black-cockatoo foraging resource not yet provided. Project Area suitably located.	Not met

Objective No.	Objective Description	Completion Criteria	2018 Result	Completion Criteria Met or Not Met
	<i>water resources</i>			
	<i>c) Provide foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale</i>	Forage competency and habitat/linkage quality assessed as suitable to support Woylie, Chuditch and Brush-tailed Phascogale	-	Insufficient data
5	<i>Is based on the findings of relevant research into the establishment of biodiversity, ecosystem function, and sustainability</i>	Relevant research and literature cited in management and improvement plans and monitoring assessments	Management and improvement plans not yet completed	Not met
6	<i>Is aligned with NGB's whole-of-lease management approach including initiatives such as support for regional feral animal control, Phytophthora dieback management, flora study and other offset activities</i>	Management support obtained for alignment of the Programme with NGB's corporate Sustainability and Stakeholder Engagement Policy	Management support currently in place	Met
7	<i>Takes into account the views of regulatory authorities and all other relevant stakeholders</i>	Stakeholder consultation undertaken to identify views and concerns	Stakeholder consultation not yet undertaken	Not met
8	<i>Results in no unacceptable off-site impacts</i>	1) See Criteria for objectives 3a, f	Objectives 3a and f not met	Not met
		2) Water quality leaving the site is similar to that entering the site and surrounding creeks in State Forest	-	Insufficient data
9	<i>Results in management requirements (e.g. maintenance of access tracks, fire control) that are not greater than those of surround areas of State Forest, or where extra management actions may be required, a mechanism has been put in place for addressing these</i>	See Criterion for objective 3f	Objective 3f not met	Not met

**Table 22: 2018 Assessment of Paddock Restoration against SERA Assessment System**

Parameter	Sub-parameter	Variable	2018 Result	2018 Rating
Species composition	Desirable plants	Native species richness and composition	Insufficient data	1 star
	Desirable animals	Native species richness and composition	Insufficient data	1 star
	No undesirable species	Weeds and pest fauna	<ul style="list-style-type: none"> <li>• Weed covers more than 50 %</li> <li>• Pest fauna species present</li> </ul>	1 star
Community structure	All vegetation strata	Vegetation structural / functional groups	<ul style="list-style-type: none"> <li>• Tree species present</li> <li>• Tall shrub layer species present</li> <li>• Nitrogen fixers present</li> <li>• Low shrub layer species present</li> </ul>	3 star
	All trophic levels	Biota diversity	Insufficient data	1 star
	Spatial mosaic	Habitat diversity (Structural Complexity)	<ul style="list-style-type: none"> <li>• More than a single habitat present in the form of multiple LMUs</li> </ul>	3 stars
Ecosystem function	Productivity / cycling	Soil nutrients	Insufficient data	1 star
	Habitat & interactions	Landscape function / retention of water and nutrients	<ul style="list-style-type: none"> <li>• Gully and rills present indicating potential loss of nutrients to creek lines</li> </ul>	1 star
	Resilience / recruitment	Vegetation functions	<ul style="list-style-type: none"> <li>• Some key taxa not yet reproductively mature</li> </ul>	1 star
External exchanges	Landscape flows	Landform	<ul style="list-style-type: none"> <li>• Landforms blend with surrounding environments</li> <li>• Hydrological processes connected to surrounding landscape</li> </ul>	2 star

Parameter	Sub-parameter	Variable	2018 Result	2018 Rating
			<ul style="list-style-type: none"> <li>via natural processes</li> <li>• Agricultural dam still present with increased runoff compared to surrounding forest</li> </ul>	
	Gene flows	Linkage / vectors for movement of genetic material	<ul style="list-style-type: none"> <li>• Site immediately adjacent to natural habitats</li> <li>• Barriers to gene flow not greater than non-avian fauna exclusion</li> <li>• Small ground dwelling native fauna recorded utilising the site</li> </ul>	3 star
	Habitat links	Connectivity	<ul style="list-style-type: none"> <li>• Site adjacent to natural habitats</li> <li>• Colonisation by plants, avifauna and small ground dwellers possible</li> </ul>	3 star
Absence of threats	Contamination	Water quality Soil quality (target levels to be developed following monitoring)	Insufficient data	1 star
	Invasive species	Weed covers Declared weeds Feral pests Phytophthora dieback	<ul style="list-style-type: none"> <li>• Weed control and pest fauna species measures ongoing</li> <li>• Declared weed <i>Gomphocarpus fruticosus</i> present</li> <li>• Weed covers &gt; 50 %</li> <li>• Dieback status unknown</li> </ul>	1 star
	Over-utilisation	Land-use	<ul style="list-style-type: none"> <li>• Agricultural uses</li> </ul>	3 stars

Parameter	Sub-parameter	Variable	2018 Result	2018 Rating
			discontinued • Tenure secured	
Physical conditions (Section to be completed following collection of baseline data)	Water chemo-physical	pH, Ec, N, P, turbidity	Insufficient data	1 star
	Substrate chemical	pH, Ec, N, P	Insufficient data	1 star
	Substrate physical	Impedance	Insufficient data	1 star



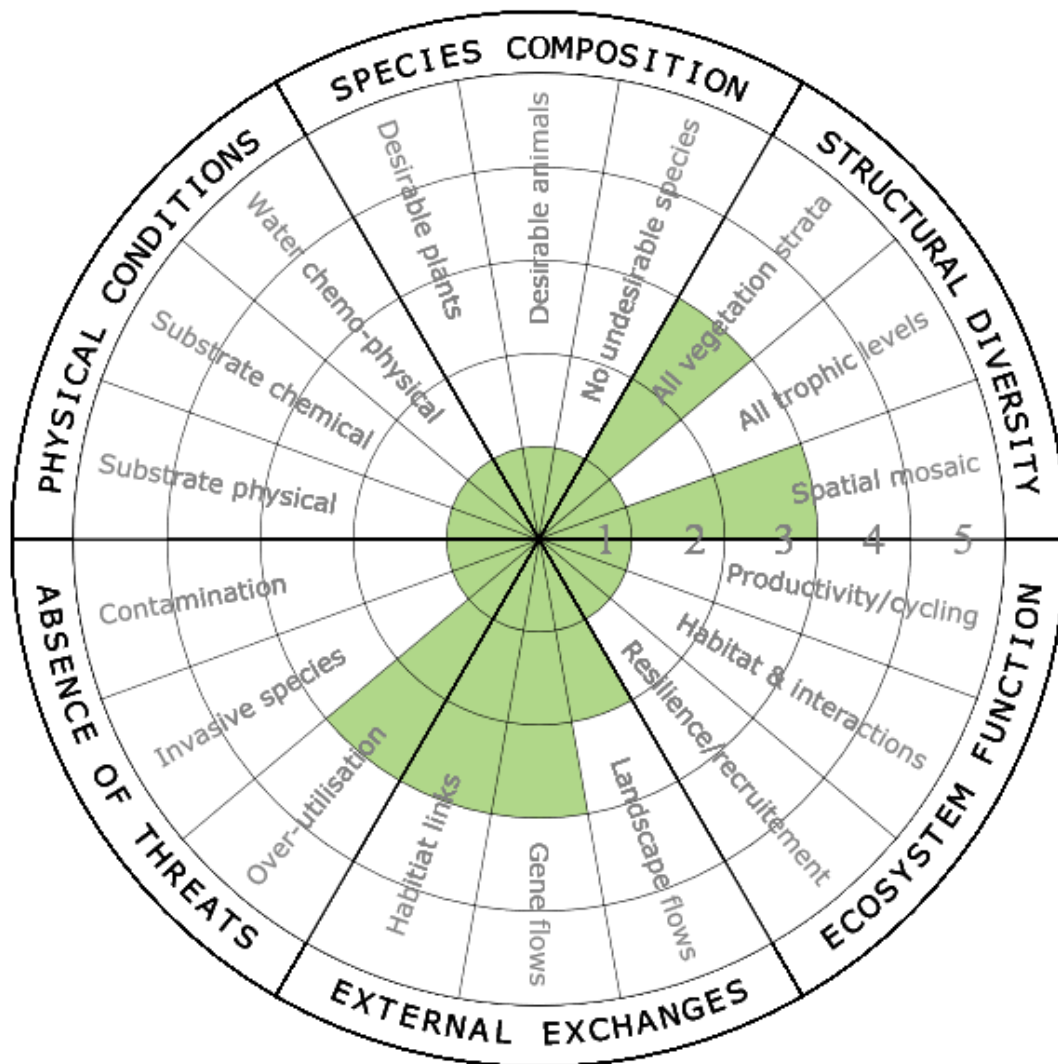


Figure 18: 2018 Assessment of Paddock Restoration against the SERA Assessment System

## 8. DISCUSSION

### 8.1 Review of Project Area Boundaries and General Paddock Restoration Performance

The review of the remnant vegetation and seed mix zone boundaries in the Project Area determined that the actual areas of these differ quite markedly from The Programme Key Objectives (GA 2015) and the original GA data (GA 2018). The actual area of remnant vegetation was found to be 34 ha less than the 170 ha target and the paddock restoration area was 29 ha less than the 300 ha target and 70 ha less than the mapped paddock restoration area. This resulted in a combined total of 406.2 ha of land that was either remnant vegetation or in the paddock restoration area and in the process of being restored.

There are areas within the paddock restoration area were either not seeded or were performing poorly, as reflected by poor plant density, live foliage cover and species richness in the vegetation monitoring plots. This included the low-lying area near the north-eastern creek that was too wet to seed during the initial restoration works (initially mapped as SW-L seed mix zone), all areas not seeded due to lateritic outcropping, and bare areas around the site perimeter and remnant vegetation areas. Access tracks currently run between the paddock restoration and all but two blocks of remnant vegetation, thus preventing linkage and flow of native taxa into the paddock restoration area. Access tracks also increase the risk of introducing weed propagules into the remnant vegetation and paddock restoration areas. These bare areas require management actions in order to meet the 470 ha target from the EPBC Act approval condition.

The requirement to restore bare areas and improve the areas performing poorly may provide a good opportunity to trial different restoration techniques that will produce vegetation that better resembles reference sites. This may include the removal and disposal of weed-infested topsoil, scarification, broadcast seeding (using species recorded within analogue plots), fertilisation, and the application of local mulch material. Where lateritic outcropping is extensive or the depth to substrate is very shallow, broadcast seeding of novel vegetation may be required, such as a heath understorey of taxa that naturally persist on shallow rocky soils of the eastern Jarrah forest.

### 8.2 Remnant Vegetation Areas

The remnant vegetation areas in the eastern part of the Project Area were in a poorer condition than those in the western portion of the site. Generally speaking, they had highly modified understorey composition and structure with whole vegetation strata often missing and a high cover of introduced species. One significant remnant in the north-west of the Project Area was already presenting signs of improved condition and establishment of native species following de-stocking and fencing of the site. The remnant vegetation areas were more floristically diverse than the paddock restoration areas, as would be expected, and provide indication of the ideal long-term species composition for the adjacent paddock restoration area. This assessment has established that baseline monitoring within each remnant will over time provide evidence of the improvement of each. Given that restoration of the paddock areas is not yet complete, recommendations for remnant areas are currently restricted to ongoing weed management and monitoring (Section 9).

## 8.3 Paddock Restoration Area

### 8.3.1 Species Composition

Monitoring identified 38 % of the native taxa recorded within the paddock restoration area were in common with those recorded within the remnant vegetation areas of the Project Area. This may suggest that many of the species selected for use within the paddock restoration may not be representative of those present in the local Jarrah forest area.

Almost half of the native taxa recorded within the paddock restoration area were not on the seed list or tubestock planting list for the paddock restoration works. Propagules of some of these taxa may have already been present in the soil (particularly for annual taxa) or may have been introduced from nearby remnant vegetation (particularly for taxa found near the boundary of the paddock restoration area and remnant vegetation, such as *Paraserianthes lophantha* observed near the southern boundary of the Project Area). However, it is more probable that there was misidentification of species during seed collection activities or contamination of the seed mix with inappropriate species during seed mix preparation.

An example of this would be *Melaleuca parviceps*, of which 154 individuals were recorded within all nine seed mix zones in the paddock restoration vegetation plots, despite not being on the seed mix list. This species looks somewhat superficially similar to *Calothamnus quadrifidus*, which was present on the seed mix list but was not recorded within the paddock restoration area. It is possible that this taxon was misidentified during seed collection activities and incorrectly incorporated into the seed mix. This taxon typically occurs more west of Boddington on the Swan Coastal Plain (WA Herbarium 1998-) and therefore would not be considered local to the Boddington area.

*Acacia drummondii* subsp. *elegans* was recorded within the paddock restoration area despite only *Acacia drummondii* subsp. *candolleana* and *Acacia drummondii* subsp. *drummondii* being present on the seed mix list. Again, this taxon was likely misidentified during seed collection activities and incorrectly incorporated into the seed mix. This taxon typically occurs more north and west than Boddington and therefore would not be considered local to the Boddington area.

Another taxon, *Acacia microbotrya*, was on the seed mix list and had 31 individuals recorded within DS-PS vegetation plots in the paddock restoration area. This species is typically found in the Wheatbelt in low-lying areas or near water courses with brown loams or in areas of disturbance (WA Herbarium 1998-). Records of this taxon do exist further west on the Swan Coastal Plain (DBCA 2007-) but this is likely a result of being introduced or a reflection of its ability to grow in disturbance rather than this being a natural extension of its range. This taxon is a large acacia species and currently dominates areas of the paddock restoration which may lead to reduced biodiversity in the restored areas through competition and therefore is a poor choice for seeding in the Jarrah forest area of Boddington.

A few species were seeded into seed mix zones that are associated with soils or landforms not typical of the species. For example, *Banksia grandis* was seeded into all seed mix zones except CL-M and SW-A1. In the region around Boddington this taxon is typically found in Jarrah and Marri forests on slopes and hillcrests with laterite (WA Herbarium 1998-). Six

individuals of *Banksia grandis* were recorded within the SW-L LMU in the paddock restoration area which is associated with semi-wet clay loams in low-lying areas. Therefore, this taxon may struggle in this LMU given its natural soil preferences and its extremely high susceptibility to *Phytophthora cinnamomi*, which may be present in these areas.

Given the Project Area is intended to be restored to something broadly representative of reference sites, it is worth considering whether taxa introduced into the paddock restoration area that are not found locally should be removed and replaced with local taxa. Similarly, taxa that are placed in soils or landforms not typical of the species may require removal and replacement with more appropriate, local taxa. Furthermore, the paddock restoration area appeared to be generally dominated by *Acacia* and other shrub species, whereas Jarrah forest is typically dominated by a small number of trees species (*Eucalyptus marginata* and *Corymbia calophylla*). These acacias may need removal or reduction and replacement with local species representative of Jarrah forest following baseline monitoring. It is recommended that removal occur before the taxa are reproductively mature and set seed, or approximately one to three years after seeding (Section 9).

It is worth noting that while only 55 % of taxa on the seed mix list for the paddock restoration works were recorded at least once, the lack of records of the other taxa does not necessarily suggest that they are not present in the restoration. However, it does demonstrate that the other 59 taxa are not present in measurable numbers and, if deemed appropriate to be present within the Project Area, may require reseeding or infill planting in the future if numbers do not improve.

Recommendations for potential management actions to address the issues identified in the paddock restoration area are provided in Section 9. A summary of the restoration performance of each seed mix zone and the recommended minimum requirement for management actions (excluding weed control activities) is presented in Table 23.

**Table 23: Summary of Seed Mix Zone Restoration Performance and Minimum Recommended Management Actions**

Seed Mix Zone	Description of Restoration Performance	Minimum Recommended Management Actions and Proposed Timeline for Management Actions
CL-M	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, dominated by <i>Acacia</i> species in some areas</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Acacia</i> species</li> <li>2020 – Replace acacias with <i>Eucalyptus/Corymbia</i> species</li> </ul>
DS-PS	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> species</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Acacia</i> species</li> <li>2020 – Replace acacias with <i>Eucalyptus/Corymbia</i> species</li> </ul>
DS-S,SP	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>Tops of some plants scorched in some areas</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>2020 – Replace acacias with <i>Eucalyptus/Corymbia</i> species</li> <li>2020 onwards – Continue monitoring to determine impact of plant scorching</li> </ul>
LG-S,SP	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>Some areas not seeded or performing poorly where lateritic outcropping is present</li> <li>Tops of some plants scorched in some areas</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Acacia</i> and <i>Allocasuarina</i> species</li> <li>2020 – Replace acacias with <i>Eucalyptus/Corymbia</i> species</li> <li>2020 – Conduct broadcast seeding or infill planting of novel taxa that can persist on shallow soils</li> <li>2020 onwards – Continue monitoring to determine impact of plant scorching</li> </ul>
SG-M	<ul style="list-style-type: none"> <li>Area seeded more recently than rest of restoration; restoration progress lagging behind rest of paddock restoration area</li> </ul>	<ul style="list-style-type: none"> <li>2020 onwards – Continue monitoring</li> </ul>
SG-S,SP	<ul style="list-style-type: none"> <li>Area largely not seeded or performing poorly due to extensive lateritic outcropping</li> </ul>	<ul style="list-style-type: none"> <li>2020 – Conduct broadcast seeding or infill planting of novel taxa that can persist on shallow soils</li> </ul>
SW-A1	<ul style="list-style-type: none"> <li>Restoration performance generally acceptable, but dominated by <i>Viminaria juncea</i></li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Viminaria juncea</i> individuals</li> <li>2020 – Replace <i>Viminaria juncea</i> with <i>Eucalyptus</i> species</li> </ul>
SW-L	<ul style="list-style-type: none"> <li>Restoration mostly very sparse</li> <li>Dominated by <i>Viminaria juncea</i> in some areas</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number of <i>Viminaria juncea</i> individuals</li> <li>2020 – Replace <i>Viminaria juncea</i> with <i>Eucalyptus</i> species</li> <li>2020 – Conduct broadcast seeding or infill planting</li> </ul>
SW-L,M	<ul style="list-style-type: none"> <li>Large areas of this seed mix zone not seeded</li> <li>Restoration very sparse in some areas</li> <li>Dominated by <i>Acacia</i> species and <i>Viminaria juncea</i> in some areas</li> </ul>	<ul style="list-style-type: none"> <li>2019 – Consider reducing number <i>Acacia</i> species and <i>Viminaria juncea</i> individuals</li> <li>2020 – Replace acacias and <i>Viminaria juncea</i> with <i>Eucalyptus</i> species</li> <li>2020 – Conduct broadcast seeding or infill planting</li> </ul>
Gastrolobium thickets	<ul style="list-style-type: none"> <li>Area seeded more recently than rest of restoration; restoration progress lagging behind rest of paddock restoration area</li> </ul>	<ul style="list-style-type: none"> <li>2020 onwards – Continue monitoring</li> </ul>

### 8.3.2 Recalcitrant Species

The results from the nursery row transect monitoring found that the nursery rows were dominated by species that may not be considered recalcitrant. This was particularly evident in the M LMU in which almost 85 % of all plants along the nursery row transects were *Acacia drummondii* subsp. *drummondii*. The taxa *Bossiaea eriocarpa* and *Hypocalymma angustifolium* were also present in large numbers along the nursery row transects. These taxa, amongst a number of others, were relatively abundant within the paddock restoration area and therefore are not considered to be recalcitrant for the purposes of the Programme.

Table 24 presents the list of taxa used for seeding and tubestock planting along the nursery rows in the Project Area and their recalcitrant status as per Dixon *et al.* (1995); Panaia *et al.* (2009); Roche *et al.* (1995); Vigilante *et al.* (1998); and Woodman Environmental understanding and previous experience in restoration and rehabilitation projects. This demonstrates that of the 50 taxa seeded or planted along the nursery rows only 18 are believed to be recalcitrant and eight are possibly recalcitrant. Of the taxa that are believed to be recalcitrant or are possibly recalcitrant only seven were recorded during the nursery row review, all of which were only recorded once with the exception of *Conostylis setigera* subsp. *setigera* that was recorded twice. This reinforces the recalcitrant status of these 26 taxa. The lack of records of the other 19 recalcitrant or possibly recalcitrant taxa does not necessarily suggest that they are not present in the restoration, as the nursery row review provides only a subsample of all the nursery rows in the Project Area. However, it does demonstrate that they are not present in large numbers and may require reseeding or infill planting in the future if appropriate.

Given the Project Area is intended to be restored to something broadly representative of reference sites, and that the presence of true recalcitrant species along the nursery rows was very low, it is worth considering whether the dominant, non-recalcitrant taxa in the nursery rows should be removed and replaced with local, recalcitrant species representative of Jarrah forest following baseline monitoring. Removal of taxa that are currently dominating the nursery rows would reduce competition with recalcitrant taxa that are already at a disadvantage in a restoration context (Section 9).

**Table 24: Taxa Introduced into Nursery Rows and their Recalcitrant Status**

Taxon	Recalcitrant Status
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	Not believed to be recalcitrant
<i>Allocasuarina humilis</i>	Not believed to be recalcitrant
<i>Anigozanthos manglesii</i>	Not believed to be recalcitrant
<i>Astroloma ciliatum</i>	Believed to be recalcitrant <sup>c,e</sup>
<i>Astroloma compactum</i>	Believed to be recalcitrant <sup>e</sup>
<i>Astroloma epacridis</i>	Believed to be recalcitrant <sup>e</sup>
<i>Banksia grandis</i>	Not believed to be recalcitrant
<i>Banksia sessilis</i>	Not believed to be recalcitrant
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	Not believed to be recalcitrant
<i>Boronia fastigiata</i>	Believed to be recalcitrant <sup>a,c,e</sup>
<i>Bossiaea eriocarpa</i>	Not believed to be recalcitrant
<i>Bossiaea ornata</i>	Not believed to be recalcitrant
<i>Conostylis setigera</i> subsp. <i>setigera</i>	Possibly recalcitrant <sup>d</sup>

Taxon	Recalcitrant Status
<i>Eucalyptus marginata</i>	Not believed to be recalcitrant
<i>Gompholobium marginata</i>	Not believed to be recalcitrant
<i>Gompholobium preissii</i>	Not believed to be recalcitrant
<i>Hakea incrassata</i>	Not believed to be recalcitrant
<i>Hakea lissocarpha</i>	Not believed to be recalcitrant
<i>Hakea undulata</i>	Not believed to be recalcitrant
<i>Hibbertia amplexicaulis</i>	Believed to be recalcitrant <sup>a,c,d,e</sup>
<i>Hovea trisperma</i>	Not believed to be recalcitrant
<i>Hypocalymma angustifolium</i>	Not believed to be recalcitrant
<i>Isopogon dubius</i>	Not believed to be recalcitrant
<i>Labichea punctata</i>	Not believed to be recalcitrant
<i>Lechenaultia biloba</i>	Possibly recalcitrant <sup>a,c</sup>
<i>Lepidosperma apricola</i>	Believed to be recalcitrant <sup>e</sup>
<i>Lepidosperma asperatum</i>	Believed to be recalcitrant <sup>e</sup>
<i>Lepidosperma squamatum</i>	Believed to be recalcitrant <sup>e</sup>
<i>Lepidosperma tenue</i>	Believed to be recalcitrant <sup>b,e</sup>
<i>Leucopogon capitellatus</i>	Believed to be recalcitrant <sup>d,e</sup>
<i>Leucopogon nutans</i>	Believed to be recalcitrant <sup>c,d,e</sup>
<i>Leucopogon propinquus</i>	Believed to be recalcitrant <sup>a,d,e</sup>
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	Believed to be recalcitrant <sup>c,d,e</sup>
<i>Macrozamia riedlei</i>	Believed to be recalcitrant <sup>e</sup>
<i>Orthrosanthus laxus</i>	Believed to be recalcitrant <sup>d,e</sup>
<i>Patersonia occidentalis</i>	Believed to be recalcitrant <sup>a,c,d,e</sup>
<i>Petrophile heterophylla</i>	Not believed to be recalcitrant
<i>Phyllanthus calycinus</i>	Not believed to be recalcitrant
<i>Pimelea preissii</i>	Possibly recalcitrant <sup>a,c</sup>
<i>Podolepis lessonii</i>	Not believed to be recalcitrant
<i>Ranunculus colonorum</i>	Not believed to be recalcitrant
<i>Stackhousia monogyna</i>	Possibly recalcitrant <sup>e</sup>
<i>Stackhousia scoparia</i>	Possibly recalcitrant <sup>e</sup>
<i>Stylidium affine</i>	Not believed to be recalcitrant
<i>Tetraria capillaris</i>	Believed to be recalcitrant <sup>b,e</sup>
<i>Tetraria octandra</i>	Believed to be recalcitrant <sup>b,e</sup>
<i>Thysanotus multiflorus</i>	Possibly recalcitrant <sup>a,c,d,e</sup>
<i>Trachymene pilosa</i>	Not believed to be recalcitrant
<i>Tricoryne elatior</i>	Possibly recalcitrant <sup>c,d,e</sup>
<i>Tripterococcus brunonis</i>	Possibly recalcitrant <sup>c,d,e</sup>

<sup>a</sup> Dixon *et al.* (1995); <sup>b</sup> Panaia *et al.* (2009); <sup>c</sup> Roche *et al.* (1995); <sup>d</sup> Vigilante *et al.* (1998); <sup>e</sup> Woodman Environmental understanding and experience of the difficulty in establishing these taxa in restoration or rehabilitation projects.

### 8.3.3 Introduced Species and Pests

Virtually the entirety of the paddock restoration area hosted a consistently very high cover of introduced species. Weed control activities were undertaken by GA from 2016 to 2018; however, this appears to have been ineffective in significantly reducing weed covers. As a result, the majority of introduced species observed during the completion criteria monitoring in 2018 were bearing seed that will provide a substantial crop for the coming winter. This presents significant competition for native taxa within both the paddock restoration area and the remnant vegetation areas. Weed control activities were undertaken by GA after the 2018 monitoring from April to July 2019. It is recommended that weed control measures are continued to reduce the impact of introduced species in the

Project Area (Section 9). In addition, the declared pest species *Gomphocarpus fruticosus* should be removed from the Project Area as per the compliance framework for the management of widespread and established (“C3”) declared weeds and The Programme completion criteria.

A number of kangaroos were observed within the paddock restoration area during monitoring. Kangaroos can impact the restoration success through grazing, resulting in simplification of the structure, composition and function of the vegetation, reduction in vegetation cover and diversity, and increased soil degradation. Both male and female individuals were seen and therefore there is the potential for the kangaroo population within the Project Area to increase once again to pest levels.

### 8.3.4 Soil

Soil penetrance values were generally quite consistent between the remnant vegetation and paddock restoration areas. High soil penetrance values recorded in the L LMU/VU can be explained by the higher clay content of the soils that characterise these ecosystems, and low soil penetrance values recorded in the SP LMU/VU by their sandier soils. The disparity between soil penetrance values in the M VU of the remnant vegetation areas compared to the M LMU of the paddock restoration area may reflect a susceptibility of this high clay content soil type to compaction from long-term agricultural practices. Future monitoring will determine if soil penetrance values in the M LMU in the paddock restoration decreases to resemble the remnant vegetation area M VU.

### 8.3.5 Landform Stability

The erosion features observed in 2018 demonstrate that there are some landform stability issues present, whether recent or historical. Half of the erosion features recorded in 2018 were associated with access tracks. The remaining erosion features were located within the paddock restoration, of which three of four were located within the LG-S,SP seed mix zone. This is likely a function of the relative steepness of topography in this seed mix zone. The remaining erosion feature was located along a natural drainage contour that connects to the large swamp in the southwestern corner of the Project Area, and was likely historical. The erosion features recorded in 2018 are currently not considered to be extreme. However, management intervention may be warranted should future monitoring not confirm that they are stabilising, particularly at erosion features 2 and 3 where erosion is occurring despite the presence of erosion control structures.

### 8.3.6 Completion Criteria

The assessment against The Programme completion criteria and SERA Assessment Guidelines found that none of The Programme completion criteria have been met in 2018 and the restoration project currently achieves an average ranking of 2 stars. The restoration is still very young so future monitoring will provide evidence of the restoration’s development trajectory toward meeting the criteria or whether mitigation measures are required.



## 8.4 Summary

Overall, the completion criteria monitoring in 2018 found that vegetation establishment had been achieved across much of the Project Area. However, it is recommended that immediate and extensive weed control measures are conducted and species composition of the paddock restoration areas is modified to address issues with seed mix preparation and ensure that primarily species recorded in reference sites are present in the Project Area. In addition, the paddock restoration area is currently incomplete with large areas missed from restoration works and some areas of poor performance requiring attention. Introduced species cover was consistently high and kangaroos were observed, both of which will need to be addressed in order to minimise threats to the development of the paddock restoration and remnant vegetation areas.

It is recommended that a program of remediation to address incomplete restoration and also to begin species composition modification should be developed and implemented in consultation with stakeholder groups (Section 9).

## 9. RECOMMENDATIONS

The following actions are recommended in order to progress the restoration in the Project Area towards meeting The Programme Objectives.

### 9.1 Access and Buffers

Access for future monitoring and management should be formalised, including minimisation and restoration of internal tracks and buffers around remnant vegetation patches following completion of restoration works in the Project Area. It is recommended that the original external boundary track be re-instated with gates to allow restoration of the remnant vegetation patch edges and other internal tracks. In addition, the Project Area spatial data will require review.

### 9.2 Restoration and Infill Works

#### 9.2.1 Remnant Vegetation Areas

It is recommended that ongoing weed control be conducted within the remnant vegetation areas.

Infill planting and/or seeding of understorey species should be carried out in 2021 in blocks of remnant vegetation in order to improve their condition in line with reference sites and provide competition with introduced species. Species lists for use in infill planting should be created for each remnant area following assessment of analogue (baseline) plots in spring 2019. Ordering of these species can be done in 2020 and planting/seeding undertaken in autumn/winter 2021. A separate restoration plan for the remnant areas is recommended that addresses the conditions present in each remnant and identifies restoration strategies for each.

#### 9.2.2 Paddock Restoration Area

It is recommended that ongoing weed control be conducted within the paddock restoration area starting in winter 2019 using a broad spectrum herbicide. Given the dense and widespread introduced species cover, future weed control may be best achieved by scalping (removing the top 5 – 10 cm of soil) the paddock restoration areas that have not been restored or are performing poorly, disposing of the weed-infested topsoil, and ripping and re-seeding with local provenance taxa. This method should be considered once revised seed mixes have been developed following assessment of baseline plots in 2019.

The current extent/area of the restoration may be increased using the following methods:

- Infill planting of tubestock and broadacre seeding of local provenance taxa;
- Re-sowing of local provenance taxa along scalped lines;
- Restoration of internal tracks and buffers around remnant vegetation blocks using scarification and seeding of local provenance taxa;
- Broadcast seeding and surface scarification in shallow lateritic areas using local provenance taxa that can tolerate shallow soils; and

- Application of local mulch material where available to retain moisture and shade soil.

A seed list of local Jarrah forest species should be created following the completion of analogue vegetation plot monitoring in spring 2019 to direct additional seeding or infill planting. Local Jarrah forest recalcitrant species should be identified following completion of baseline monitoring and seedlings propagated for use in infill planting in 2021 along the nursery rows and elsewhere on site.

In addition, it is recommended that a program of species removal for all taxa that are not local to the Boddington area is established for the paddock restoration area prior to these species reaching reproductive maturity and setting seed. A list of taxa recommended for removal should be created following completion of analogue vegetation plot monitoring in spring 2019. Furthermore, it is recommended that the numbers of *Acacia* species within the paddock restoration area are reduced and replaced with local Jarrah forest tree species including *Eucalyptus marginata* and *Corymbia calophylla* via infill planting or broadcast seeding. This should be conducted in 2020 (plant removal) and 2021 (plant replacement) prior to the acacias becoming reproductively mature.

### 9.3 Introduced Species and Pest Control

Extensive management action is recommended in order to reduce the impact of introduced species in the Project Area and reduce the soil seed load. Immediate mitigation measures to improve the completion criteria and SERA assessment results include the removal of the declared pest *Gomphocarpus fruticosus*. General weed control measures include herbicide spraying in the remnant vegetation areas with a broad spectrum herbicide and topsoil scalping and disposal or herbicide spraying with a broad spectrum herbicide in the paddock restoration area. Weed spraying activities are to be done under botanical supervision in order to ensure native taxa are not affected. Note that weed spraying in the paddock restoration area at the required intensity may risk herbicide spray drift impacting native taxa. Appropriate methods should be employed under low to zero wind conditions to minimise herbicide drift.

It is recommended that all kangaroos are removed from the Project Area in order to minimise further grazing impacts to the restoration vegetation.

### 9.4 Monitoring

Analogue plots are to be established and assessed in spring 2019/2020. Monitoring of vegetation plots within the remnant vegetation patches that are in good condition may be reduced to every second or third monitoring event to ensure no degradation is occurring and to track improvements. Remnant vegetation patches that are in poorer condition and receiving active management actions should be monitored every monitoring event to assess the success of management input in these areas.

Monitoring of nursery row transects may be discontinued until a revised recalcitrant species list is created and infill planting is conducted. Alternatively, nursery row transect monitoring

may continue but monitoring of non-recalcitrant species within the transects may be discontinued.

Sampling and analysis for soil microbial activity is to be conducted in winter 2020 and soil sampling for soil chemical analysis at the analogue plots is to be conducted alongside vegetation monitoring in spring 2019.

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**Appendix A: Composition of Seed Mixes, Dominant Taxa and Taxa Seeded during Direct Drilling (GA 2017; GA 2018)**

Note: Cells coloured green indicate dominant taxa and text coloured red indicate taxa also used during direct drilling

Taxon	Seed Mix								
	CL-M	DS-PS	DS-S,SP	LG-S,SP	SG-M	SG-S,SP	SW-A1	SW-L	SW-L,M
<i>Acacia alata</i>	X	X	X	X	X			X	X
<i>Acacia celastrifolia</i>			X	X	X	X		X	X
<i>Acacia dentifera</i>							X	X	X
<i>Acacia drummondii</i> subsp. <i>candolleana</i>			X	X	X	X		X	X
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	X		X	X	X	X		X	X
<i>Acacia extensa</i>		X	X	X	X		X	X	X
<i>Acacia microbotrya</i>		X						X	X
<i>Acacia nervosa</i>	X		X	X	X		X	X	X
<i>Acacia pulchella</i> var. <i>glaberrima</i>	X	X	X	X	X	X	X	X	X
<i>Acacia saligna</i>							X	X	X
<i>Agrostocrinum scabrum</i>			X	X	X			X	X
<i>Allocasuarina fraseriana</i>		X	X	X	X	X	X	X	X
<i>Allocasuarina huegeliana</i>			X	X	X			X	X
<i>Allocasuarina humilis</i>	X	X	X	X	X			X	X
<i>Amphipogon turbinatus</i>		X	X	X	X			X	X
<i>Anigozanthos manglesii</i>	X	X	X	X	X	X	X	X	X
<i>Astartea scoparia</i>							X	X	X
<i>Asteridea pulverulenta</i>		X	X	X	X	X		X	X
<i>Astroloma ciliatum</i>			X	X	X			X	X
<i>Astroloma compactum</i>			X	X	X			X	X
<i>Astroloma epacridis</i>			X	X	X	X		X	X
<i>Austrostipa campylachne</i>		X	X	X	X	X		X	X
<i>Austrostipa mollis</i>		X	X	X	X	X		X	X
<i>Baeckea camphorosmae</i>		X						X	X
<i>Banksia grandis</i>		X	X	X	X	X		X	X
<i>Banksia littoralis</i>							X	X	X
<i>Banksia sessilis</i>		X	X	X	X	X		X	X
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>		X						X	X
<i>Banksia squarrosa</i> subsp. <i>squarrosa</i>			X	X	X			X	X
<i>Billardiera fusiformis</i>		X	X	X	X			X	X



Taxon	Seed Mix								
	CL-M	DS-PS	DS-S,SP	LG-S,SP	SG-M	SG-S,SP	SW-A1	SW-L	SW-L,M
<i>Boronia fastigiata</i>			X	X	X	X		X	X
<i>Bossiaea eriocarpa</i>		X						X	X
<i>Bossiaea ornata</i>			X	X	X			X	X
<i>Bossiaea pulchella</i>						X			
<i>Calothamnus quadrifidus</i>		X	X	X	X	X	X	X	X
<i>Calothamnus sanguineus</i>		X						X	X
<i>Chamaescilla corymbosa</i>		X	X	X	X	X		X	X
<i>Clematis pubescens</i>	X		X	X	X	X		X	X
<i>Corymbia calophylla</i>	X	X	X	X	X	X		X	X
<i>Craspedia variabilis</i>	X		X	X		X		X	X
<i>Daviesia cordata</i>			X	X	X	X		X	X
<i>Daviesia decurrens</i>	X		X	X	X	X		X	X
<i>Daviesia longifolia</i>			X	X	X			X	X
<i>Daviesia preissii</i>	X		X	X	X	X		X	X
<i>Daviesia rhombifolia</i>			X	X	X	X		X	X
<i>Dichopogon capillipes</i>	X	X	X		X	X		X	X
<i>Eucalyptus marginata</i>	X	X	X	X	X	X		X	X
<i>Eucalyptus megacarpa</i>							X	X	X
<i>Eucalyptus patens</i>							X	X	X
<i>Eucalyptus rudis</i>							X	X	X
<i>Eucalyptus wandoo</i>	X	X			X		X	X	X
<i>Gastrolobium bilobum</i>							X	X	X
<i>Gastrolobium calycinum</i>	X	X	X	X	X		X	X	X
<i>Gastrolobium ebracteolatum</i>			X	X	X			X	X
<i>Gastrolobium spinosum</i>		X	X	X	X			X	X
<i>Gompholobium marginatum</i>		X	X	X	X	X		X	X
<i>Gompholobium preissii</i>		X	X	X	X	X		X	X
<i>Grevillea monticola</i>	X		X	X	X	X		X	X
<i>Grevillea quercifolia</i>			X	X	X	X		X	X
<i>Haemodorum paniculatum</i>	X	X						X	X
<i>Haemodorum simplex</i>							X	X	X
<i>Hakea amplexicaulis</i>			X	X	X			X	X

Taxon	Seed Mix								
	CL-M	DS-PS	DS-S,SP	LG-S,SP	SG-M	SG-S,SP	SW-A1	SW-L	SW-L,M
<i>Hakea cyclocarpa</i>		X	X	X	X			X	X
<i>Hakea incrassata</i>			X	X	X			X	X
<i>Hakea lissocarpa</i>	X	X	X	X	X	X		X	X
<i>Hakea prostrata</i>		X	X	X	X		X	X	X
<i>Hakea ruscifolia</i>		X	X	X	X			X	X
<i>Hakea undulata</i>	X		X	X	X			X	X
<i>Hakea varia</i>							X	X	X
<i>Hemigenia ramosissima</i>						X			
<i>Hemigenia rigida</i>		X	X	X	X	X		X	X
<i>Hibbertia amplexicaulis</i>	X	X	X	X	X	X		X	X
<i>Hibbertia pilosa</i>			X	X	X			X	X
<i>Hibbertia serrata</i>			X	X	X			X	X
<i>Hovea trisperma</i>	X	X	X	X	X	X		X	X
<i>Hyalosperma cotula</i>		X	X	X	X	X		X	X
<i>Hypocalymma angustifolium</i>	X	X	X	X	X		X	X	X
<i>Isopogon dubius</i>		X	X	X	X			X	X
<i>Jacksonia alata</i>	X	X	X	X	X	X		X	X
<i>Kennedia coccinea</i>	X	X	X	X	X			X	X
<i>Kennedia prostrata</i>	X	X	X	X	X	X		X	X
<i>Kunzea recurva</i>		X						X	X
<i>Labichea punctata</i>		X	X	X	X	X		X	X
<i>Lagenophora huegelii</i>	X								
<i>Lechenaultia biloba</i>		X	X	X	X	X		X	X
<i>Leptospermum erubescens</i>		X						X	X
<i>Leucopogon capitellatus</i>	X		X	X	X	X		X	
<i>Leucopogon nutans</i>	X	X	X	X	X	X		X	X
<i>Leucopogon propinquus</i>	X	X	X	X	X	X		X	X
<i>Macrozamia riedlei</i>			X	X	X	X		X	X
<i>Marianthus bicolor</i>			X	X	X	X		X	X
<i>Melaleuca incana</i>							X	X	X
<i>Melaleuca lateritia</i>							X	X	X
<i>Melaleuca radula</i>			X	X	X	X		X	X

Taxon	Seed Mix								
	CL-M	DS-PS	DS-S,SP	LG-S,SP	SG-M	SG-S,SP	SW-A1	SW-L	SW-L,M
<i>Melaleuca raphiophylla</i>							X	X	X
<i>Melaleuca tuberculata</i> var. <i>tuberculata</i>		X	X	X	X	X		X	X
<i>Melaleuca viminea</i>							X	X	X
<i>Microlaena stipoides</i>	X	X	X	X	X	X		X	X
<i>Neurachne alopecuroidea</i>	X	X	X	X	X	X		X	X
<i>Opercularia vaginata</i>		X	X	X	X	X		X	X
<i>Orthrosanthus laxus</i>		X	X	X	X	X		X	X
<i>Patersonia occidentalis</i>			X	X	X		X	X	X
<i>Persoonia longifolia</i>		X	X	X	X	X		X	X
<i>Petrophile heterophylla</i>			X	X	X			X	X
<i>Phyllanthus calycinus</i>	X	X	X	X	X			X	X
<i>Pimelea ciliata</i>		X	X	X	X			X	X
<i>Pimelea preissii</i>		X	X	X	X	X		X	X
<i>Podolepis canescens</i>		X	X	X	X			X	X
<i>Podolepis gracilis</i>		X	X	X	X			X	X
<i>Podolepis lessonii</i>		X	X	X	X			X	X
<i>Ptilotus manglesii</i>		X	X	X	X			X	X
<i>Ranunculus colonorum</i>	X								
<i>Rytidosperma caespitosa</i>		X	X	X	X	X		X	X
<i>Sphaerolobium medium</i>			X	X	X			X	X
<i>Stackhousia monogyna</i>	X	X	X	X	X	X		X	X
<i>Stackhousia scoparia</i>	X	X	X	X	X	X		X	X
<i>Stirlingia latifolia</i>		X						X	X
<i>Stirlingia simplex</i>		X						X	X
<i>Stylidium affine</i>	X		X	X	X	X		X	X
<i>Styphelia tenuiflora</i>			X	X	X			X	X
<i>Thysanotus multiflorus</i>		X	X		X	X		X	X
<i>Trachymene pilosa</i>			X	X	X	X		X	X
<i>Tricoryne elatior</i>		X	X	X	X	X		X	X
<i>Tripterococcus brunonis</i>		X	X	X	X			X	X
<i>Trymalium ledifolium</i>	X	X	X	X	X	X		X	X
<i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>	X				X				

Taxon	Seed Mix								
	CL-M	DS-PS	DS-S,SP	LG-S,SP	SG-M	SG-S,SP	SW-A1	SW-L	SW-L,M
<i>Velleia trinervis</i>			X	X	X	X		X	X
<i>Verticordia densiflora</i>							X	X	X
<i>Viminaria juncea</i>							X	X	X
<i>Xanthorrhoea gracilis</i>		X	X	X	X			X	X
<i>Xanthorrhoea preissii</i>	X	X	X	X	X	X		X	X
<i>Xylomelum occidentale</i>		X						X	X

**Appendix B: List of Species used for Direct Seeding and Tubestock Planting  
along Nursery Rows (GA 2018)**

**M LMU**

Taxon	Method
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	Direct seeded
<i>Allocasuarina humilis</i>	Direct seeded
<i>Anigozanthos manglesii</i>	Direct seeded
<i>Hakea undulata</i>	Direct seeded
<i>Hibbertia amplexicaulis</i>	Direct seeded, tubestock planted
<i>Hovea trisperma</i>	Direct seeded
<i>Hypocalymma angustifolium</i>	Direct seeded
<i>Lepidosperma squamatum</i>	Tubestock planted
<i>Lepidosperma tenue</i>	Tubestock planted
<i>Leucopogon capitellatus</i>	Direct seeded
<i>Leucopogon nutans</i>	Direct seeded
<i>Leucopogon propinquus</i>	Direct seeded
<i>Ranunculus colonorum</i>	Direct seeded
<i>Stackhousia monogyna</i>	Direct seeded
<i>Stackhousia scoparia</i>	Direct seeded
<i>Stylidium affine</i>	Direct seeded

**PS LMU**

Taxon	Method
<i>Allocasuarina humilis</i>	Direct seeded
<i>Anigozanthos manglesii</i>	Direct seeded
<i>Banksia grandis</i>	Direct seeded
<i>Banksia sessilis</i>	Direct seeded
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	Direct seeded
<i>Bossiaea eriocarpa</i>	Direct seeded
<i>Gompholobium marginatum</i>	Direct seeded
<i>Gompholobium preissii</i>	Direct seeded
<i>Hakea lissocarpha</i>	Direct seeded
<i>Hibbertia amplexicaulis</i>	Direct seeded, tubestock planted
<i>Hovea trisperma</i>	Direct seeded
<i>Hypocalymma angustifolium</i>	Direct seeded
<i>Labichea punctata</i>	Direct seeded
<i>Lechenaultia biloba</i>	Direct seeded, tubestock planted
<i>Lepidosperma asperatum</i>	Tubestock planted
<i>Lepidosperma squamatum</i>	Tubestock planted
<i>Lepidosperma tenue</i>	Tubestock planted
<i>Leucopogon nutans</i>	Direct seeded
<i>Leucopogon propinquus</i>	Direct seeded
<i>Orthrosanthus laxis</i>	Direct seeded
<i>Phyllanthus calycinus</i>	Direct seeded
<i>Pimelea preissii</i>	Direct seeded
<i>Podolepis lessonii</i>	Direct seeded
<i>Stackhousia monogyna</i>	Direct seeded
<i>Stackhousia scoparia</i>	Direct seeded
<i>Tetralix octandra</i>	Tubestock planted
<i>Tricoryne elatior</i>	Direct seeded
<i>Tripterococcus brunonis</i>	Direct seeded

**S,SP LMU**

Taxon	Method
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	Direct seeded
<i>Allocasuarina humilis</i>	Direct seeded
<i>Anigozanthos manglesii</i>	Direct seeded
<i>Astroloma ciliatum</i>	Direct seeded
<i>Astroloma compactum</i>	Direct seeded
<i>Astroloma epacridis</i>	Direct seeded
<i>Banksia grandis</i>	Direct seeded
<i>Banksia sessilis</i>	Direct seeded
<i>Boronia fastigiata</i>	Direct seeded
<i>Bossiaea ornata</i>	Direct seeded
<i>Conostylis setigera</i>	Tubestock planted
<i>Eucalyptus marginata</i>	Direct seeded
<i>Hakea incrassata</i>	Direct seeded
<i>Hakea lissocarpha</i>	Direct seeded
<i>Hakea undulata</i>	Direct seeded
<i>Hibbertia amplexicaulis</i>	Direct seeded, tubestock planted
<i>Hypocalymma angustifolium</i>	Direct seeded
<i>Isopogon dubius</i>	Direct seeded
<i>Lechenaultia biloba</i>	Direct seeded, tubestock planted
<i>Lepidosperma apricola</i>	Tubestock planted
<i>Lepidosperma asperatum</i>	Tubestock planted
<i>Lepidosperma squamatum</i>	Tubestock planted
<i>Lepidosperma tenue</i>	Tubestock planted
<i>Leucopogon capitellatus</i>	Direct seeded
<i>Leucopogon nutans</i>	Direct seeded
<i>Leucopogon propinquus</i>	Direct seeded
<i>Lomandra micrantha</i>	Tubestock planted
<i>Macrozamia riedlei</i>	Direct seeded
<i>Orthrosanthus laxus</i>	Direct seeded
<i>Patersonia occidentalis</i>	Direct seeded
<i>Petrophile heterophylla</i>	Direct seeded
<i>Phyllanthus calycinus</i>	Direct seeded
<i>Podolepis lessonii</i>	Direct seeded
<i>Stackhousia monogyna</i>	Direct seeded
<i>Stackhousia scoparia</i>	Direct seeded
<i>Stylidium affine</i>	Direct seeded
<i>Tetraria capillaris</i>	Tubestock planted
<i>Tetraria octandra</i>	Tubestock planted
<i>Thysanotus multiflorus</i>	Direct seeded
<i>Trachymene pilosa</i>	Direct seeded
<i>Tricoryne elatior</i>	Direct seeded
<i>Tripterococcus brunonis</i>	Direct seeded

## Appendix C: Vegetation Plot Locations



Note: All GPS locations are in GDA94, Zone 50

Plot Number	Easting (m E)	Northing (m N)	Bearing (°)	VU/Seed Mix Zone
<b>Remnant Vegetation Areas</b>				
A1-RM-01	436631	6363026	90/180	A1
A1-RM-02	437046	6362986	90/180	A1
AY-RM-01	436518	6362935	90/180	AY
L-RM-01	436276	6363099	90/180	L
L-RM-02	436741	6363164	90/180	L
MG-RM-01	438125	6363433	90/180	MG
M-RM-01	439127	6362689	90/180	M
R-RM-01	436310	6363575	90/180	R
R-RM-02	437733	6363172	90/180	R
SP-RM-01	436670	6363607	90/180	SP
SP-RM-02	437871	6363103	90/180	SP
SP-RM-03	439144	6362893	90/180	SP
S-RM-01	436476	6363458	90/180	S
S-RM-02	438284	6363401	90/180	S
S-RM-03	438383	6362869	90/180	S
S-RM-04	438865	6362855	90/180	S
<b>Paddock Restoration Area</b>				
A-RS-01	437046	6363545	90/180	SW-A1
L-RS-01	435903	6363302	55/145	SW-L
L-RS-02	439275	6363362	90/180	SW-L
L-RS-03	437270	6362959	90/180	SW-L
L-RS-04	438940	6363458	90/180	SW-L
L-RS-05	439663	6363372	90/180	SW-L
L-RS-06	436740	6362841	90/180	SW-L,M
L-RS-07	439776	6363241	90/180	SW-L,M
L-RS-08	440181	6363015	90/180	SW-L,M
M-RS-01	440351	6362726	90/180	CL-M
M-RS-02	440651	6362763	90/180	CL-M
M-RS-03	440886	6363117	90/180	CL-M
M-RS-04	437209	6363170	90/180	SG-M
PS-RS-01	438524	6363325	90/180	DS-PS
PS-RS-02	438471	6363027	90/180	DS-PS
PS-RS-03	438631	6362760	90/180	DS-PS
SP-RS-01	435963	6363570	90/180	LG-S,SP
SP-RS-02	436660	6363308	90/180	LG-S,SP
SP-RS-03	435865	6362951	90/180	LG-S,SP
SP-RS-04	436911	6362749	90/180	LG-S,SP
SP-RS-05	437352	6363649	90/180	LG-S,SP
SP-RS-06	438008	6362866	90/180	LG-S,SP
SP-RS-07	438245	6363663	90/180	LG-S,SP
SP-RS-08	439036	6363220	90/180	LG-S,SP
SP-RS-09	440064	6362838	90/180	LG-S,SP
SP-RS-10	440351	6363471	90/180	LG-S,SP
SP-RS-11	436187	6362915	90/180	SG-S,SP
SP-RS-12	440581	6363308	90/180	SG-S,SP
SP-RS-13	440481	6363525	90/180	SG-S,SP
SP-RS-14	437712	6362723	90/180	DS-S,SP

## Appendix D: Nursery Row Transect Locations

Note: All GPS locations are in GDA94, Zone 50

Nursery Row Number	LMU	Seed Mix Zone	0 m Star Picket		50 m Star Picket	
			Easting (m E)	Northing (m N)	Easting (m E)	Northing (m N)
NR-01	S,SP	LG-S,SP	436143	6363390	436165	6363346
NR-02	S,SP	LG-S,SP	437484	6363658	437513	6363699
NR-03	S,SP	SG-S,SP	439501	6363169	439475	6363212
NR-04	S,SP	LG-S,SP	435894	6363064	435860	6363103
NR-05	S,SP	SG-S,SP	440381	6363328	440401	6363286
NR-06	M	CL-M	440525	6362884	440478	6362888
NR-07	M	CL-M	440601	6362697	440597	6362745
NR-08	M	CL-M	440691	6362796	440664	6362841
NR-09	M	CL-M	440809	6363152	440769	6363118
NR-10	M	CL-M	440962	6363075	440982	6363123
NR-11	PS	DS-PS	438466	6362973	438419	6362994
NR-12	PS	DS-PS	438504	6363295	438491	6363345
NR-13	PS	DS-PS	438617	6363342	438574	6363368

## **Appendix E: Photo Point Locations**

Note: All GPS locations are in GDA94, Zone 50

Photo Point Number	Established by	Easting (m E)	Northing (m N)	Seed Mix Zone
PP01	GA	439426	6362930	LG-S,SP
PP02	GA	438430	6363418	LG-S,SP
PP03	GA	436768	6363471	LG-S,SP
PP04	GA	440713	6363299	LG-S,SP
PP05	GA	440414	6362677	CL-M
PP06	GA	436805	6362676	LG-S,SP
PP07	GA	436075	6362740	SG-S,SP
PP08	GA	436084	6363536	LG-S,SP
PP09	GA	436802	6363706	LG-S,SP
PP10	GA	438087	6363068	LG-S,SP
PP11	Woodman Environmental	435941	6363125	Gastrolobium thicket
PP12	Woodman Environmental	437178	6363281	Gastrolobium thicket
PP13	Woodman Environmental	438438	6362699	Gastrolobium thicket

## **Appendix F: Walk-Through Transect Locations**

Note: All GPS locations are in GDA94, Zone 50

Transect Number	N Star Picket		S Star Picket	
	Easting (m E)	Northing (m N)	Easting (m E)	Northing (m N)
T-01	436002	6363742	435999	6362647
T-02	437181	6363735	437179	6362652
T-03	437995	6363732	437980	6362660
T-04	438381	6363731	438384	6362666
T-05	438768	6363636	438766	6362659
T-06	439290	6363413	439293	6362664
T-07	439886	6363250	439887	6362682
T-08	440355	6363547	440356	6362685

**Appendix G: Conservation Codes for Western Australian Flora and Fauna  
(DBCA 2019)**



Threatened, Extinct and Specially Protected fauna or flora<sup>1</sup> are species<sup>2</sup> which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

**The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.**

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

### **T Threatened species**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

**Threatened fauna** is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

**Threatened flora** is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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

### **CR Critically endangered species**

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

### **EN Endangered species**

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife*

Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.

## **VU Vulnerable species**

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

## **Extinct species**

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

## **EX Extinct species**

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

## **EW Extinct in the wild species**

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

## **Specially protected species**

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

### **MI Migratory species**

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

### **CD Species of special conservation interest (conservation dependent fauna)**

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

### **OS Other specially protected species**

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

### **P Priority species**

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

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

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

**Priority 1: Poorly-known species**

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

**Priority 2: Poorly-known species**

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

**Priority 3: Poorly-known species**

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

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

- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
- (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

- (c) (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Notes:

<sup>1</sup> The definition of flora includes algae, fungi and lichens

<sup>2</sup> Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

Last updated 3 January 2019.

## Appendix H: Remnant Vegetation Areas Species List

Note: '\*' indicates introduced taxa; '^' indicates taxa recorded opportunistically, i.e. not within a vegetation plot

**No family name**

Indeterminate sp.

**Amaranthaceae**

*Ptilotus drummondii* var. *drummondii*

*Ptilotus manglesii*

**Apiaceae**

*Daucus glochidiatus*

*Pentapeltis peltigera*

*Xanthosia atkinsoniana*

*Xanthosia candida*

*Xanthosia huegelii*

**Apocynaceae**

\**Gomphocarpus fruticosus*

**Araliaceae**

*Trachymene pilosa*

**Asparagaceae**

*Dichopogon capillipes*

*Lomandra brittanii*

*Lomandra caespitosa*

*Lomandra caespitosa/micrantha* subsp. *micrantha*

*Lomandra ?hermaphrodita*

*Lomandra micrantha* subsp. *micrantha*

*Lomandra ?odora*

*Lomandra preissii*

*Lomandra sonderi*

*Lomandra spartea*

*Lomandra ?suaveolens*

*Sowerbaea laxiflora*

?*Sowerbaea laxiflora*

*Thysanotus dichotomus*

*Thysanotus multiflorus*

*Thysanotus tenellus*

**Asteraceae**

\**Arctotheca calendula*  
*Blennospora drummondii*  
*Brachyscome pusilla*  
^\**Carduus pycnocephalus*  
*Gnephosis drummondii*  
*Hyalosperma cotula*  
\**Hypochaeris glabra*  
\**Hypochaeris radicata*  
*Lagenophora huegelii*  
*Milotia tenuifolia*  
*Podolepis gracilis*  
*Senecio multicaulis* subsp. *multicaulis*  
*Siloxerus filifolius*  
*Siloxerus humifusus*  
\**Sonchus ?oleraceus*  
*Trichocline spathulata*  
\**Ursinia anthemoides*

**Boryaceae**

*Borya laciniata*

**Brassicaceae**

^\**Raphanus raphanistrum*

**Campanulaceae**

*Isotoma hypocrateriformis*  
*Lobelia anceps*  
\**Monopsis debilis*  
*Wahlenbergia preissii*

**Caryophyllaceae**

\*?*Cerastium glomeratum*

**Casuarinaceae**

*Allocasuarina fraseriana*

**Celastraceae**

*Stackhousia pubescens*



**Centrolepidaceae***Aphelia cyperoides**Centrolepis aristata***Colchicaceae***Burchardia multiflora***Cyperaceae***Baumea juncea**Chorizandra enodis**Cyathochaeta avenacea**Isolepis marginata**Lepidosperma leptostachyum**Lepidosperma pubisquameum**Lepidosperma tetraquetrum**Mesomelaena tetragona**Schoenus bifidus**Schoenus clandestinus**Schoenus nanus**Schoenus plumosus**Schoenus* sp. South Coast (R. Davis 10249)*Tetraria octandra**Tetraria* sp. Blackwood River (A.R. Annels 3043) (P3)*Tetraria* sp. Jarrah Forest (R. Davis 7391)**Dilleniaceae***Hibbertia amplexicaulis**Hibbertia commutata**Hibbertia ?montana**Hibbertia pilosa**Hibbertia polystachya**Hibbertia silvestris***Droseraceae***Drosera gigantea**Drosera glanduligera**Drosera menziesii**Drosera micrantha**Drosera nitidula**Drosera scorpioides*

**Elaeocarpaceae**

*Tetratheca hirsuta* subsp. *viminea*

**Ericaceae**

*Astroloma ciliatum*

*Leucopogon nutans*

**Fabaceae**

*Acacia celastrifolia*

*Acacia drummondii* subsp. *drummondii*

*Acacia incurva*

*Acacia nervosa*

*Acacia preissiana*

*Acacia pulchella*

*Bossiaea eriocarpa*

*Bossiaea ornata*

*Bossiaea ?ornata*

*Chorizema cordatum*

*Daviesia angulata*

*Daviesia cordata*

*Gastrolobium calycinum*

*Gompholobium marginatum*

*Gompholobium polymorphum*

*Hovea chorizemifolia*

?*Hovea* sp.

*Kennedia coccinea* subsp. *coccinea*

*Labichea punctata*

\**Lotus subbiflorus*

\**Trifolium campestre*

\**Trifolium subterraneum*

**Gentianaceae**

\**Centaurium erythraea*

**Geraniaceae**

^\**Erodium botrys*

**Goodeniaceae**

*Dampiera alata*

*Dampiera linearis*

*Goodenia coerulea*

*Goodenia micrantha*

?*Goodenia katabudjar*

*Lechenaultia biloba*

*Scaevola calliptera*

**Haemodoraceae**

*Conostylis aculeata*

*Conostylis pusilla*

*Haemodorum discolor*

*Haemodorum simplex*

*Haemodorum spicatum*

*Haemodorum* sp.

**Haloragaceae**

*Gonocarpus cordiger*

**Hemerocallidaceae**

*Agrostocrinum hirsutum*

*Caesia micrantha*

?*Caesia micrantha*

*Dianella revoluta*

*Tricoryne elatior*

?*Tricoryne elatior*

*Tricoryne humilis*

**Iridaceae**

*Patersonia babianooides*

*Patersonia occidentalis*

?*Patersonia* sp.

\**Romulea rosea*

**Juncaceae**

\**Juncus acutus* subsp. *acutus*

\**Juncus capitatus*

^*Juncus pallidus*

*Juncus planifolius*

?*Juncus* sp.

**Juncaginaceae**

*Cycnogeton lineare*

**Lauraceae**

*Cassytha racemosa* forma *racemosa*

**Linaceae**

*Linum marginale*

**Loganiaceae**

*Phyllangium divergens*

**Lythraceae**

\**Lythrum hyssopifolia*

**Malvaceae**

*Lasiopetalum floribundum*

**Myrtaceae**

*Astartea scoparia*

*Babingtonia camphorosmae*

*Corymbia calophylla*

*Eucalyptus marginata*

*Eucalyptus patens*

*Eucalyptus rudis*

*Eucalyptus wandoo* subsp. *wandoo*

*Hypocalymma angustifolium*

*Melaleuca incana* subsp. *incana*

*Melaleuca lateritia*

*Melaleuca raphiophylla*

*Melaleuca viminea* subsp. *viminea*

*Pericalymma ellipticum* var. *ellipticum*

*Taxandria linearifolia*

**Orchidaceae**

*Caladenia serotina*

*Caladenia* ?*serotina*

*Caladenia* sp.

\**Disa bracteata*

*Elythranthera* ?*emarginata*

*Microtis media* subsp. *media*

*Thelymitra antennifera*

*Thelymitra crinita*

*Thelymitra* ?*crinita*

*Thelymitra* ?*fuscolutea*

**Orobanchaceae**

- \**Bellardia trixago*
- \**Bellardia viscosa*
- \**Orobanche minor*
- \**Parentucellia latifolia*

**Oxalidaceae**

- Oxalis exilis*

**Philydraceae**

- Philydrella pygmaea* subsp. *pygmaea*

**Phyllanthaceae**

- Phyllanthus calycinus*
- Poranthera microphylla*

**Pittosporaceae**

- Billardiera fusiformis*
- Billardiera heterophylla*

**Poaceae**

- \**Aira caryophyllea* subsp. *caryophyllea*
- \**Aira cupaniana*
- Amphipogon amphipogonoides*
- Amphipogon debilis*
- Austrostipa elegantissima*
- Austrostipa semibarbata*
- Austrostipa variabilis*
- \**Avena barbata*
- \**Brachypodium distachyon*
- \**Briza maxima*
- \**Briza minor*
- \**Bromus diandrus*
- \**Bromus hordeaceus*
- \**Bromus madritensis*
- \**Cynosurus echinatus*
- Deyeuxia quadriseta*
- Dichelachne crinita*
- ^\**Ehrharta calycina*
- \**Ehrharta longiflora*
- \**Lolium rigidum*
- Microlaena stipoides*
- Neurachne alopecuroidea*

\**Pentameris airoides*  
*Poa homomalla*  
*Polypogon tenellus*  
*Rytidosperma pilosum*  
*Rytidosperma setaceum*  
?*Rytidosperma* sp.  
*Tetrarrhena laevis*  
\**Vulpia muralis/myuros*

#### **Polygalaceae**

*Comesperma calymega*  
*Comesperma virgatum*

#### **Polygonaceae**

^\**Rumex pulcher* subsp. *pulcher*

#### **Primulaceae**

\**Lysimachia arvensis*  
*Samolus junceus*

#### **Proteaceae**

*Banksia dallanneyi* var. *dallanneyi*  
*Banksia grandis*  
*Banksia sessilis*  
*Grevillea bipinnatifida*  
*Hakea lissocarpha*  
*Hakea prostrata*  
*Persoonia longifolia*

#### **Ranunculaceae**

*Clematis pubescens*

#### **Restionaceae**

*Desmocladus asper*  
*Desmocladus fasciculatus*  
*Hypolaena exsulca*  
*Leptocarpus kraussii*  
*Lepyrodia muiirii*

#### **Rhamnaceae**

*Trymalium ledifolium* var. *rosmarinifolium*

**Rubiaceae**

\**Galium murale*

*Opercularia apiciflora*

*Opercularia echinocephala*

*Opercularia vaginata*

**Rutaceae**

*Boronia crenulata* subsp. *viminea*

*Boronia fastigiata*

**Stylidiaceae**

*Levenhookia pusilla*

*Levenhookia stipitata*

*Stylidium affine*

*Stylidium androsaceum*

*Stylidium calcaratum*

*Stylidium ciliatum*

*Stylidium crassifolium*

*Stylidium inundatum*

*Stylidium pulchellum*

*Stylidium uniflorum* subsp. *uniflorum*

**Thymelaeaceae**

*Pimelea sylvestris*

**Typhaceae**

^*Typha orientalis*

**Violaceae**

*Hybanthus floribundus* subsp. *floribundus*

**Xanthorrhoeaceae**

*Chamaescilla corymbosa* var. *corymbosa*

*Xanthorrhoea preissii*

**Zamiaceae**

*Macrozamia riedlei*

## Appendix I: Remnant Vegetation Areas VU by Species Matrix



Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Acacia celastrifolia</i>			X					
<i>Acacia drummondii</i> subsp. <i>drummondii</i>				X				
<i>Acacia incurva</i>			X					
<i>Acacia nervosa</i>			X		X		X	
<i>Acacia preissiana</i>								X
<i>Acacia pulchella</i>						X		
<i>Agrostocrinum hirsutum</i>					X	X	X	X
* <i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>		X	X			X		X
* <i>Aira cupaniana</i>				X	X	X	X	X
<i>Allocasuarina fraseriana</i>				X				X
<i>Amphipogon amphipogonoides</i>							X	X
<i>Amphipogon debilis</i>		X	X					
<i>Aphelia cyperoides</i>			X					
* <i>Arctotheca calendula</i>							X	
<i>Astartea scoparia</i>	X							
<i>Astroloma ciliatum</i>						X	X	X
<i>Austrostipa elegantissima</i>				X				
<i>Austrostipa semibarbata</i>		X	X	X	X	X	X	X
<i>Austrostipa variabilis</i>					X			X
* <i>Avena barbata</i>		X		X	X		X	
<i>Babingtonia camphorosmae</i>						X		
<i>Banksia dallanneyi</i> var. <i>dallanneyi</i>			X	X		X	X	X
<i>Banksia grandis</i>							X	X
<i>Banksia sessilis</i>							X	
<i>Baumea juncea</i>	X							
* <i>Bellardia trixago</i>						X		
* <i>Bellardia viscosa</i>		X						

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Billardiera fusiformis</i>			X					
<i>Billardiera heterophylla</i>						X		
<i>Blennospora drummondii</i>		X	X					
<i>Boronia crenulata</i> subsp. <i>viminea</i>						X		
<i>Boronia fastigiata</i>						X	X	X
<i>Borya laciniata</i>		X	X					
<i>Bossiaea eriocarpa</i>						X		
<i>Bossiaea ornata</i>				X		X	X	X
<i>Bossiaea ?ornata</i>						X		
* <i>Brachypodium distachyon</i>					X	X	X	X
<i>Brachyscome pusilla</i>		X						
* <i>Briza maxima</i>		X	X			X	X	X
* <i>Briza minor</i>		X	X	X	X	X	X	X
* <i>Bromus diandrus</i>					X		X	
* <i>Bromus hordeaceus</i>							X	
* <i>Bromus madritensis</i>					X		X	
<i>Burchardia multiflora</i>			X					
? <i>Caesia micrantha</i>		X						
<i>Caesia micrantha</i>		X	X	X	X	X	X	X
<i>Caladenia serotina</i>			X					
<i>Caladenia ?serotina</i>		X						
<i>Caladenia</i> sp.						X		
* <i>Carduus pycnocephalus</i>				X				
<i>Cassytha racemosa</i> forma <i>racemosa</i>	X							
* <i>Centaurium erythraea</i>			X			X	X	X
<i>Centrolepis aristata</i>		X	X					
*? <i>Cerastium glomeratum</i>			X					

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>		X	X			X	X	X
<i>Chorizandra enodis</i>		X						
<i>Chorizema cordatum</i>						X		
<i>Clematis pubescens</i>						X	X	X
<i>Comesperma calymega</i>						X	X	X
<i>Comesperma virgatum</i>		X						X
<i>Conostylis aculeata</i>								X
<i>Conostylis pusilla</i>							X	
<i>Corymbia calophylla</i>				X	X	X	X	X
<i>Cyathochaeta avenacea</i>			X					
<i>Cycnogeton lineare</i>	X							
* <i>Cynosurus echinatus</i>					X		X	
<i>Dampiera alata</i>		X	X			X		
<i>Dampiera linearis</i>						X		
<i>Daucus glochidiatus</i>								X
<i>Daviesia angulata</i>							X	
<i>Daviesia cordata</i>						X		
<i>Desmocladus asper</i>		X	X					
<i>Desmocladus fasciculatus</i>			X			X		
<i>Deyeuxia quadriseta</i>	X							
<i>Dianella revoluta</i>								X
<i>Dichelachne crinita</i>							X	X
<i>Dichopogon capillipes</i>					X	X		X
* <i>Disa bracteata</i>			X		X		X	X
<i>Drosera gigantea</i>		X	X					
<i>Drosera glanduligera</i>		X	X					
<i>Drosera menziesii</i>		X	X					

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Drosera micrantha</i>			X					
<i>Drosera nitidula</i>			X					
<i>Drosera scorpioides</i>							X	X
* <i>Ehrharta calycina</i>					X			
* <i>Ehrharta longiflora</i>				X			X	
<i>Elythranthera ?emarginata</i>		X						
* <i>Erodium botrys</i>				X				
<i>Eucalyptus marginata</i>						X	X	X
<i>Eucalyptus patens</i>			X					
<i>Eucalyptus rudis</i>	X							
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>		X	X	X	X	X		
* <i>Galium murale</i>				X	X	X	X	
<i>Gastrolobium calycinum</i>			X		X			
<i>Gnephosis drummondii</i>			X					
* <i>Gomphocarpus fruticosus</i>							X	
<i>Gompholobium marginatum</i>			X		X	X	X	X
<i>Gompholobium polymorphum</i>						X		
<i>Gonocarpus cordiger</i>				X	X	X		
<i>Goodenia coerulea</i>			X					
<i>Goodenia micrantha</i>		X	X					
? <i>Goodenia katabudjar</i>							X	
<i>Grevillea bipinnatifida</i>			X					
<i>Haemodorum discolor</i>						X		
<i>Haemodorum simplex</i>		X	X					
<i>Haemodorum spicatum</i>			X					
<i>Haemodorum</i> sp.						X		
<i>Hakea lissocarpha</i>				X		X	X	

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Hakea prostrata</i>			X					
<i>Hibbertia amplexicaulis</i>						X	X	X
<i>Hibbertia commutata</i>		X	X	X	X	X	X	X
<i>Hibbertia ?montana</i>						X		
<i>Hibbertia pilosa</i>						X	X	X
<i>Hibbertia polystachya</i>						X		X
<i>Hibbertia silvestris</i>						X		X
<i>Hovea chorizemifolia</i>				X		X	X	X
? <i>Hovea</i> sp.							X	X
<i>Hyalosperma cotula</i>		X				X	X	X
<i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			X					
<i>Hypocalymma angustifolium</i>						X		
* <i>Hypochaeris glabra</i>		X	X	X		X	X	X
* <i>Hypochaeris radicata</i>			X					X
<i>Hypolaena exsulca</i>			X					
Indeterminate sp.						X		
<i>Isolepis marginata</i>							X	
<i>Isotoma hypocrateriformis</i>								X
* <i>Juncus acutus</i> subsp. <i>acutus</i>	X							
* <i>Juncus capitatus</i>			X					
<i>Juncus pallidus</i>			X					
<i>Juncus planifolius</i>	X							
? <i>Juncus</i> sp.	X							
<i>Kennedia coccinea</i> subsp. <i>coccinea</i>							X	
<i>Labichea punctata</i>				X				
<i>Lagenophora huegelii</i>		X	X	X		X	X	X
<i>Lasiopetalum floribundum</i>						X	X	X

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Lechenaultia biloba</i>			X			X	X	X
<i>Lepidosperma leptostachyum</i>				X	X	X	X	X
<i>Lepidosperma pubisquameum</i>			X			X	X	
<i>Lepidosperma tetraquetrum</i>	X							
<i>Leptocarpus kraussii</i>			X					
<i>Lepyrodia muirii</i>			X					
<i>Leucopogon nutans</i>			X			X	X	X
<i>Levenhookia pusilla</i>						X	X	X
<i>Levenhookia stipitata</i>		X	X					
<i>Linum marginale</i>						X		
<i>Lobelia anceps</i>	X		X					
* <i>Lolium rigidum</i>			X		X		X	
<i>Lomandra brittanii</i>				X		X	X	X
<i>Lomandra caespitosa</i>				X		X	X	X
<i>Lomandra caespitosa/micrantha subsp. micrantha</i>							X	X
<i>Lomandra ?hermaphrodita</i>						X		
<i>Lomandra micrantha subsp. micrantha</i>		X	X	X		X	X	
<i>Lomandra ?odora</i>		X	X	X	X		X	X
<i>Lomandra preissii</i>								X
<i>Lomandra sonderi</i>							X	X
<i>Lomandra spartea</i>				X		X	X	X
<i>Lomandra ?suaveolens</i>			X					
* <i>Lotus subbiflorus</i>		X	X	X		X	X	
* <i>Lysimachia arvensis</i>		X	X	X		X	X	X
* <i>Lythrum hyssopifolia</i>							X	
<i>Macrozamia riedlei</i>				X		X	X	X
<i>Melaleuca incana subsp. incana</i>	X							

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Melaleuca lateritia</i>		X						
<i>Melaleuca raphiophylla</i>	X							
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	X	X	X					
<i>Mesomelaena tetragona</i>			X					
<i>Microlaena stipoides</i>		X	X		X	X	X	X
<i>Microtis media</i> subsp. <i>media</i>			X					
<i>Millotia tenuifolia</i>						X		X
* <i>Monopsis debilis</i>							X	
<i>Neurachne alopecuroidea</i>		X	X	X	X	X	X	X
<i>Opercularia apiciflora</i>			X			X	X	X
<i>Opercularia echinocephala</i>						X	X	X
<i>Opercularia vaginata</i>		X				X		
* <i>Orobanche minor</i>								X
<i>Oxalis exilis</i>				X	X	X	X	X
* <i>Parentucellia latifolia</i>		X				X		
<i>Patersonia babianoidea</i>				X				
<i>Patersonia occidentalis</i>	X		X			X	X	
? <i>Patersonia</i> sp.							X	X
* <i>Pentameris airoides</i>			X					X
<i>Pentapeltis peltigera</i>				X		X	X	X
<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>					X			
<i>Persoonia longifolia</i>							X	
<i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>		X	X					
<i>Phyllangium divergens</i>		X	X				X	
<i>Phyllanthus calycinus</i>				X		X	X	X
<i>Pimelea sylvestris</i>							X	
<i>Poa homomalla</i>							X	

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Podolepis gracilis</i>		X	X			X		
<i>Polypogon tenellus</i>		X	X					X
<i>Poranthera microphylla</i>						X	X	X
<i>Ptilotus drummondii</i> var. <i>drummondii</i>								X
<i>Ptilotus manglesii</i>		X	X					
* <i>Raphanus raphanistrum</i>				X				
* <i>Romulea rosea</i>		X	X	X	X		X	X
* <i>Rumex pulcher</i> subsp. <i>pulcher</i>							X	
<i>Rytidosperma pilosum</i>			X					
<i>Rytidosperma setaceum</i>		X	X	X	X	X	X	X
? <i>Rytidosperma</i> sp.						X		X
<i>Samolus junceus</i>		X						
<i>Scaevola calliptera</i>						X	X	X
<i>Schoenus bifidus</i>		X						
<i>Schoenus clandestinus</i>			X					
<i>Schoenus nanus</i>						X		
<i>Schoenus plumosus</i>		X	X					
<i>Schoenus</i> sp. South Coast (R. Davis 10249)	X							
<i>Senecio multicaulis</i> subsp. <i>multicaulis</i>							X	
<i>Siloxerus filifolius</i>			X					
<i>Siloxerus humifusus</i>		X						
* <i>Sonchus</i> ? <i>oleraceus</i>	X							
<i>Sowerbaea laxiflora</i>		X						
? <i>Sowerbaea laxiflora</i>		X						
<i>Stackhousia pubescens</i>						X		X
<i>Stylidium affine</i>				X				
<i>Stylidium androsaceum</i>						X	X	X



Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Stylidium calcaratum</i>		X	X					
<i>Stylidium ciliatum</i>				X		X	X	X
<i>Stylidium crassifolium</i>		X	X					
<i>Stylidium inundatum</i>			X					
<i>Stylidium pulchellum</i>		X	X					
<i>Stylidium uniflorum</i> subsp. <i>uniflorum</i>		X	X			X		
<i>Taxandria linearifolia</i>	X	X						
<i>Tetraria octandra</i>			X	X		X	X	
<i>Tetraria</i> sp. Blackwood River (A.R. Annels 3043) (P3)	X							
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)			X	X		X	X	X
<i>Tetrarrhena laevis</i>				X		X	X	X
<i>Tetrateca hirsuta</i> subsp. <i>viminea</i>						X	X	X
<i>Thelymitra antennifera</i>		X	X					
<i>Thelymitra crinita</i>			X					
<i>Thelymitra</i> ? <i>crinita</i>							X	X
<i>Thelymitra</i> ? <i>fuscolutea</i>							X	
<i>Thysanotus dichotomus</i>			X					X
<i>Thysanotus multiflorus</i>								X
<i>Thysanotus tenellus</i>		X	X			X	X	X
<i>Trachymene pilosa</i>				X		X	X	X
<i>Trichocline spathulata</i>		X		X		X	X	X
<i>Tricoryne elatior</i>				X				
? <i>Tricoryne elatior</i>		X						
<i>Tricoryne humilis</i>		X	X					
* <i>Trifolium campestre</i>				X	X		X	
* <i>Trifolium subterraneum</i>							X	
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>					X	X	X	X

Taxon	Vegetation Unit							
	A1	AY	L	M	MG	R	S	SP
<i>Typha orientalis</i>					X			
* <i>Ursinia anthemoides</i>							X	X
* <i>Vulpia muralis/myuros</i>				X	X		X	X
<i>Wahlenbergia preissii</i>				X		X		
<i>Xanthorrhoea preissii</i>			X	X		X	X	
<i>Xanthosia atkinsoniana</i>								X
<i>Xanthosia candida</i>				X		X	X	
<i>Xanthosia huegelii</i>						X		
<b>Total taxa</b>	<b>19</b>	<b>64</b>	<b>94</b>	<b>53</b>	<b>35</b>	<b>100</b>	<b>104</b>	<b>92</b>
<b>Total native taxa</b>	<b>17</b>	<b>54</b>	<b>80</b>	<b>39</b>	<b>21</b>	<b>88</b>	<b>77</b>	<b>77</b>
<b>Total introduced taxa</b>	<b>2</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>27</b>	<b>15</b>

**Appendix J: Remnant Vegetation Areas Vegetation Plots by Species Matrix**

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Acacia celastrifolia</i>				X												
<i>Acacia drummondii</i> subsp. <i>drummondii</i>						X										
<i>Acacia incurva</i>					X											
<i>Acacia nervosa</i>					X		X				X					
<i>Acacia preissiana</i>														X		
<i>Acacia pulchella</i>								X	X							
<i>Agrostocrinum hirsutum</i>							X		X	X				X		
* <i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>			X	X				X								X
* <i>Aira cupaniana</i>						X	X		X		X	X	X		X	
<i>Allocasuarina fraseriana</i>						X								X		X
<i>Amphipogon amphipogonoides</i>										X				X		
<i>Amphipogon debilis</i>			X	X	X											
<i>Aphelia cyperoides</i>				X												
* <i>Arctotheca calendula</i>												X	X			
<i>Astartea scoparia</i>		X														
<i>Astroloma ciliatum</i>								X	X	X				X		
<i>Austrostipa elegantissima</i>						X										
<i>Austrostipa semibarbata</i>			X	X	X	X	X	X	X			X	X		X	X
<i>Austrostipa variabilis</i>							X								X	
* <i>Avena barbata</i>			X			X	X				X	X	X			
<i>Babingtonia camphorosmae</i>									X							
<i>Banksia dallanneyi</i> var. <i>dallanneyi</i>					X	X		X		X				X		
<i>Banksia grandis</i>										X				X		
<i>Banksia sessilis</i>										X						
<i>Baumea juncea</i>	X	X														
* <i>Bellardia trixago</i>								X	X							
* <i>Bellardia viscosa</i>			X													
<i>Billardiera fusiformis</i>					X											
<i>Billardiera heterophylla</i>								X								
<i>Blennospora drummondii</i>			X		X											
<i>Boronia crenulata</i> subsp. <i>viminea</i>								X								
<i>Boronia fastigiata</i>								X		X				X		
<i>Borya laciniata</i>			X		X											
<i>Bossiaea eriocarpa</i>								X								
<i>Bossiaea ornata</i>						X		X		X				X		X
<i>Bossiaea ?ornata</i>								X								

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>*Brachypodium distachyon</i>							X		X		X	X	X		X	X
<i>Brachyscome pusilla</i>			X													
<i>*Briza maxima</i>			X	X	X			X	X	X				X	X	
<i>*Briza minor</i>			X	X	X	X	X	X	X	X					X	X
<i>*Bromus diandrus</i>							X				X	X				
<i>*Bromus hordeaceus</i>													X			
<i>*Bromus madritensis</i>							X				X	X	X			
<i>Burchardia multiflora</i>					X											
? <i>Caesia micrantha</i>			X													
<i>Caesia micrantha</i>			X		X	X	X	X	X			X				X
<i>Caladenia serotina</i>					X											
<i>Caladenia ?serotina</i>			X													
<i>Caladenia sp.</i>								X								
<i>Cassytha racemosa</i> forma <i>racemosa</i>		X														
<i>*Centaurium erythraea</i>					X				X		X				X	
<i>Centrolepis aristata</i>			X	X	X											
*? <i>Cerastium glomeratum</i>					X											
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>			X	X				X	X			X			X	X
<i>Chorizandra enodis</i>			X													
<i>Chorizema cordatum</i>								X								
<i>Clematis pubescens</i>								X		X				X		X
<i>Comesperma calymega</i>									X			X	X		X	
<i>Comesperma virgatum</i>			X											X		
<i>Conostylis aculeata</i>																X
<i>Conostylis pusilla</i>													X			
<i>Corymbia calophylla</i>						X	X	X	X	X	X	X	X	X	X	X
<i>Cyathochaeta avenacea</i>					X											
<i>Cycnogeton lineare</i>	X															
<i>*Cynosurus echinatus</i>							X				X					
<i>Dampiera alata</i>			X		X			X								
<i>Dampiera linearis</i>								X								
<i>Daucus glochidiatus</i>																X
<i>Daviesia angulata</i>												X				
<i>Daviesia cordata</i>								X								
<i>Desmocladus asper</i>			X		X											
<i>Desmocladus fasciculatus</i>					X				X							

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Deyeuxia quadriseta</i>		X														
<i>Dianella revoluta</i>														X		
<i>Dichelachne crinita</i>										X				X		
<i>Dichopogon capillipes</i>							X	X							X	
* <i>Disa bracteata</i>				X			X				X	X	X		X	
<i>Drosera gigantea</i>			X	X												
<i>Drosera glanduligera</i>			X	X												
<i>Drosera menziesii</i>			X	X	X											
<i>Drosera micrantha</i>					X											
<i>Drosera nitidula</i>					X											
<i>Drosera scorpioides</i>										X				X		
* <i>Ehrharta longiflora</i>						X						X	X			
<i>Elythranthera ?emarginata</i>			X													
<i>Eucalyptus marginata</i>								X		X		X	X	X	X	X
<i>Eucalyptus patens</i>					X											
<i>Eucalyptus rudis</i>		X														
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>			X	X	X	X	X		X							
* <i>Galium murale</i>						X	X		X			X	X			
<i>Gastrolobium calycinum</i>					X		X									
<i>Gnephosis drummondii</i>					X											
* <i>Gomphocarpus fruticosus</i>											X					
<i>Gompholobium marginatum</i>					X		X	X	X	X					X	
<i>Gompholobium polymorphum</i>								X								
<i>Gonocarpus cordiger</i>						X	X	X	X							
<i>Goodenia coerulea</i>				X												
<i>Goodenia micrantha</i>			X	X												
? <i>Goodenia katabudjar</i>										X						
<i>Grevillea bipinnatifida</i>					X											
<i>Haemodorum discolor</i>								X								
<i>Haemodorum simplex</i>			X	X	X											
<i>Haemodorum spicatum</i>					X											
<i>Haemodorum</i> sp.								X								
<i>Hakea lissocarpha</i>						X		X	X	X		X				
<i>Hakea prostrata</i>				X	X											
<i>Hibbertia amplexicaulis</i>								X	X	X		X		X	X	X
<i>Hibbertia commutata</i>			X	X	X	X	X		X			X	X		X	X

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Hibbertia ?montana</i>								X								
<i>Hibbertia pilosa</i>								X	X	X				X	X	
<i>Hibbertia polystachya</i>								X								X
<i>Hibbertia silvestris</i>								X								X
<i>Hovea chorizemifolia</i>						X			X	X		X		X		
? <i>Hovea</i> sp.										X				X		
<i>Hyalosperma cotula</i>			X					X		X					X	
<i>Hybanthus floribundus</i> subsp. <i>floribundus</i>					X											
<i>Hypocalymma angustifolium</i>								X	X							
* <i>Hypochaeris glabra</i>			X	X	X	X			X	X	X	X	X	X	X	X
* <i>Hypochaeris radicata</i>				X												X
<i>Hypolaena exsulca</i>					X											
Indeterminate sp.								X								
<i>Isolepis marginata</i>											X	X				
<i>Isotoma hypocrateriformis</i>														X		
* <i>Juncus acutus</i> subsp. <i>acutus</i>	X															
* <i>Juncus capitatus</i>				X												
<i>Juncus planifolius</i>	X															
? <i>Juncus</i> sp.		X														
<i>Kennedia coccinea</i> subsp. <i>coccinea</i>											X	X				
<i>Labichea punctata</i>						X										
<i>Lagenophora huegelii</i>			X	X	X	X		X	X	X				X	X	
<i>Lasiopetalum floribundum</i>								X		X				X		
<i>Lechenaultia biloba</i>					X			X	X	X				X		
<i>Lepidosperma leptostachyum</i>						X	X	X	X	X		X		X	X	X
<i>Lepidosperma pubisquameum</i>					X				X			X				
<i>Lepidosperma tetraquetrum</i>		X														
<i>Leptocarpus kraussii</i>					X											
<i>Lepyrodia muirii</i>					X											
<i>Leucopogon nutans</i>				X				X				X		X		
<i>Levenhookia pusilla</i>									X	X	X	X		X	X	X
<i>Levenhookia stipitata</i>			X	X												
<i>Linum marginale</i>								X								
<i>Lobelia anceps</i>	X				X											
* <i>Lolium rigidum</i>					X		X				X	X	X			
<i>Lomandra brittanii</i>						X			X	X		X	X	X		X

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Lomandra caespitosa</i>						X		X	X			X				X
<i>Lomandra caespitosa/micrantha</i> subsp. <i>micrantha</i>										X				X		
<i>Lomandra ?hermaphrodita</i>								X								
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>			X	X		X		X	X			X				
<i>Lomandra ?odora</i>			X	X		X	X					X				X
<i>Lomandra preissii</i>														X		
<i>Lomandra sonderi</i>										X				X		
<i>Lomandra spartea</i>						X			X	X				X		
<i>Lomandra ?suaveolens</i>				X												
* <i>Lotus subbiflorus</i>			X		X	X			X		X	X	X			
* <i>Lysimachia arvensis</i>			X	X		X		X	X		X	X	X		X	X
* <i>Lythrum hyssopifolia</i>													X			
<i>Macrozamia riedlei</i>						X		X		X	X			X	X	
<i>Melaleuca incana</i> subsp. <i>incana</i>		X														
<i>Melaleuca lateritia</i>			X													
<i>Melaleuca raphiophylla</i>		X														
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	X		X		X											
<i>Mesomelaena tetragona</i>					X											
<i>Microlaena stipoides</i>			X	X	X		X	X	X		X	X	X		X	X
<i>Microtis media</i> subsp. <i>media</i>					X											
<i>Millotia tenuifolia</i>									X						X	
* <i>Monopsis debilis</i>													X			
<i>Neurachne alopecuroidea</i>			X		X	X	X		X			X	X			X
<i>Opercularia apiciflora</i>					X			X	X	X				X		
<i>Opercularia echinocephala</i>								X		X				X		
<i>Opercularia vaginata</i>			X						X							
* <i>Orobanche minor</i>																X
<i>Oxalis exilis</i>						X	X		X	X			X		X	X
* <i>Parentucellia latifolia</i>			X						X							
<i>Patersonia babianoidea</i>						X										
<i>Patersonia occidentalis</i>		X			X			X		X						
? <i>Patersonia</i> sp.										X				X		
* <i>Pentameris airoides</i>					X									X		
<i>Pentapeltis peltigera</i>						X		X		X				X		
<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>							X									
<i>Persoonia longifolia</i>										X						



Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>			X		X											
<i>Phyllangium divergens</i>			X	X								X				
<i>Phyllanthus calycinus</i>						X		X	X	X		X		X		
<i>Pimelea sylvestris</i>										X						
<i>Poa homomalla</i>										X						
<i>Podolepis gracilis</i>			X		X			X								
<i>Polypogon tenellus</i>			X	X	X											X
<i>Poranthera microphylla</i>									X			X			X	
<i>Ptilotus drummondii</i> var. <i>drummondii</i>																X
<i>Ptilotus manglesii</i>			X		X											
* <i>Romulea rosea</i>			X	X		X	X				X	X	X		X	
<i>Rytidosperma pilosum</i>				X												
<i>Rytidosperma setaceum</i>			X	X		X	X		X	X		X	X	X	X	
? <i>Rytidosperma</i> sp.								X								X
<i>Samolus junceus</i>			X													
<i>Scaevola calliptera</i>								X		X				X		
<i>Schoenus bifidus</i>			X													
<i>Schoenus clandestinus</i>				X												
<i>Schoenus nanus</i>									X							
<i>Schoenus plumosus</i>			X		X											
<i>Schoenus</i> sp. South Coast (R. Davis 10249)		X														
<i>Senecio multicaulis</i> subsp. <i>multicaulis</i>										X						
<i>Siloxerus filifolius</i>					X											
<i>Siloxerus humifusus</i>			X													
* <i>Sonchus</i> ? <i>oleraceus</i>	X															
<i>Sowerbaea laxiflora</i>			X													
? <i>Sowerbaea laxiflora</i>			X													
<i>Stackhousia pubescens</i>								X							X	
<i>Stylidium affine</i>						X										
<i>Stylidium androsaceum</i>								X		X				X		
<i>Stylidium calcaratum</i>			X		X											
<i>Stylidium ciliatum</i>						X		X	X	X				X		
<i>Stylidium crassifolium</i>			X		X											
<i>Stylidium inundatum</i>					X											
<i>Stylidium pulchellum</i>			X	X												
<i>Stylidium uniflorum</i> subsp. <i>uniflorum</i>			X		X				X							

Taxon	Vegetation Unit															
	A1		AY	L		M	MG	R		S				SP		
	A1-RM-01	A1-RM-02	AY-RM-01	L-RM-01	L-RM-02	M-RM-01	MG-RM-01	R-RM-01	R-RM-02	S-RM-01	S-RM-02	S-RM-03	S-RM-04	SP-RM-01	SP-RM-02	SP-RM-03
<i>Taxandria linearifolia</i>		X														
<i>Tetraria octandra</i>					X	X			X	X		X				
<i>Tetraria</i> sp. Blackwood River (A.R. Annels 3043) (P3)		X														
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)					X	X		X	X	X		X		X	X	X
<i>Tetrarrhena laevis</i>						X		X	X	X		X		X		
<i>Tetrateuca hirsuta</i> subsp. <i>viminea</i>								X		X				X		
<i>Thelymitra antennifera</i>			X	X												
<i>Thelymitra crinita</i>					X											
<i>Thelymitra</i> ? <i>crinita</i>										X				X		
<i>Thelymitra</i> ? <i>fuscolutea</i>											X					
<i>Thysanotus dichotomus</i>					X									X		
<i>Thysanotus multiflorus</i>														X		
<i>Thysanotus tenellus</i>			X	X	X			X				X				X
<i>Trachymene pilosa</i>						X		X		X				X		X
<i>Trichocline spathulata</i>			X			X		X		X				X		
<i>Tricoryne elatior</i>						X										
? <i>Tricoryne elatior</i>			X													
<i>Tricoryne humilis</i>			X	X	X											
* <i>Trifolium campestre</i>						X	X				X	X	X			
* <i>Trifolium subterraneum</i>											X	X	X			
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>							X	X	X				X	X	X	X
* <i>Ursinia anthemoides</i>												X			X	X
* <i>Vulpia muralis/myuros</i>						X	X				X	X	X		X	
<i>Wahlenbergia preissii</i>						X			X							
<i>Xanthorrhoea preissii</i>					X	X		X	X	X						
<i>Xanthosia atkinsoniana</i>														X		
<i>Xanthosia candida</i>						X		X		X						
<i>Xanthosia huegelii</i>								X								

## Appendix K: Remnant Vegetation Areas Vegetation Plots Summaries

**Plant Density**

VU	Plot	Plant Density (plants/m <sup>2</sup> )	Standard Deviation	Mean Plant Density (plants/m <sup>2</sup> )	Mean Standard Deviation
A1	A1-RM-01	5	7	5	5
	A1-RM-02	5	3		
AY	AY-RM-01	6	5	6	5
L	L-RM-01	2	2	30	15
	L-RM-02	59	27		
M	M-RM-01	9	5	9	5
MG	MG-RM-01	15	22	15	22
R	R-RM-01	38	12	44	27
	R-RM-02	51	43		
S	S-RM-01	58	36	18	13
	S-RM-02	2	3		
	S-RM-03	9	6		
	S-RM-04	4	7		
SP	SP-RM-01	35	13	25	12
	SP-RM-02	37	22		
	SP-RM-03	2	2		

**Live Foliage Cover**

VU	Plot	Live Foliage Cover (%)	Standard Deviation	Mean Live Foliage Cover (%)	Mean Standard Deviation
A1	A1-RM-01	84.1	16.7	91.3	9.8
	A1-RM-02	98.5	2.9		
AY	AY-RM-01	48.1	26.6	48.1	26.6
L	L-RM-01	43.4	35.1	52.2	32.0
	L-RM-02	61.0	29.0		
M	M-RM-01	44.1	26.9	44.1	26.9
MG	MG-RM-01	56.8	24.2	56.8	24.2
R	R-RM-01	63.5	27.5	53.5	22.5
	R-RM-02	43.5	17.5		
S	S-RM-01	75.3	18.5	48.1	23.3
	S-RM-02	42.1	22.1		
	S-RM-03	33.5	25.4		
	S-RM-04	41.6	27.1		
SP	SP-RM-01	61.8	35.7	47.1	29.7
	SP-RM-02	27.6	20.8		
	SP-RM-03	51.9	32.8		

**Species Richness (Native Taxa Only)**

VU	Plot	Species Richness	Mean Species Richness
A1	A1-RM-01	5	9
	A1-RM-02	12	
AY	AY-RM-01	51	51
L	L-RM-01	27	42
	L-RM-02	56	
M	M-RM-01	39	39
MG	MG-RM-01	20	20
R	R-RM-01	64	55
	R-RM-02	46	
S	S-RM-01	54	26
	S-RM-02	8	
	S-RM-03	31	
	S-RM-04	12	
SP	SP-RM-01	50	34
	SP-RM-02	24	
	SP-RM-03	27	

**Tree Density**

VU	Plot	Tree Density (trees/m <sup>2</sup> )	Tree Density (trees/ha)	Mean Tree Density (trees/m <sup>2</sup> )	Mean Tree Density (trees/ha)
A1	A1-RM-01	0	0	37	925
	A1-RM-02	74	1850		
AY	AY-RM-01	10	250	10	250
L	L-RM-01	8	200	6	150
	L-RM-02	4	100		
M	M-RM-01	10	250	10	250
MG	MG-RM-01	22	550	22	550
R	R-RM-01	59	1475	35	875
	R-RM-02	11	275		
S	S-RM-01	98	2450	51	1275
	S-RM-02	77	1925		
	S-RM-03	17	425		
	S-RM-04	12	300		
SP	SP-RM-01	55	1375	45	1117
	SP-RM-02	54	1350		
	SP-RM-03	625	625		

## Tree Height Class: &lt; 0.5 m

VU	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus ruais</i>	<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	<i>Melaleuca raphiophylla</i>	<i>Persoonia longifolia</i>
A1	A1-RM-01									
	A1-RM-02						4		70	
AY	AY-RM-01							10		
L	L-RM-01							7		
	L-RM-02					2		2		
M	M-RM-01			3				5		
MG	MG-RM-01			4				5		
R	R-RM-01			14	18					
	R-RM-02			3				5		
S	S-RM-01	8	3	5	12					
	S-RM-02			2	1					
	S-RM-03	16		3	6					
	S-RM-04		1	20	33					1
SP	SP-RM-01			54						
	SP-RM-02			1	12					
	SP-RM-03			3	8					

## Tree Height Class: 0.5 m – 1.3 m

VU	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus ruais</i>	<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	<i>Melaleuca raphiophylla</i>	<i>Persoonia longifolia</i>
A1	A1-RM-01									
	A1-RM-02									
AY	AY-RM-01									
L	L-RM-01									
	L-RM-02									
M	M-RM-01									
MG	MG-RM-01									
R	R-RM-01			4	5					
	R-RM-02									
S	S-RM-01			1						
	S-RM-02									
	S-RM-03									
	S-RM-04			11	3					
SP	SP-RM-01									
	SP-RM-02									
	SP-RM-03									

## Tree Height Class: &gt; 1.3 m

VU	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus ruais</i>	<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	<i>Melaleuca raphiophylla</i>	<i>Persoonia longifolia</i>
A1	A1-RM-01									
	A1-RM-02						4		70	
AY	AY-RM-01							10		
L	L-RM-01							7		
	L-RM-02					2		2		
M	M-RM-01			3				5		
MG	MG-RM-01			4				5		
R	R-RM-01			14	18					
	R-RM-02			3				5		
S	S-RM-01	8	3	5	12					
	S-RM-02			2	1					
	S-RM-03	16		3	6					
	S-RM-04		1	20	33					1
SP	SP-RM-01			54						
	SP-RM-02			1	12					
	SP-RM-03			3	8					



## Appendix L: Paddock Restoration Area Species List

Note: '\*' indicates introduced taxa;

'^' indicates taxa recorded opportunistically, i.e. not within a vegetation plot.

### **Amaranthaceae**

*Ptilotus polystachyus*

### **Apocynaceae**

\**Gomphocarpus fruticosus*

### **Asparagaceae**

*Lomandra ?micrantha* subsp. *micrantha*

### **Asteraceae**

\**Arctotheca calendula*

*Asteridea pulverulenta*

\**Conyza bonariensis*

\**Conyza ?bonariensis*

\**Dittrichia graveolens*

*Hyalosperma cotula*

\**Hypochaeris glabra*

*Podolepis aristata* subsp. *aristata*

*Podolepis gracilis*

*Podolepis lessonii*

*Pseudognaphalium luteoalbum*

*Rhodanthe citrina*

*Senecio quadridentatus*

\**Sonchus asper*

\**Sonchus oleraceus*

\**Symphytichum squamatum*

\**Ursinia anthemoides*

\**Vellereophyton dealbatum*

### **Brassicaceae**

\**Raphanus raphanistrum*

### **Campanulaceae**

*Isotoma hypocrateriformis*

*Lobelia anceps*

\**Monopsis debilis*

*Wahlenbergia preissii*

### **Caryophyllaceae**

\**Petrorhagia dubia*

\**Polycarpon tetraphyllum*

### **Casuarinaceae**

*Allocasuarina fraseriana*

*Allocasuarina huegeliana*

*Allocasuarina humilis*

### **Centrolepidaceae**

*Aphelia cyperoides*

*Centrolepis aristata*

*Centrolepis drummondiana*

### **Chenopodiaceae**

*Dysphania pumilio*

### **Cucurbitaceae**

\**Citrullus amarus*

\**Cucumis myriocarpus*

### **Cyperaceae**

*Baumea acuta*

\**Cyperus tenellus*

*Isolepis marginata*

*Lepidosperma ?apricola*

*Lepidosperma ?squamatum*

*Lepidosperma tenue*

*Lepidosperma sp.*

*Schoenus nanus*

*Schoenus odontocarpus*

*Tetraria capillaris*

*Tetraria octandra*

### **Dilleniaceae**

*Hibbertia amplexicaulis*

### **Droseraceae**

*Drosera glanduligera*

### **Ericaceae**

*Astroloma sp.*

**Fabaceae**

*Acacia alata*  
*Acacia celastrifolia*  
*Acacia dentifera*  
*Acacia drummondii* subsp. *candolleana*  
*Acacia drummondii* subsp. *drummondii*  
*Acacia drummondii* subsp. *elegans*  
*Acacia extensa*  
? *Acacia extensa*  
*Acacia microbotrya*  
*Acacia nervosa*  
*Acacia pulchella* var. *glaberrima*  
? *Acacia pulchella* var. *glaberrima*  
*Acacia saligna*  
*Acacia urophylla*  
*Aotus procumbens*  
*Bossiaea eriocarpa*  
*Bossiaea ornata*  
*Bossiaea pulchella*  
*Daviesia cordata*  
*Daviesia decurrens*  
*Daviesia rhombifolia*  
*Gastrolobium bilobum*  
*Gastrolobium calycinum*  
*Gastrolobium spinosum*  
*Gompholobium marginatum*  
*Gompholobium preissii*  
*Hovea trisperma*  
*Jacksonia alata*  
*Kennedia coccinea*  
*Kennedia prostrata*  
\* *Lotus subbiflorus*  
\* *Lupinus angustifolius*  
*Paraserianthes lophantha*  
*Sphaerolobium medium*  
\* *Trifolium arvense* var. *arvense*  
\* *Trifolium campestre*  
\* *Trifolium fragiferum*  
\* *Trifolium hirtum*  
\* *Trifolium subterraneum*  
*Viminaria juncea*

**Gentianaceae**

\* *Centaurium erythraea*

**Geraniaceae**

\**Erodium botrys*  
*Erodium cygnorum*

**Goodeniaceae**

?*Dampiera* sp.  
*Goodenia micrantha*  
*Lechenaultia biloba*  
?*Scaevola calliptera*  
*Velleia trinervis*

**Haemodoraceae**

*Anigozanthos manglesii*  
?*Anigozanthos manglesii*  
*Conostylis aculeata*  
*Conostylis setigera* subsp. *setigera*

**Haloragaceae**

*Gonocarpus cordiger*

**Hemerocallidaceae**

*Tricoryne humilis*  
?*Tricoryne* sp.

**Hypericaceae**

*Hypericum gramineum*

**Iridaceae**

*Patersonia occidentalis*  
\**Romulea rosea*  
\**Sisyrinchium rosulatum*

**Juncaceae**

\**Juncus bufonius*  
\**Juncus capitatus*  
*Juncus pallidus*

**Lythraceae**

\**Lythrum hyssopifolia*

## **Myrtaceae**

*Astartea scoparia*  
*Calothamnus sanguineus*  
*Corymbia calophylla*  
*Eucalyptus marginata*  
*Eucalyptus patens*  
*Eucalyptus rudis*  
*Eucalyptus wandoo*  
*Hypocalymma angustifolium*  
*Kunzea glabrescens*  
*Kunzea recurva*  
*?Kunzea micrantha*  
*Melaleuca incana* subsp. *incana*  
*Melaleuca lateritia*  
*Melaleuca parviceps*  
*Melaleuca radula*  
*Melaleuca viminea*

## **Orchidaceae**

*Microtis* sp.

## **Orobanchaceae**

\**Bellardia trixago*  
\**Orobanche minor*

## **Phyllanthaceae**

*Phyllanthus calycinus*

## **Pittosporaceae**

*Billardiera heterophylla*

## **Poaceae**

*Austrostipa variabilis*  
\**Avena barbata*  
\**Briza minor*  
\**Bromus diandrus*  
\**Cynodon dactylon*  
\**Ehrharta calycina*  
\**Ehrharta longiflora*  
*Eragrostis brownii*  
\**Lolium rigidum*  
\**Pentameris airoides*  
\**Vulpia muralis/myuros*

**Polygalaceae**

?*Comesperma calymega*

**Polygonaceae**

\**Polygonum aviculare*

\**Rumex acetosella*

\**Rumex pulcher* subsp. *pulcher*

**Primulaceae**

\**Lysimachia arvensis*

**Proteaceae**

*Banksia grandis*

*Banksia littoralis*

*Banksia ?littoralis*

*Banksia sessilis*

*Banksia sphaerocarpa* var. *sphaerocarpa*

*Banksia squarrosa* subsp. *squarrosa*

*Grevillea monticola*

*Hakea amplexicaulis*

*Hakea cyclocarpa*

*Hakea ?cyclocarpa*

*Hakea incrassata*

*Hakea ?lasianthoides*

*Hakea lissocarpha*

*Hakea prostrata*

*Hakea undulata*

*Hakea varia*

*Isopogon dubius*

*Petrophile heterophylla*

*Xylomelum occidentale*

**Resedaceae**

\**Reseda luteola*

**Restionaceae**

*Restionaceae* sp.

**Rhamnaceae**

*Trymalium ledifolium* var. *rosmarinifolium*

**Solanaceae**

\**Solanum nigrum*

**Stylidiaceae**

*Levenhookia pusilla*

*Levenhookia stipitata*

*Stylidium affine*

**Thymelaeaceae**

*Pimelea preissii*

*Pimelea ?preissii*

**Xanthorrhoeaceae**

*Xanthorrhoea gracilis*

*Xanthorrhoea preissii*



## Appendix M: Paddock Restoration Area Seed Mix Zone by Species Matrix

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Acacia alata</i>		X	X	X		X	X		
<i>Acacia celastrifolia</i>		X	X	X	X		X	X	X
<i>Acacia dentifera</i>	X	X	X						
<i>Acacia drummondii</i> subsp. <i>elegans</i>		X	X	X			X	X	X
<i>Acacia drummondii</i> subsp. <i>candolleana</i>		X	X				X	X	X
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	X	X	X	X	X	X	X	X	X
<i>Acacia extensa</i>		X	X			X	X		X
? <i>Acacia extensa</i>							X		
<i>Acacia microbotrya</i>						X			
<i>Acacia nervosa</i>					X		X		
<i>Acacia pulchella</i> var. <i>glaberrima</i>	X	X	X	X	X	X	X	X	X
? <i>Acacia pulchella</i> var. <i>glaberrima</i>						X			
<i>Acacia saligna</i>	X	X	X	X			X		
<i>Acacia urophylla</i>								X	
<i>Allocasuarina fraseriana</i>		X	X		X		X		X
<i>Allocasuarina huegeliana</i>		X	X	X			X	X	
<i>Allocasuarina humilis</i>	X	X	X	X	X	X	X		X
<i>Anigozanthos manglesii</i>	X	X	X	X	X	X	X		X
? <i>Anigozanthos manglesii</i>							X		
<i>Aotus procumbens</i>									X
<i>Aphelia cyperoides</i>		X							
* <i>Arctotheca calendula</i>		X	X	X	X	X	X	X	X
<i>Astartea scoparia</i>	X	X							
<i>Asteridea pulverulenta</i>		X	X				X		
<i>Astroloma</i> sp.			X						
<i>Austrostipa variabilis</i>	X		X				X		
* <i>Avena barbata</i>		X	X	X	X	X	X	X	X

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Banksia grandis</i>		X	X		X	X	X	X	X
<i>Banksia littoralis</i>		X							
<i>Banksia ?littoralis</i>		X	X	X			X		
<i>Banksia sessilis</i>					X		X		
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>						X			
<i>Banksia squarrosa</i> subsp. <i>squarrosa</i>		X			X		X		
<i>Baumea acuta</i>							X		
* <i>Bellardia trixago</i>		X	X	X				X	
<i>Billardiera heterophylla</i>				X					
<i>Bossiaea eriocarpa</i>						X			X
<i>Bossiaea ornata</i>		X	X	X		X	X		X
<i>Bossiaea pulchella</i>								X	
* <i>Briza minor</i>		X							
* <i>Bromus diandrus</i>		X				X	X	X	
<i>Calothamnus sanguineus</i>		X				X	X		X
* <i>Centaurium erythraea</i>	X	X	X	X	X		X		
<i>Centrolepis aristata</i>	X	X	X				X		
<i>Centrolepis drummondiana</i>	X	X			X		X		
* <i>Citrullus amarus</i>		X	X	X		X	X	X	
? <i>Comesperma calymega</i>						X			
<i>Conostylis aculeata</i>	X								
<i>Conostylis setigera</i> subsp. <i>setigera</i>							X		X
<i>Conyza ?bonariensis</i>				X					
* <i>Conyza bonariensis</i>		X		X					
<i>Corymbia calophylla</i>		X	X	X	X	X	X	X	X
* <i>Cucumis myriocarpus</i>	X					X	X		X
* <i>Cynodon dactylon</i>				X					

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
* <i>Cyperus tenellus</i>		X							
? <i>Dampiera</i> sp.							X		
<i>Daviesia cordata</i>		X	X				X		X
<i>Daviesia decurrens</i>			X	X			X		X
<i>Daviesia rhombifolia</i>							X		
* <i>Dittrichia graveolens</i>	X	X							
<i>Drosera glanduligera</i>	X	X	X						
<i>Dysphania pumilio</i>		X					X		
* <i>Ehrharta calycina</i>							X		
* <i>Ehrharta longiflora</i>				X					
<i>Eragrostis brownii</i>	X								
* <i>Erodium botrys</i>		X				X	X		X
<i>Erodium cygnorum</i>		X		X			X	X	
<i>Eucalyptus marginata</i>		X	X	X	X	X	X		X
<i>Eucalyptus patens</i>	X	X	X				X		
<i>Eucalyptus rudis</i>	X	X	X						
<i>Eucalyptus wandoo</i>	X			X		X			X
<i>Gastrolobium bilobum</i>	X	X	X						
<i>Gastrolobium calycinum</i>	X	X	X	X	X	X	X		X
<i>Gastrolobium spinosum</i>		X	X			X	X		X
* <i>Gomphocarpus fruticosus</i>							X	X	
<i>Gompholobium marginatum</i>	X	X	X	X	X	X	X	X	X
<i>Gompholobium preissii</i>						X	X	X	
<i>Gonocarpus cordiger</i>							X		
<i>Goodenia micrantha</i>		X							
<i>Grevillea monticola</i>			X				X	X	X
<i>Hakea amplexicaulis</i>			X				X		

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Hakea cyclocarpa</i>							X		
<i>Hakea ?cyclocarpa</i>		X							
<i>Hakea incrassata</i>							X		
<i>Hakea ?lasianthoides</i>							X		
<i>Hakea lissocarpha</i>		X	X	X		X	X		
<i>Hakea prostrata</i>		X	X			X	X		
<i>Hakea undulata</i>		X	X	X	X		X		X
<i>Hakea varia</i>	X	X	X						
<i>Hibbertia amplexicaulis</i>				X					
<i>Hovea trisperma</i>		X	X	X			X		
<i>Hyalosperma cotula</i>			X				X		
<i>Hypericum gramineum</i>	X		X				X		
<i>Hypocalymma angustifolium</i>	X	X	X	X	X	X	X		X
* <i>Hypochoeris glabra</i>	X	X	X	X	X	X	X	X	X
<i>Isolepis marginata</i>		X	X		X		X		
<i>Isopogon dubius</i>						X	X	X	
<i>Isotoma hypocrateriformis</i>							X		
<i>Jacksonia alata</i>				X	X		X		
* <i>Juncus bufonius</i>	X	X	X	X			X		X
* <i>Juncus capitatus</i>	X	X	X				X		X
<i>Juncus pallidus</i>		X							X
<i>Kennedia coccinea</i>		X	X	X		X	X		
<i>Kennedia prostrata</i>	X	X	X	X		X	X	X	X
<i>Kunzea glabrescens</i>						X			
<i>Kunzea recurva</i>						X			X
? <i>Kunzea micrantha</i>									X
<i>Lechenaultia biloba</i>						X	X		

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Lepidosperma ?apricola</i>		X					X		
<i>Lepidosperma ?squamatatum</i>				X					
<i>Lepidosperma tenue</i>							X		
<i>Lepidosperma sp.</i>							X		
<i>Levenhookia pusilla</i>			X				X		
<i>Levenhookia stipitata</i>			X				X		
<i>Lobelia anceps</i>	X				X				
* <i>Lolium rigidum</i>		X	X	X	X	X	X	X	
<i>Lomandra ?micrantha subsp. micrantha</i>							X		
* <i>Lotus subbiflorus</i>	X	X	X	X			X		
* <i>Lysimachia arvensis</i>	X	X	X	X		X	X		
* <i>Lythrum hyssopifolia</i>	X	X	X	X		X	X		
* <i>Lupinus angustifolius</i>		X							
<i>Melaleuca incana subsp. incana</i>	X	X							
<i>Melaleuca lateritia</i>	X	X							
<i>Melaleuca parviceps</i>	X	X	X	X	X	X	X	X	X
<i>Melaleuca radula</i>		X	X	X			X		X
<i>Melaleuca viminea</i>	X	X							
<i>Microtis sp.</i>	X								
* <i>Monopsis debilis</i>	X	X							
* <i>Orobanche minor</i>		X	X	X			X		
<i>Paraserianthes lophantha</i>							X		
<i>Paterosonia occidentalis</i>	X								
* <i>Pentameris airoides</i>		X	X			X	X	X	
<i>Petrophile heterophylla</i>		X		X			X		
* <i>Petrorhagia dubia</i>							X		
<i>Phyllanthus calycinus</i>		X	X	X		X	X		X

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Pimelea preissii</i>							X		
<i>Pimelea ?preissii</i>			X						
<i>Podolepis aristata</i> subsp. <i>aristata</i>		X	X		X	X	X		X
<i>Podolepis gracilis</i>		X					X		
<i>Podolepis lessonii</i>							X		
* <i>Polycarpon tetraphyllum</i>							X		
* <i>Polygonum aviculare</i>		X							
<i>Pseudognaphalium luteoalbum</i>									X
<i>Ptilotus polystachyus</i>	X	X	X	X			X	X	
* <i>Raphanus raphanistrum</i>		X	X	X	X	X	X		
* <i>Reseda luteola</i>							X		
Restionaceae sp.							X		
<i>Rhodanthe citrina</i>							X		
* <i>Romulea rosea</i>	X	X			X		X		
* <i>Rumex acetosella</i>							X		
* <i>Rumex pulcher</i> subsp. <i>pulcher</i>							X		
? <i>Scaevola calliptera</i>							X		
<i>Schoenus nanus</i>	X	X	X				X		
<i>Schoenus odontocarpus</i>	X	X							
<i>Senecio quadridentatus</i>									X
* <i>Sisyrinchium rosulatum</i>	X								
* <i>Solanum nigrum</i>		X		X	X		X	X	
* <i>Sonchus asper</i>	X	X	X	X					
* <i>Sonchus oleraceus</i>	X	X		X			X	X	
<i>Sphaerolobium medium</i>							X		
<i>Stylidium affine</i>							X		
* <i>Symphotrichum squamatum</i>		X							

Taxon	Seed Mix Zone								
	SW-A1	SW-L	SW-L,M	CL-M	SG-M	DS-PS	LG-S,SP	SG-S,SP	DS-S,SP
<i>Tetraria capillaris</i>							X		
<i>Tetraria octandra</i>							X		
<i>Tricoryne humilis</i>		X							
? <i>Tricoryne</i> sp.							X		
* <i>Trifolium arvense</i> var. <i>arvense</i>		X		X		X	X	X	
* <i>Trifolium campestre</i>				X	X		X		
* <i>Trifolium fragiferum</i>				X			X	X	
* <i>Trifolium hirtum</i>							X		
* <i>Trifolium subterraneum</i>		X	X	X	X		X	X	
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>		X		X		X	X		
* <i>Ursinia anthemoides</i>							X		
<i>Velleia trinervis</i>		X	X	X	X		X	X	X
* <i>Vellereophyton dealbatum</i>	X	X	X	X			X		
<i>Viminaria juncea</i>	X	X	X						
* <i>Vulpia muralis/myuros</i>	X	X	X	X		X	X	X	X
<i>Wahlenbergia preissii</i>							X		
<i>Xanthorrhoea gracilis</i>		X	X	X			X	X	
<i>Xanthorrhoea preissii</i>		X				X	X		
<i>Xylomelum occidentale</i>		X							
<b>Total taxa</b>	<b>50</b>	<b>101</b>	<b>75</b>	<b>62</b>	<b>33</b>	<b>49</b>	<b>126</b>	<b>35</b>	<b>45</b>
<b>Total native taxa</b>	<b>34</b>	<b>68</b>	<b>56</b>	<b>37</b>	<b>23</b>	<b>35</b>	<b>91</b>	<b>20</b>	<b>37</b>
<b>Total introduced taxa</b>	<b>16</b>	<b>33</b>	<b>19</b>	<b>25</b>	<b>10</b>	<b>14</b>	<b>35</b>	<b>15</b>	<b>8</b>



**Appendix N: Native Taxa Common and Not Common between the  
Remnant Vegetation Areas and Paddock Restoration Area**

Common	Remnant Vegetation Areas Only	Paddock Restoration Area Only
<i>Acacia celastrifolia</i>	<i>Acacia incurva</i>	<i>Acacia alata</i>
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	<i>Acacia preissiana</i>	<i>Acacia dentifera</i>
<i>Acacia nervosa</i>	<i>Agrostocrinum hirsutum</i>	<i>Acacia drummondii</i> subsp. <i>candolleana</i>
<i>Acacia pulchella</i> var. <i>glaberrima</i>	<i>Amphipogon amphipogonoides</i>	<i>Acacia drummondii</i> subsp. <i>elegans</i>
<i>Allocasuarina fraseriana</i>	<i>Amphipogon debilis</i>	<i>Acacia extensa</i>
<i>Aphelia cyperoides</i>	<i>Astroloma ciliatum</i>	? <i>Acacia extensa</i>
<i>Astartea scoparia</i>	<i>Austrostipa elegantissima</i>	<i>Acacia microbotrya</i>
<i>Austrostipa variabilis</i>	<i>Austrostipa semibarbata</i>	? <i>Acacia pulchella</i> var. <i>glaberrima</i>
<i>Banksia grandis</i>	<i>Babingtonia camphorosmae</i>	<i>Acacia saligna</i>
<i>Banksia sessilis</i>	<i>Banksia dallanneyi</i> var. <i>dallanneyi</i>	<i>Acacia urophylla</i>
<i>Billardiera heterophylla</i>	<i>Baumea juncea</i>	<i>Allocasuarina huegeliana</i>
<i>Bossiaea eriocarpa</i>	<i>Billardiera fusiformis</i>	<i>Allocasuarina humilis</i>
<i>Bossiaea ornata</i>	<i>Blennospora drummondii</i>	<i>Anigozanthos manglesii</i>
<i>Centrolepis aristata</i>	<i>Boronia crenulata</i> subsp. <i>viminea</i>	? <i>Anigozanthos manglesii</i>
<i>Conostylis aculeata</i>	<i>Boronia fastigiata</i>	<i>Aotus procumbens</i>
<i>Corymbia calophylla</i>	<i>Borya laciniata</i>	<i>Asteridea pulverulenta</i>
<i>Daviesia cordata</i>	<i>Bossiaea</i> ? <i>ornata</i>	<i>Astroloma</i> sp.
<i>Drosera glanduligera</i>	<i>Brachyscome pusilla</i>	<i>Banksia littoralis</i>
<i>Eucalyptus marginata</i>	<i>Burchardia multiflora</i>	<i>Banksia</i> ? <i>littoralis</i>
<i>Eucalyptus patens</i>	<i>Caesia micrantha</i>	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>
<i>Eucalyptus rudis</i>	? <i>Caesia micrantha</i>	<i>Banksia squarrosa</i> subsp. <i>squarrosa</i>
<i>Eucalyptus wandoo</i>	<i>Caladenia serotina</i>	<i>Baumea acuta</i>
<i>Gastrolobium calycinum</i>	<i>Caladenia</i> ? <i>serotina</i>	<i>Bossiaea pulchella</i>
<i>Gompholobium marginatum</i>	<i>Caladenia</i> sp.	<i>Calothamnus sanguineus</i>
<i>Gonocarpus cordiger</i>	<i>Cassytha racemosa</i> forma <i>racemosa</i>	<i>Centrolepis drummondiana</i>
<i>Goodenia micrantha</i>	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	? <i>Comesperma calymega</i>
<i>Hakea lissocarpha</i>	<i>Chorizandra enodis</i>	<i>Conostylis setigera</i> subsp. <i>setigera</i>
<i>Hakea prostrata</i>	<i>Chorizema cordatum</i>	? <i>Dampiera</i> sp.
<i>Hibbertia amplexicaulis</i>	<i>Clematis pubescens</i>	<i>Daviesia decurrens</i>
<i>Hyalosperma cotula</i>	<i>Comesperma calymega</i>	<i>Daviesia rhombifolia</i>
<i>Hypocalymma angustifolium</i>	<i>Comesperma virgatum</i>	<i>Dysphania pumilio</i>
<i>Isolepis marginata</i>	<i>Conostylis pusilla</i>	<i>Eragrostis brownii</i>
<i>Isotoma hypocrateriformis</i>	<i>Cyathochaeta avenacea</i>	<i>Erodium cygnorum</i>
<i>Juncus pallidus</i>	<i>Cycnogeton lineare</i>	<i>Gastrolobium bilobum</i>

Common	Remnant Vegetation Areas Only	Paddock Restoration Area Only
<i>Lechenaultia biloba</i>	<i>Dampiera alata</i>	<i>Gastrolobium spinosum</i>
<i>Levenhookia pusilla</i>	<i>Dampiera linearis</i>	<i>Gompholobium preissii</i>
<i>Levenhookia stipitata</i>	<i>Daucus glochidiatus</i>	<i>Grevillea monticola</i>
<i>Lobelia anceps</i>	<i>Daviesia angulata</i>	<i>Hakea amplexicaulis</i>
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	<i>Desmocladius asper</i>	<i>Hakea cyclocarpa</i>
<i>Melaleuca incana</i> subsp. <i>incana</i>	<i>Desmocladius fasciculatus</i>	<i>Hakea ?cyclocarpa</i>
<i>Melaleuca lateritia</i>	<i>Deyeuxia quadriseta</i>	<i>Hakea incrassata</i>
<i>Patersonia occidentalis</i>	<i>Dianella revoluta</i>	<i>Hakea ?lasianthoides</i>
<i>Phyllanthus calycinus</i>	<i>Dichelachne crinita</i>	<i>Hakea undulata</i>
<i>Podolepis gracilis</i>	<i>Dichopogon capillipes</i>	<i>Hakea varia</i>
<i>Schoenus nanus</i>	<i>Drosera gigantea</i>	<i>Hovea trisperma</i>
<i>Stylidium affine</i>	<i>Drosera menziesii</i>	<i>Hypericum gramineum</i>
<i>Tetraria octandra</i>	<i>Drosera micrantha</i>	<i>Isopogon dubius</i>
<i>Tricoryne humilis</i>	<i>Drosera nitidula</i>	<i>Jacksonia alata</i>
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	<i>Drosera scorpioides</i>	<i>Kennedia coccinea</i>
<i>Wahlenbergia preissii</i>	<i>Elythranthera ?emarginata</i>	<i>Kennedia prostrata</i>
<i>Xanthorrhoea preissii</i>	<i>Gnephosis drummondii</i>	<i>Kunzea glabrescens</i>
	<i>Gompholobium polymorphum</i>	<i>Kunzea recurva</i>
	<i>Goodenia coerulea</i>	<i>?Kunzea micrantha</i>
	<i>?Goodenia katabudjar</i>	<i>Lepidosperma ?apicola</i>
	<i>Grevillea bipinnatifida</i>	<i>Lepidosperma ?squamatum</i>
	<i>Haemodorum discolor</i>	<i>Lepidosperma</i> sp.
	<i>Haemodorum simplex</i>	<i>Lepidosperma tenue</i>
	<i>Haemodorum spicatum</i>	<i>Melaleuca parviceps</i>
	<i>Haemodorum</i> sp.	<i>Melaleuca radula</i>
	<i>Hibbertia commutata</i>	<i>Melaleuca viminea</i>
	<i>Hibbertia ?montana</i>	<i>Microtis</i> sp.
	<i>Hibbertia pilosa</i>	<i>Paraserianthes lophantha</i>
	<i>Hibbertia polystachya</i>	<i>Petrophile heterophylla</i>
	<i>Hibbertia silvestris</i>	<i>Pimelea preissii</i>
	<i>Hovea chorizemifolia</i>	<i>Pimelea ?preissii</i>
	<i>?Hovea</i> sp.	<i>Podolepis aristata</i> subsp. <i>aristata</i>
	<i>Hybanthus floribundus</i> subsp. <i>floribundus</i>	<i>Podolepis lessonii</i>
	<i>Hypolaena exsulca</i>	<i>Pseudognaphalium luteoalbum</i>

Common	Remnant Vegetation Areas Only	Paddock Restoration Area Only
	Indeterminate sp.	<i>Ptilotus polystachyus</i>
	<i>Juncus planifolius</i>	Restionaceae sp.
	? <i>Juncus</i> sp.	<i>Rhodanthe citrina</i>
	<i>Kennedia coccinea</i> subsp. <i>coccinea</i>	? <i>Scaevola calliptera</i>
	<i>Labichea punctata</i>	<i>Schoenus odontocarpus</i>
	<i>Lagenophora huegelii</i>	<i>Senecio quadridentatus</i>
	<i>Lasiopetalum floribundum</i>	<i>Sphaerolobium medium</i>
	<i>Lepidosperma leptostachyum</i>	<i>Tetraria capillaris</i>
	<i>Lepidosperma pubisquameum</i>	? <i>Tricoryne</i> sp.
	<i>Lepidosperma tetraquetrum</i>	<i>Velleia trinervis</i>
	<i>Leptocarpus kraussii</i>	<i>Viminaria juncea</i>
	<i>Lepyrodia muirii</i>	<i>Xanthorrhoea gracilis</i>
	<i>Leucopogon nutans</i>	<i>Xylomelum occidentale</i>
	<i>Linum marginale</i>	
	<i>Lomandra brittanii</i>	
	<i>Lomandra caespitosa</i>	
	<i>Lomandra caespitosa/micrantha</i> subsp. <i>micrantha</i>	
	<i>Lomandra ?hermaphrodita</i>	
	<i>Lomandra ?odora</i>	
	<i>Lomandra preissii</i>	
	<i>Lomandra sonderi</i>	
	<i>Lomandra spartea</i>	
	<i>Lomandra ?suaveolens</i>	
	<i>Macrozamia riedlei</i>	
	<i>Melaleuca raphiophylla</i>	
	<i>Melaleuca viminea</i> subsp. <i>viminea</i>	
	<i>Mesomelaena tetragona</i>	
	<i>Microlaena stipoides</i>	
	<i>Microtis media</i> subsp. <i>media</i>	
	<i>Millotia tenuifolia</i>	
	<i>Neurachne alopecuroidea</i>	
	<i>Opercularia apiciflora</i>	
	<i>Opercularia echinocephala</i>	
	<i>Opercularia vaginata</i>	

Common	Remnant Vegetation Areas Only	Paddock Restoration Area Only
	<i>Oxalis exilis</i>	
	<i>Patersonia babianoides</i>	
	? <i>Patersonia</i> sp.	
	<i>Pentapeltis peltigera</i>	
	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>	
	<i>Persoonia longifolia</i>	
	<i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>	
	<i>Phyllangium divergens</i>	
	<i>Pimelea sylvestris</i>	
	<i>Poa homomalla</i>	
	<i>Polypogon tenellus</i>	
	<i>Poranthera microphylla</i>	
	<i>Ptilotus drummondii</i> var. <i>drummondii</i>	
	<i>Ptilotus manglesii</i>	
	<i>Rytidosperma pilosum</i>	
	<i>Rytidosperma setaceum</i>	
	? <i>Rytidosperma</i> sp.	
	<i>Samolus junceus</i>	
	<i>Scaevola calliptera</i>	
	<i>Schoenus bifidus</i>	
	<i>Schoenus clandestinus</i>	
	<i>Schoenus plumosus</i>	
	<i>Schoenus</i> sp. South coast (R. Davis 10239)	
	<i>Senecio multicaulis</i> subsp. <i>multicaulis</i>	
	<i>Siloxerus filifolius</i>	
	<i>Siloxerus humifusus</i>	
	? <i>Sowerbaea laxiflora</i>	
	<i>Sowerbaea laxiflora</i>	
	<i>Stackhousia pubescens</i>	
	<i>Stylidium androsaceum</i>	
	<i>Stylidium calcaratum</i>	
	<i>Stylidium ciliatum</i>	
	<i>Stylidium crassifolium</i>	
	<i>Stylidium inundatum</i>	

Common	Remnant Vegetation Areas Only	Paddock Restoration Area Only
	<i>Stylidium pulchellum</i>	
	<i>Stylidium uniflorum</i> subsp. <i>uniflorum</i>	
	<i>Taxandria linearifolia</i>	
	<i>Tetraria</i> sp. Blackwood River (A.R. Annels 3043)	
	<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)	
	<i>Tetrarrhena laevis</i>	
	<i>Tetradlea hirsuta</i> subsp. <i>viminea</i>	
	<i>Thelymitra antennifera</i>	
	<i>Thelymitra crinita</i>	
	<i>Thelymitra</i> ? <i>crinita</i>	
	<i>Thelymitra</i> ? <i>fuscolutea</i>	
	<i>Thysanotus dichotomus</i>	
	<i>Thysanotus multiflorus</i>	
	<i>Thysanotus tenellus</i>	
	<i>Trachymene pilosa</i>	
	<i>Trichocline spathulata</i>	
	<i>Tricoryne elatior</i>	
	? <i>Tricoryne elatior</i>	
	<i>Typha orientalis</i>	
	<i>Xanthosia atkinsoniana</i>	
	<i>Xanthosia candida</i>	
	<i>Xanthosia huegelii</i>	
51	158	81

## **Appendix O: Paddock Restoration Area Vegetation Plots by Species Matrix**

Taxon	Seed Mix Zone																													
	SW-A1	SW-L					SW-L,M			CL-M			SG-M	DS-PS			LG-S,SP										SG-S,SP			DS-S,SP
	A-RS-01	L-RS-01	L-RS-02	L-RS-03	L-RS-04	L-RS-05	L-RS-06	L-RS-07	L-RS-08	M-RS-01	M-RS-02	M-RS-03	M-RS-04	PS-RS-01	PS-RS-02	PS-RS-03	SP-RS-01	SP-RS-02	SP-RS-03	SP-RS-04	SP-RS-05	SP-RS-06	SP-RS-07	SP-RS-08	SP-RS-09	SP-RS-10	SP-RS-11	SP-RS-12	SP-RS-13	SP-RS-14
<i>Acacia alata</i>		X				X	X			X	X	X		X		X	X		X	X		X	X	X	X					
<i>Acacia celastrifolia</i>		X		X	X		X	X	X	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Acacia dentifera</i>	X	X	X	X	X	X		X	X																					
<i>Acacia drummondii</i> subsp. <i>elegans</i>		X	X			X	X		X	X	X								X	X	X	X	X	X	X	X	X	X		
<i>Acacia drummondii</i> subsp. <i>candolleana</i>				X	X			X	X							X	X				X	X	X	X	X			X	X	
<i>Acacia drummondii</i> subsp. <i>drummondii</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
<i>Acacia extensa</i>				X	X		X	X	X					X	X	X	X	X	X	X	X	X	X			X			X	
? <i>Acacia extensa</i>																					X									
<i>Acacia microbotrya</i>														X	X	X														
<i>Acacia nervosa</i>													X				X		X	X	X									
<i>Acacia pulchella</i> var. <i>glaberrima</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>Acacia pulchella</i> var. <i>glaberrima</i>																X														
<i>Acacia saligna</i>	X	X		X	X	X		X	X		X	X									X									
<i>Acacia urophylla</i>																												X		
<i>Allocauarina fraseriana</i>				X	X			X	X				X				X	X				X	X	X	X	X			X	
<i>Allocauarina huegeliana</i>		X	X			X	X			X	X	X							X	X	X							X		
<i>Allocauarina humilis</i>	X	X				X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	
<i>Anigozanthos manglesii</i>	X	X		X		X	X			X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			X	
? <i>Anigozanthos manglesii</i>																		X												
<i>Aotus procumbens</i>																													X	
<i>Aphelia cyperoides</i>		X																												
* <i>Arctotheca calendula</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	
<i>Astartea scoparia</i>	X				X																									
<i>Asteridea pulverulenta</i>						X	X	X										X					X							
<i>Astroloma</i> sp.							X																							
<i>Austrostipa variabilis</i>	X						X																X							
* <i>Avena barbata</i>				X			X				X	X	X					X	X		X		X			X			X	
<i>Banksia grandis</i>		X	X				X						X	X	X	X	X	X	X	X		X	X	X	X		X		X	
<i>Banksia littoralis</i>					X																									
<i>Banksia</i> ? <i>littoralis</i>						X	X			X									X		X					X				
<i>Banksia sessilis</i>													X													X				
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>														X	X															
<i>Banksia squarrosa</i> subsp. <i>squarrosa</i>					X								X			X	X		X			X	X	X						
<i>Baumea acuta</i>																								X						
* <i>Bellardia trixago</i>			X				X			X	X																	X		
<i>Billardiera heterophylla</i>										X																				
<i>Bossiaea eriocarpa</i>														X	X	X													X	



Taxon	Seed Mix Zone																													
	SW-A1	SW-L					SW-L,M			CL-M			SG-M	DS-PS			LG-S,SP										SG-S,SP			DS-S,SP
	A-RS-01	L-RS-01	L-RS-02	L-RS-03	L-RS-04	L-RS-05	L-RS-06	L-RS-07	L-RS-08	M-RS-01	M-RS-02	M-RS-03	M-RS-04	PS-RS-01	PS-RS-02	PS-RS-03	SP-RS-01	SP-RS-02	SP-RS-03	SP-RS-04	SP-RS-05	SP-RS-06	SP-RS-07	SP-RS-08	SP-RS-09	SP-RS-10	SP-RS-11	SP-RS-12	SP-RS-13	SP-RS-14
<i>Bossiaea ornata</i>		X		X		X	X	X	X	X	X			X			X		X	X	X		X	X	X	X				X
<i>Bossiaea pulchella</i>																												X		
* <i>Briza minor</i>		X																												
* <i>Bromus diandrus</i>			X													X			X									X		
<i>Calothamnus sanguineus</i>					X									X	X	X									X					X
* <i>Centaurium erythraea</i>	X	X				X	X				X		X							X			X							
<i>Centrolepis aristata</i>	X	X		X			X													X	X	X								
<i>Centrolepis drummondiana</i>	X			X								X								X	X	X	X							
* <i>Citrullus amarus</i>			X		X			X			X	X			X	X						X		X	X			X		
? <i>Comesperma calymega</i>																														
<i>Conostylis aculeata</i>	X																													
<i>Conostylis setigera</i> subsp. <i>setigera</i>																	X													
<i>Conyza</i> ? <i>bonariensis</i>										X																				
* <i>Conyza bonariensis</i>						X					X																			
<i>Corymbia calophylla</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
* <i>Cucumis myriocarpus</i>	X														X							X								X
* <i>Cynodon dactylon</i>										X																				
* <i>Cyperus tenellus</i>						X																								
? <i>Dampiera</i> sp.																														
<i>Daviesia cordata</i>			X	X	X		X		X								X	X	X	X	X	X	X	X	X	X	X			X
<i>Daviesia decurrens</i>							X		X			X								X	X		X	X						X
<i>Daviesia rhombifolia</i>																				X										
* <i>Dittrichia graveolens</i>	X	X				X																								
<i>Drosera glanduligera</i>	X	X					X																							
<i>Dysphania pumilio</i>						X																								
* <i>Ehrharta longiflora</i>										X																				
<i>Eragrostis brownii</i>	X																													
* <i>Erodium botrys</i>				X											X	X						X	X							X
<i>Erodium cygnorum</i>		X	X								X							X	X	X	X					X	X	X		
<i>Eucalyptus marginata</i>		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X				X
<i>Eucalyptus patens</i>	X	X						X	X								X													
<i>Eucalyptus rudis</i>	X	X	X	X	X	X		X	X																					
<i>Eucalyptus wandoo</i>	X									X	X	X		X	X	X														X
<i>Gastrolobium bilobum</i>	X	X	X	X	X	X		X	X																					
<i>Gastrolobium calycinum</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
<i>Gastrolobium spinosum</i>			X	X	X		X	X							X			X	X	X		X	X	X		X				X
<i>Gompholobium marginatum</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

Taxon	Seed Mix Zone																													
	SW-A1	SW-L					SW-L,M			CL-M			SG-M	DS-PS			LG-S,SP										SG-S,SP			DS-S,SP
	A-RS-01	L-RS-01	L-RS-02	L-RS-03	L-RS-04	L-RS-05	L-RS-06	L-RS-07	L-RS-08	M-RS-01	M-RS-02	M-RS-03	M-RS-04	PS-RS-01	PS-RS-02	PS-RS-03	SP-RS-01	SP-RS-02	SP-RS-03	SP-RS-04	SP-RS-05	SP-RS-06	SP-RS-07	SP-RS-08	SP-RS-09	SP-RS-10	SP-RS-11	SP-RS-12	SP-RS-13	SP-RS-14
<i>Gompholobium preissii</i>														X										X	X				X	
<i>Gonocarpus cordiger</i>																					X									
<i>Goodenia micrantha</i>		X																												
<i>Grevillea monticola</i>							X									X	X	X	X	X		X			X			X		X
<i>Hakea amplexicaulis</i>							X										X	X	X	X	X	X	X		X	X				
<i>Hakea cyclocarpa</i>																										X				
<i>Hakea ?cyclocarpa</i>						X																								
<i>Hakea ?lasianthoides</i>																	X	X	X	X										
<i>Hakea lissocarpha</i>		X				X	X	X				X		X	X		X		X	X	X				X	X				
<i>Hakea prostrata</i>		X				X	X							X	X	X	X	X	X	X						X	X			
<i>Hakea undulata</i>		X	X	X		X	X		X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X			X
<i>Hakea varia</i>	X				X			X																						
<i>Hovea trisperma</i>						X	X			X									X	X	X								X	
<i>Hyalosperma cotula</i>							X												X	X		X								
<i>Hypericum gramineum</i>	X						X														X									
<i>Hypocalymma angustifolium</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	X
* <i>Hypochaeris glabra</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>Isolepis marginata</i>			X	X			X						X							X		X	X							
<i>Isotoma hypocrateriformis</i>																						X								
<i>Jacksonia alata</i>												X	X													X				
* <i>Juncus bufonius</i>	X	X		X		X	X			X	X	X				X	X		X	X	X	X	X							X
* <i>Juncus capitatus</i>	X	X		X		X	X													X	X	X								X
<i>Juncus pallidus</i>		X	X		X																									X
<i>Kennedia coccinea</i>			X	X	X			X	X	X	X		X	X	X								X	X	X	X				
<i>Kennedia prostrata</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
<i>Kunzea glabrescens</i>															X															
<i>Kunzea recurva</i>														X	X															X
<i>Lechenaultia biloba</i>															X	X														
<i>Lepidosperma ?apricola</i>		X																			X									
<i>Levenhookia pusilla</i>							X										X		X	X	X									
<i>Levenhookia stipitata</i>							X												X											
<i>Lobelia anceps</i>	X											X																		
* <i>Lolium rigidum</i>						X	X	X	X	X	X	X	X	X	X			X			X	X			X	X			X	
* <i>Lotus subbiflorus</i>	X	X	X	X	X	X	X	X	X	X	X						X		X					X	X	X				
* <i>Lysimachia arvensis</i>	X					X	X				X				X				X	X										
* <i>Lythrum hyssopifolia</i>	X	X	X		X	X	X	X	X	X	X		X	X						X				X	X	X				
<i>Melaleuca incana</i> subsp. <i>incana</i>	X	X			X	X																								

Taxon	Seed Mix Zone																													
	SW-A1	SW-L					SW-L,M			CL-M			SG-M	DS-PS			LG-S,SP										SG-S,SP			DS-S,SP
	A-RS-01	L-RS-01	L-RS-02	L-RS-03	L-RS-04	L-RS-05	L-RS-06	L-RS-07	L-RS-08	M-RS-01	M-RS-02	M-RS-03	M-RS-04	PS-RS-01	PS-RS-02	PS-RS-03	SP-RS-01	SP-RS-02	SP-RS-03	SP-RS-04	SP-RS-05	SP-RS-06	SP-RS-07	SP-RS-08	SP-RS-09	SP-RS-10	SP-RS-11	SP-RS-12	SP-RS-13	SP-RS-14
<i>Melaleuca lateritia</i>	X	X			X	X																								
<i>Melaleuca parviceps</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
<i>Melaleuca radula</i>		X					X			X							X			X	X		X	X	X					X
<i>Melaleuca viminea</i>	X	X			X	X																								
<i>Microtis</i> sp.	X																													
* <i>Monopsis debilis</i>	X					X																								
* <i>Orobanche minor</i>			X		X				X	X	X								X	X					X	X				
<i>Patersonia occidentalis</i>	X																													
* <i>Pentameris airoides</i>		X	X				X								X		X	X	X	X	X	X	X				X			
<i>Petrophile heterophylla</i>		X								X						X	X		X	X	X	X	X	X	X					
* <i>Petrorhagia dubia</i>																							X							
<i>Phyllanthus calycinus</i>			X	X		X	X	X		X	X	X		X	X		X	X		X	X	X	X	X	X	X				X
<i>Pimelea preissii</i>																	X						X							
<i>Pimelea ?preissii</i>							X																							
<i>Podolepis aristata</i> subsp. <i>aristata</i>				X	X	X	X		X				X	X	X			X	X	X	X	X	X	X	X	X				X
<i>Podolepis gracilis</i>				X		X														X			X							
<i>Podolepis lessonii</i>																			X											
* <i>Polycarpon tetraphyllum</i>																							X							
* <i>Polygonum aviculare</i>						X																								
<i>Pseudognaphalium luteoalbum</i>																														X
<i>Ptilotus polystachyus</i>	X		X		X			X	X	X	X							X		X				X	X	X		X	X	
* <i>Raphanus raphanistrum</i>						X			X	X			X	X													X			
<i>Rhodanthe citrina</i>																														
* <i>Romulea rosea</i>	X	X	X	X									X				X	X	X	X	X	X	X							
* <i>Rumex acetosella</i>																				X							X			
? <i>Scaevola calliptera</i>																		X												
<i>Schoenus nanus</i>	X	X		X			X													X	X	X	X							
<i>Schoenus odontocarpus</i>	X	X																												
<i>Senecio quadridentatus</i>																														X
* <i>Sisyrinchium rosulatum</i>	X																													
* <i>Solanum nigrum</i>			X	X	X	X					X	X	X					X						X					X	
* <i>Sonchus asper</i>	X		X			X		X	X		X																			
* <i>Sonchus oleraceus</i>	X		X		X	X				X	X													X	X	X			X	
<i>Sphaerolobium medium</i>																									X					
<i>Stylidium affine</i>																									X					
* <i>Symphotrichum squamatum</i>			X			X																								
<i>Tricoryne humilis</i>		X																												

Taxon	Seed Mix Zone																													
	SW-A1	SW-L					SW-L,M			CL-M			SG-M	DS-PS			LG-S,SP										SG-S,SP			DS-S,SP
	A-RS-01	L-RS-01	L-RS-02	L-RS-03	L-RS-04	L-RS-05	L-RS-06	L-RS-07	L-RS-08	M-RS-01	M-RS-02	M-RS-03	M-RS-04	PS-RS-01	PS-RS-02	PS-RS-03	SP-RS-01	SP-RS-02	SP-RS-03	SP-RS-04	SP-RS-05	SP-RS-06	SP-RS-07	SP-RS-08	SP-RS-09	SP-RS-10	SP-RS-11	SP-RS-12	SP-RS-13	SP-RS-14
? <i>Tricoryne</i> sp.																						X								
* <i>Trifolium arvense</i> var. <i>arvense</i>		X	X							X					X									X	X	X		X		
* <i>Trifolium campestre</i>										X		X								X	X									
* <i>Trifolium fragiferum</i>										X	X	X													X		X			
* <i>Trifolium hirtum</i>																									X					
* <i>Trifolium subterraneum</i>			X			X	X	X			X	X						X	X	X	X						X			
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>				X							X	X		X						X				X	X	X				
<i>Velleia trinervis</i>		X	X		X	X	X	X	X	X	X		X				X	X	X	X		X	X	X	X			X	X	
* <i>Vellereophyton dealbatum</i>	X	X				X	X				X							X		X	X									
<i>Viminaria juncea</i>	X	X	X	X	X	X		X	X																					
* <i>Vulpia muralis/myuros</i>	X	X	X	X	X		X				X			X	X	X		X	X	X	X	X	X			X	X	X	X	
<i>Wahlenbergia preissii</i>																							X							
<i>Xanthorrhoea gracilis</i>		X					X				X								X	X	X						X			
<i>Xanthorrhoea preissii</i>						X								X									X			X				
<i>Xylomelum occidentale</i>						X																								

## **Appendix P: Paddock Restoration Area Vegetation Plots Summaries**

**Plant Density**

Seed Mix Zone	Plot	Plant Density (plants/m <sup>2</sup> )	Standard Deviation	Mean Plant Density (plants/m <sup>2</sup> )	Mean Standard Deviation
CL-M	M-RS-01	5	3	5	3
	M-RS-02	4	3		
	M-RS-03	7	4		
DS-PS	PS-RS-01	13	8	10	7
	PS-RS-02	13	7		
	PS-RS-03	5	5		
DS-S,SP	SP-RS-14	9	7	9	7
LG-S,SP	SP-RS-01	7	4	8	5
	SP-RS-02	4	3		
	SP-RS-03	6	4		
	SP-RS-04	9	6		
	SP-RS-05	9	4		
	SP-RS-06	6	5		
	SP-RS-07	8	5		
	SP-RS-08	12	7		
	SP-RS-09	12	6		
	SP-RS-10	8	6		
SG-M	M-RS-04	4	4	4	4
SG-S,SP	SP-RS-11	0	0	1	1
	SP-RS-12	1	1		
	SP-RS-13	1	1		
SW-A1	A-RS-01	18	26	18	26
SW-L	L-RS-01	3	3	5	4
	L-RS-02	3	2		
	L-RS-03	4	2		
	L-RS-04	5	4		
	L-RS-05	11	8		
SW-L,M	L-RS-06	8	7	5	4
	L-RS-07	4	2		
	L-RS-08	4	3		

**Live Foliage Cover**

Seed Mix Zone	Plot	Live Foliage Cover (%)	Standard Deviation	Mean Live Foliage Cover (%)	Mean Standard Deviation
CL-M	M-RS-01	15.8	14.0	12.7	12.0
	M-RS-02	15.5	18.0		
	M-RS-03	6.9	4.0		
DS-PS	PS-RS-01	20.4	10.6	15.3	11.4
	PS-RS-02	19.8	18.4		
	PS-RS-03	5.6	5.2		
DS-S,SP	SP-RS-14	7.0	5.9	7.0	5.9
LG-S,SP	SP-RS-01	4.2	4.2	10.8	9.9
	SP-RS-02	3.7	2.8		
	SP-RS-03	5.4	5.9		
	SP-RS-04	14.5	12.7		
	SP-RS-05	9.7	6.1		
	SP-RS-06	8.3	7.1		
	SP-RS-07	9.8	6.9		
	SP-RS-08	22.6	20.3		
	SP-RS-09	19.1	17.6		
	SP-RS-10	10.8	15.0		
SG-M	M-RS-04	0.2	0.1	0.2	0.1
SG-S,SP	SP-RS-11	0.2	0.7	0.5	1.0
	SP-RS-12	1.3	2.0		
	SP-RS-13	0.1	0.4		
SW-A1	A-RS-01	6.7	7.6	6.7	7.6
SW-L	L-RS-01	2.9	2.6	8.3	6.7
	L-RS-02	16.5	18.1		
	L-RS-03	8.0	4.7		
	L-RS-04	13.8	7.7		
	L-RS-05	0.2	0.1		
SW-L,M	L-RS-06	8.6	6.1	11.8	9.4
	L-RS-07	18.8	16.2		
	L-RS-08	7.9	5.9		

**Species Richness (Native Taxa Only)**

Seed Mix Zone	Plot	Species Richness	Mean Species Richness
CL-M	M-RS-01	21	26
	M-RS-02	18	
	M-RS-03	18	
DS-PS	PS-RS-01	27	23
	PS-RS-02	27	
	PS-RS-03	16	
DS-S,SP	SP-RS-14	30	30
LG-S,SP	SP-RS-01	25	30
	SP-RS-02	22	
	SP-RS-03	23	
	SP-RS-04	39	
	SP-RS-05	34	
	SP-RS-06	31	
	SP-RS-07	36	
	SP-RS-08	28	
	SP-RS-09	30	
	SP-RS-10	32	
SG-M	M-RS-04	18	18
SG-S,SP	SP-RS-11	3	6
	SP-RS-12	8	
	SP-RS-13	6	
SW-A1	A-RS-01	29	29
SW-L	L-RS-01	24	25
	L-RS-02	19	
	L-RS-03	26	
	L-RS-04	25	
	L-RS-05	29	
SW-L,M	L-RS-06	37	26
	L-RS-07	22	
	L-RS-08	19	



## Tree Density

Seed Mix Zone	Plot	Tree Density (trees/m <sup>2</sup> )	Tree Density (trees/ha)	Mean Tree Density (trees/m <sup>2</sup> )	Mean Tree Density (trees/ha)
CL-M	M-RS-01	133	3325	175	4367
	M-RS-02	117	2925		
	M-RS-03	274	6850		
DS-PS	PS-RS-01	128	3200	91	2275
	PS-RS-02	93	2325		
	PS-RS-03	52	1300		
DS-S,SP	SP-RS-14	105	2625	105	2625
LG-S,SP	SP-RS-01	103	2575	137	3423
	SP-RS-02	171	4275		
	SP-RS-03	186	4650		
	SP-RS-04	116	2900		
	SP-RS-05	140	3500		
	SP-RS-06	135	3375		
	SP-RS-07	146	3650		
	SP-RS-08	145	3625		
	SP-RS-09	171	4275		
	SP-RS-10	56	1400		
SG-M	M-RS-04	11	275	11	275
SG-S,SP	SP-RS-11	5	125	8	200
	SP-RS-12	17	425		
	SP-RS-13	2	50		
SW-A1	A-RS-01	80	2000	80	2000
SW-L	L-RS-01	25	625	36	905
	L-RS-02	21	525		
	L-RS-03	43	1075		
	L-RS-04	23	575		
	L-RS-05	69	1725		
SW-L,M	L-RS-06	144	3600	81	2033
	L-RS-07	57	1425		
	L-RS-08	43	1075		

## Tree Height Class: &lt; 0.5 m

Seed Mix Zone	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Allocasuarina huegeliana</i>	<i>Banksia grandis</i>	<i>Banksia littoralis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus rudis</i>	<i>Eucalyptus wandoo</i>
CL-M	M-RS-01							4	40	23
	M-RS-02		10	1		3	1	1	4	
	M-RS-03						3			
DS-PS	PS-RS-01	9				2	13		1	
	PS-RS-02				1		6		4	
	PS-RS-03					30	26		13	
DS-S,SP	SP-RS-14		43	3		29				
LG-S,SP	SP-RS-01	4				2	14	1	1	
	SP-RS-02	6				1	6	1		
	SP-RS-03		6			19	26			2
	SP-RS-04		3			17	24			3
	SP-RS-05					61	162			17
	SP-RS-06	2		2		2	5			
	SP-RS-07			6		11	89			11
	SP-RS-08			11		15	47			4
	SP-RS-09			3		9	14			2
	SP-RS-10	48		5		6	5			
SG-M	M-RS-04	73		8		22	3			
SG-S,SP	SP-RS-11		53	1		44				
	SP-RS-12		18	10		26				
	SP-RS-13		26	2		11				
SW-A1	A-RS-01	23				17	7			
SW-L	L-RS-01	31		3		12	14			
	L-RS-02	12		6		5	11			
	L-RS-03	19		1		3	16			
	L-RS-04	11		3		4	1			
	L-RS-05					4				
SW-L,M	L-RS-06		1	2		12				
	L-RS-07					2				
	L-RS-08	19		1		4	9			1

## Tree Height Class: 0.5 m – 1.3 m

Seed Mix Zone	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Allocasuarina huegeliana</i>	<i>Banksia grandis</i>	<i>Banksia littoralis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus rudis</i>	<i>Eucalyptus wandoo</i>
CL-M	M-RS-01								13	
	M-RS-02		2			1			2	
	M-RS-03		3			3	1			
DS-PS	PS-RS-01	16							2	
	PS-RS-02	7							5	
	PS-RS-03									
DS-S,SP	SP-RS-14		56			4				
LG-S,SP	SP-RS-01	21				4	4		6	
	SP-RS-02	24				1			4	
	SP-RS-03		19			14	25			7
	SP-RS-04		9			10	33			5
	SP-RS-05		6			11	10			7
	SP-RS-06									
	SP-RS-07					4	4			3
	SP-RS-08					14	1			1
	SP-RS-09					22	2			
SG-M	M-RS-04	42				12				
SG-S,SP	SP-RS-11		71			4				
	SP-RS-12		39			11				
	SP-RS-13		68			16				
SW-A1	A-RS-01	78				9	1			
SW-L	L-RS-01	68		2		10	6			
	L-RS-02	94				13	4			
	L-RS-03	128				4				
	L-RS-04	12				19				
	L-RS-05					1				
SW-L,M	L-RS-06					2				
	L-RS-07									
	L-RS-08	68				3				

## Tree Height Class: &gt; 1.3 m

Seed Mix Zone	Plot	Number of Trees								
		<i>Allocasuarina fraseriana</i>	<i>Allocasuarina huegeliana</i>	<i>Banksia grandis</i>	<i>Banksia littoralis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus rudis</i>	<i>Eucalyptus wandoo</i>
CL-M	M-RS-01									
	M-RS-02									
	M-RS-03		7						4	
DS-PS	PS-RS-01									
	PS-RS-02									
	PS-RS-03									
DS-S,SP	SP-RS-14		9							
LG-S,SP	SP-RS-01									
	SP-RS-02									
	SP-RS-03		7							
	SP-RS-04		10							3
	SP-RS-05									
	SP-RS-06									
	SP-RS-07									
	SP-RS-08									
	SP-RS-09									
SG-M	M-RS-04	3								
SG-S,SP	SP-RS-11		13							
	SP-RS-12		12							
	SP-RS-13		16			1				
SW-A1	A-RS-01									
SW-L	L-RS-01									
	L-RS-02									
	L-RS-03									
	L-RS-04	6								
	L-RS-05									
SW-L,M	L-RS-06									
	L-RS-07									
	L-RS-08									

## Appendix Q: Nursery Row Transect Review Raw Data

Note: All GPS locations are in GDA94, Zone 50. Refer to Table 7 of the main report (Newmont18-69-01 Rev 0) for a description of each condition ranking category.

**Nursery Row Transect No:** NR-01  
**Recorders:** MS, KK  
**0 m star picket easting:** WP252 436143  
**0 m star picket northing:** 6363390  
**0 m star picket photo:** 132



**Date:** 13/12/2018  
**Seed mix:** LG-S,SP  
**50 m star picket easting:** WP264 436165  
**50 m star picket northing:** 6363346  
**50 m star picket photo:** 133

**Comments:**

Many plants with yellowing, drying or dead foliage.

Acacia pulchella var. glaberrima, Gompholobium marginata, Gompholobium preissii and Hakea prostrata also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-01	<i>Podolepis lessonii</i>	3	252	436143	6363390	30	Flowering, fruiting	1	About to die
NR-01-02	<i>Allocasuarina ?humilis</i>	1	252	436143	6363390	2	Sterile	4	Grazed?
NR-01-03	<i>Hypocalymma angustifolium</i>	1	252	436143	6363390	20	Sterile	3	Some death of foliage on top of plant
NR-01-04	<i>Phyllanthus calycinus</i>	1	252	436143	6363390	4	Sterile	4	
NR-01-05	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	252	436143	6363390	30	Fruiting	3	Some death and yellowing of foliage
NR-01-06	<i>Hypocalymma angustifolium</i>	1	252	436143	6363390	32	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-07	<i>Phyllanthus calycinus</i>	1	252	436143	6363390	4	Sterile	4	
NR-01-08	<i>Phyllanthus calycinus</i>	1	252	436143	6363390	4	Sterile	4	
NR-01-09	<i>Phyllanthus calycinus</i>	1	252	436143	6363390	3	Sterile	4	
NR-01-10	<i>Hypocalymma angustifolium</i>	1	252	436143	6363390	10	Sterile	4	
NR-01-11	<i>Allocasuarina humilis</i>	1	252	436143	6363390	5	Sterile	4	
NR-01-12	<i>Hypocalymma angustifolium</i>	1	252	436143	6363390	11	Sterile	4	
NR-01-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	253	436146	6363389	5	Fruiting	4	
NR-01-14	<i>Allocasuarina humilis</i>	1	253	436146	6363389	12	Sterile	4	
NR-01-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	253	436146	6363389	13	Fruiting	4	
NR-01-16	<i>Phyllanthus calycinus</i>	1	253	436146	6363389	3	Sterile	4	
NR-01-17	<i>Hypocalymma angustifolium</i>	1	253	436146	6363389	8	Sterile	4	
NR-01-18	<i>Hypocalymma angustifolium</i>	1	253	436146	6363389	22	Sterile	4	
NR-01-19	<i>Bossiaea ornata</i>	1	253	436146	6363389	5	Sterile	4	
NR-01-20	<i>Hakea undulata</i>	1	253	436146	6363389	20	Sterile	3	Minor drying of foliage
NR-01-21	<i>Hakea lissocarpha</i>	1	253	436146	6363389	4	Sterile	3	Minor drying of foliage
NR-01-22	<i>Phyllanthus calycinus</i>	1	253	436146	6363389	4	Sterile	4	
NR-01-23	<i>Phyllanthus calycinus</i>	1	253	436146	6363389	3	Sterile	4	
NR-01-24	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	253	436146	6363389	3	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-25	<i>Allocasuarina humilis</i>	1	253	436146	6363389	4	Sterile	4	
NR-01-26	<i>Hakea lissocarpha</i>	1	253	436146	6363389	12	Sterile	3	Minor drying of foliage
NR-01-27	<i>Banksia grandis</i>	1	253	436146	6363389	25	Sterile	3	Minor drying of foliage
NR-01-28	<i>Phyllanthus calycinus</i>	1	253	436146	6363389	10	Sterile	4	
NR-01-29	<i>Podolepis lessonii</i>	1	253	436146	6363389	40	Flowering, fruiting	1	About to die
NR-01-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	254	436146	6363385	50	Fruiting	3	Minor drying of foliage
NR-01-31	<i>Hypocalymma angustifolium</i>	1	254	436146	6363385	28	Sterile	4	
NR-01-32	<i>Phyllanthus calycinus</i>	1	254	436146	6363385	5	Sterile	4	
NR-01-33	<i>Hypocalymma angustifolium</i>	1	254	436146	6363385	20	Sterile	3	Minor drying of foliage
NR-01-34	<i>Hypocalymma angustifolium</i>	1	254	436146	6363385	32	Sterile	4	
NR-01-35	<i>Hakea lissocarpha</i>	1	254	436146	6363385	13	Sterile	4	
NR-01-36	<i>Hypocalymma angustifolium</i>	1	254	436146	6363385	15	Sterile	4	
NR-01-37	<i>Podolepis lessonii</i>	1	254	436146	6363385	20	Flowering, fruiting	4	
NR-01-38	<i>Phyllanthus calycinus</i>	1	254	436146	6363385	15	Sterile	3	Minor drying of foliage
NR-01-39	<i>Hovea trisperma</i>	1	255	436147	6363383	6	Fruiting	4	
NR-01-40	<i>Allocasuarina humilis</i>	1	255	436147	6363383	8	Sterile	4	
NR-01-41	<i>Hypocalymma angustifolium</i>	1	255	436147	6363383	36	Sterile	4	
NR-01-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	255	436147	6363383	10	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-43	<i>Hakea lissocarpha</i>	1	255	436147	6363383	20	Sterile	4	
NR-01-44	<i>Phyllanthus calycinus</i>	1	255	436147	6363383	8	Sterile	3	Minor drying of foliage
NR-01-45	<i>Phyllanthus calycinus</i>	1	255	436147	6363383	4	Sterile	4	
NR-01-46	<i>Hypocalymma angustifolium</i>	1	255	436147	6363383	30	Sterile	4	
NR-01-47A	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	4	Sterile	4	
NR-01-47B	<i>Bossiaea ornata</i>	1	256	436150	6363376	3	Sterile	4	
NR-01-48A	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	4	Sterile	4	
NR-01-48B	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	256	436150	6363376	20	Fruiting	3	Minor drying of foliage
NR-01-49A	<i>Banksia grandis</i>	1	256	436150	6363376	25	Sterile	4	
NR-01-49B	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	5	Sterile	4	
NR-01-50	<i>Hypocalymma angustifolium</i>	1	256	436150	6363376	22	Sterile	3	Minor drying of foliage
NR-01-51	<i>Hypocalymma angustifolium</i>	1	256	436150	6363376	15	Sterile	4	
NR-01-52	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	8	Sterile	4	
NR-01-53	<i>Podolepis lessonii</i>	1	256	436150	6363376	15	Flowering, fruiting	4	
NR-01-54	<i>Banksia grandis</i>	1	256	436150	6363376	20	Sterile	3	Minor drying of foliage
NR-01-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	256	436150	6363376	15	Sterile	4	
NR-01-56	<i>Banksia grandis</i>	1	256	436150	6363376	15	Sterile	3	Minor drying of foliage
NR-01-57	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	256	436150	6363376	8	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-58	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	4	Sterile	4	
NR-01-59	<i>Hypocalymma angustifolium</i>	1	256	436150	6363376	6	Sterile	4	
NR-01-60	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	4	Sterile	4	
NR-01-61	<i>Podolepis lessonii</i>	1	256	436150	6363376	20	Flowering, fruiting	1	About to die
NR-01-62	<i>Petrophile heterophylla</i>	1	256	436150	6363376	140	Sterile	4	
NR-01-63	<i>Phyllanthus calycinus</i>	1	256	436150	6363376	5	Sterile	4	
NR-01-64	<i>Phyllanthus calycinus</i>	1	257	436151	6363375	3	Sterile	4	
NR-01-65	<i>Hypocalymma angustifolium</i>	1	257	436151	6363375	25	Sterile	4	
NR-01-66	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	257	436151	6363375	47	Fruiting	3	Minor drying of foliage
NR-01-67	<i>Bossiaea ornata</i>	1	257	436151	6363375	3	Sterile	3	Minor drying of foliage
NR-01-68	<i>Podolepis lessonii</i>	1	257	436151	6363375	28	Flowering, fruiting	4	
NR-01-69	<i>Hakea lissocarpha</i>	1	257	436151	6363375	8	Sterile	3	Minor drying of foliage
NR-01-70	<i>Podolepis lessonii</i>	5	257	436151	6363375	16	Flowering, fruiting	4	
NR-01-71	<i>Phyllanthus calycinus</i>	1	258	436155	6363372	4	Sterile	4	
NR-01-72	<i>Anigozanthos manglesii</i>	1	258	436155	6363372	12	Sterile	3	Minor drying of foliage
NR-01-73	<i>Podolepis lessonii</i>	1	258	436155	6363372	15	Flowering, fruiting	4	
NR-01-74	<i>Phyllanthus calycinus</i>	1	258	436155	6363372	4	Sterile	4	
NR-01-75	<i>Banksia grandis</i>	1	258	436155	6363372	10	Sterile	3	Some death of foliage on top of plant

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-76	<i>Hypocalymma angustifolium</i>	1	258	436155	6363372	15	Sterile	3	Minor drying of foliage
NR-01-77	<i>Podolepis lessonii</i>	1	258	436155	6363372	15	Flowering, fruiting	1	About to die
NR-01-78	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	258	436155	6363372	4	Sterile	4	
NR-01-79	<i>Banksia grandis</i>	1	258	436155	6363372	10	Sterile	3	Minor drying of foliage
NR-01-80	<i>Hakea lissocarpha</i>	1	258	436155	6363372	15	Sterile	4	
NR-01-81	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	258	436155	6363372	8	Sterile	4	
NR-01-82	<i>Phyllanthus calycinus</i>	1	258	436155	6363372	4	Sterile	4	
NR-01-83	<i>Hakea lissocarpha</i>	1	258	436155	6363372	25	Sterile	3	
NR-01-84	<i>Hypocalymma angustifolium</i>	1	258	436155	6363372	10	Sterile	4	
NR-01-85	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	3	Sterile	4	
NR-01-86	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	20	Fruiting	4	
NR-01-87	<i>Hypocalymma angustifolium</i>	1	259	436153	6363368	17	Sterile	4	
NR-01-88	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	12	Sterile	4	
NR-01-89	<i>Hakea lissocarpha</i>	1	259	436153	6363368	32	Sterile	4	
NR-01-90	<i>Phyllanthus calycinus</i>	1	259	436153	6363368	4	Sterile	4	
NR-01-91	<i>Podolepis lessonii</i>	1	259	436153	6363368	20	Flowering, fruiting	0	Recently dead
NR-01-92	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	10	Fruiting	4	
NR-01-93	<i>Hypocalymma angustifolium</i>	1	259	436153	6363368	5	Sterile	3	Minor drying of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-94	<i>Hypocalymma angustifolium</i>	1	259	436153	6363368	5	Sterile	4	
NR-01-95	<i>Hypocalymma angustifolium</i>	1	259	436153	6363368	4	Sterile	4	
NR-01-96	<i>Lepidosperma</i> sp.	1	259	436153	6363368	20	Sterile	4	No flowering material; cannot identify to species level
NR-01-97	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	5	Fruiting	4	
NR-01-98	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	259	436153	6363368	2	Sterile	4	
NR-01-99	<i>Hypocalymma angustifolium</i>	1	260	436157	6363367	16	Sterile	4	
NR-01-100	<i>Podolepis lessonii</i>	1	260	436157	6363367	6	Flowering, fruiting	0	Recently dead
NR-01-101	<i>Hypocalymma angustifolium</i>	1	260	436157	6363367	12	Sterile	4	
NR-01-102	<i>Podolepis lessonii</i>	1	260	436157	6363367	5	Flowering, fruiting	4	
NR-01-103	<i>Hakea lissocarpha</i>	1	260	436157	6363367	7	Sterile	4	
NR-01-104	<i>Banksia grandis</i>	1	260	436157	6363367	11	Sterile	3	Some death of foliage on top of plant
NR-01-105	<i>Podolepis lessonii</i>	1	260	436157	6363367	5	Flowering, fruiting	4	
NR-01-106	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	260	436157	6363367	38	Fruiting	4	
NR-01-107	<i>Hakea undulata</i>	1	260	436157	6363367	140	Sterile	4	
NR-01-108	<i>Hypocalymma angustifolium</i>	1	260	436157	6363367	5	Sterile	4	
NR-01-109	<i>Banksia grandis</i>	1	260	436157	6363367	10	Sterile	4	
NR-01-110	<i>Hakea lissocarpha</i>	1	260	436157	6363367	45	Sterile	3	Minor drying of foliage
NR-01-111	<i>Podolepis lessonii</i>	1	260	436157	6363367	6	Flowering, fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-112	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	260	436157	6363367	35	Fruiting	4	
NR-01-113	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	260	436157	6363367	35	Fruiting	4	
NR-01-114	<i>Phyllanthus calycinus</i>	1	260	436157	6363367	4	Sterile	3	Minor drying of foliage
NR-01-115	<i>Bossiaea ornata</i>	1	260	436157	6363367	4	Sterile	4	
NR-01-116	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	261	436158	6363360	10	Sterile	4	
NR-01-117	<i>Phyllanthus calycinus</i>	1	261	436158	6363360	8	Sterile	4	
NR-01-118	<i>Hakea lissocarpha</i>	1	261	436158	6363360	3	Sterile	4	
NR-01-119	<i>Banksia grandis</i>	1	261	436158	6363360	20	Sterile	4	
NR-01-120	<i>Hypocalymma angustifolium</i>	1	261	436158	6363360	60	Sterile	4	
NR-01-121	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	261	436158	6363360	50	Fruiting	4	
NR-01-122	<i>Hakea lissocarpha</i>	1	261	436158	6363360	65	Sterile	4	
NR-01-123	<i>Hypocalymma angustifolium</i>	1	261	436158	6363360	65	Sterile	4	
NR-01-124	<i>Hakea lissocarpha</i>	1	261	436158	6363360	50	Sterile	4	
NR-01-125	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	261	436158	6363360	28	Fruiting	4	
NR-01-126	<i>Phyllanthus calycinus</i>	1	261	436158	6363360	6	Sterile	4	
NR-01-127	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	261	436158	6363360	30	Fruiting	4	
NR-01-128	<i>Hypocalymma angustifolium</i>	1	261	436158	6363360	38	Sterile	4	
NR-01-129	<i>Hakea lissocarpha</i>	1	261	436158	6363360	15	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-130	<i>Hypocalymma angustifolium</i>	1	261	436158	6363360	2	Sterile	4	
NR-01-131	<i>Phyllanthus calycinus</i>	1	261	436158	6363360	4	Sterile	4	
NR-01-132	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	261	436158	6363360	50	Sterile	4	
NR-01-133	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	3	Sterile	4	
NR-01-134	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	15	Sterile	4	
NR-01-135	<i>Bossiaea ornata</i>	1	262	436161	6363360	2	Sterile	4	
NR-01-136	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	262	436161	6363360	3	Sterile	4	
NR-01-137	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	10	Sterile	4	
NR-01-138	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	6	Sterile	4	
NR-01-139	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	6	Sterile	4	
NR-01-140	<i>Hakea lissocarpha</i>	1	262	436161	6363360	55	Sterile	4	
NR-01-141	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	8	Sterile	4	
NR-01-142	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	7	Sterile	4	
NR-01-143	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	262	436161	6363360	15	Sterile	4	
NR-01-144	<i>Banksia grandis</i>	1	262	436161	6363360	12	Sterile	3	Some death of foliage on top of plant
NR-01-145	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	2	262	436161	6363360	40	Fruiting	4	
NR-01-146	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	40	Sterile	4	
NR-01-147	<i>Isopogon dubius</i>	1	262	436161	6363360	20	Sterile	2	Approximately 50 % of foliage dead

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-148	<i>Hypocalymma angustifolium</i>	1	262	436161	6363360	30	Sterile	4	
NR-01-149	<i>Lomandra ?micrantha</i> subsp. <i>micrantha</i>	1	262	436161	6363360	30	Sterile	4	
NR-01-150	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	263	436162	6363354	15	Fruiting	4	
NR-01-151	<i>Hakea lissocarpha</i>	1	263	436162	6363354	15	Sterile	4	
NR-01-152	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	2	Sterile	4	
NR-01-153	<i>Hypocalymma angustifolium</i>	2	263	436162	6363354	20	Sterile	4	
NR-01-154	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	263	436162	6363354	4	Sterile	4	
NR-01-155	<i>Allocasuarina humilis</i>	1	263	436162	6363354	4	Sterile	4	
NR-01-156	<i>Phyllanthus calycinus</i>	1	263	436162	6363354	3	Sterile	4	
NR-01-157	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	50	Sterile	4	
NR-01-158	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	20	Sterile	4	
NR-01-159	<i>Hakea undulata</i>	1	263	436162	6363354	90	Sterile	3	Minor drying of foliage
NR-01-160A	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	40	Sterile	4	
NR-01-160B	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	263	436162	6363354	30	Fruiting	4	
NR-01-160C	<i>Hakea lissocarpha</i>	1	263	436162	6363354	45	Sterile	3	Minor drying of foliage
NR-01-161	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	15	Sterile	4	
NR-01-162	<i>Hypocalymma angustifolium</i>	1	263	436162	6363354	30	Sterile	4	
NR-01-163	<i>Phyllanthus calycinus</i>	1	263	436162	6363354	6	Sterile	3	Minor drying of foliage



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-01-164	<i>Tetraria octandra</i>	1	263	436162	6363354	16	Sterile	4	
NR-01-165	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	263	436162	6363354	13	Sterile	4	
NR-01-166	<i>Bossiaea ornata</i>	1	263	436162	6363354	2	Sterile	4	
NR-01-167	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	264	436165	6363346.1	30	Fruiting	4	
NR-01-168	<i>Hypocalymma angustifolium</i>	1	264	436165	6363346.1	17	Sterile	4	
NR-01-169	<i>Hakea lissocarpha</i>	1	264	436165	6363346.1	45	Sterile	4	
NR-01-170	<i>Hypocalymma angustifolium</i>	1	264	436165	6363346.1	20	Sterile	4	

**Nursery Row Transect No:** NR-02  
**Recorders:** MS, KK  
**0 m star picket easting:** WP231 437484  
**0 m star picket northing:** 6363658  
**0 m star picket photo:** 130



**Date:** 13/12/2018  
**Seed mix:** LG-S,SP  
**50 m star picket easting:** WP251 437513  
**50 m star picket northing:** 6363699  
**50 m star picket photo:** 131



**Comments:** Daviesia rhombifolia, Gompholobium marginata, Gompholobium preissii and Hakea prostrata also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-01	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	2	231	437484	6363658.5	27	Fruiting	4	
NR-02-02A	<i>Hypocalymma angustifolium</i>	2	231	437484	6363658.5	55	Sterile	4	
NR-02-02B	<i>Hovea trisperma</i>	4	231	437484	6363658.5	8	Fruiting	4	
NR-02-03	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	25	Fruiting	4	
NR-02-04	<i>Hypocalymma angustifolium</i>	1	231	437484	6363658.5	40	Sterile	4	
NR-02-05	<i>Podolepis lessonii</i>	1	231	437484	6363658.5	40	Flowering, fruiting	0	Recently dead. Old flowers present

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-06A	<i>Hypocalymma angustifolium</i>	1	231	437484	6363658.5	3	Sterile	4	
NR-02-06B	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	30	Fruiting	4	
NR-02-07	<i>Podolepis lessonii</i>	1	231	437484	6363658.5	35	Flowering, fruiting	1	About to die
NR-02-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	30	Sterile	4	
NR-02-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	12	Sterile	4	
NR-02-10	<i>Hypocalymma angustifolium</i>	1	231	437484	6363658.5	20	Sterile	4	
NR-02-11	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	2	Sterile	4	
NR-02-12	<i>Hypocalymma angustifolium</i>	1	231	437484	6363658.5	6	Sterile	4	
NR-02-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	231	437484	6363658.5	15	Sterile	4	
NR-02-14	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	232	437486	6363661.8	8	Sterile	4	
NR-02-15	<i>Podolepis lessonii</i>	1	232	437486	6363661.8	20	Flowering, fruiting	0	Recently dead. Old flowers present
NR-02-16	<i>Hakea lissocarpha</i>	1	232	437486	6363661.8	40	Sterile	3	Minor yellowing of foliage
NR-02-17	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	232	437486	6363661.8	20	Fruiting	4	
NR-02-18	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	232	437486	6363661.8	17	Sterile	4	
NR-02-19	<i>Hypocalymma angustifolium</i>	1	232	437486	6363661.8	16	Sterile	4	
NR-02-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	232	437486	6363661.8	22	Sterile	4	
NR-02-21	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	232	437486	6363661.8	18	Sterile	4	
NR-02-22	<i>Hypocalymma angustifolium</i>	1	232	437486	6363661.8	20	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-23	<i>Hakea undulata</i>	1	232	437486	6363661.8	100	Sterile	4	
NR-02-24	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	233	437489	6363667	30	Fruiting	4	
NR-02-25	<i>Hypocalymma angustifolium</i>	1	233	437489	6363667	35	Sterile	4	
NR-02-26	<i>Hypocalymma angustifolium</i>	1	233	437489	6363667	80	Sterile	4	
NR-02-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	233	437489	6363667	28	Sterile	4	
NR-02-28A	<i>Allocasuarina ?humilis</i>	1	233	437489	6363667	20	Sterile	4	
NR-02-28B	<i>Phyllanthus calycinus</i>	1	233	437489	6363667	3	Sterile	4	
NR-02-29A	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	233	437489	6363667	35	Fruiting	4	
NR-02-29B	? <i>Conostylis setigera</i> subsp. <i>setigera</i>	1	233	437489	6363667	4	Sterile	4	
NR-02-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	233	437489	6363667	38	Fruiting	4	
NR-02-31	<i>Hypocalymma angustifolium</i>	1	234	437487	6363667	25	Sterile	4	
NR-02-32	<i>Hypocalymma angustifolium</i>	1	234	437487	6363667	35	Sterile	4	
NR-02-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	234	437487	6363667	23	Sterile	4	
NR-02-34	<i>Hypocalymma angustifolium</i>	1	234	437487	6363667	25	Sterile	4	
NR-02-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	234	437487	6363667	18	Fruiting	4	
NR-02-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	234	437487	6363667	20	Sterile	4	
NR-02-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	234	437487	6363667	12	Sterile	4	
NR-02-38	<i>Hypocalymma angustifolium</i>	1	234	437487	6363667	4	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-39	<i>Hypocalymma angustifolium</i>	1	234	437487	6363667	11	Sterile	4	
NR-02-40	<i>Tetraria capillaris</i>	1	235	437491	6363670	25	Flowering, fruiting	4	
NR-02-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	235	437491	6363670	20	Sterile	4	
NR-02-42	<i>Banksia grandis</i>	1	235	437491	6363670	15	Sterile	3	Some death of foliage on top of plant
NR-02-43	<i>Hypocalymma angustifolium</i>	1	235	437491	6363670	13	Sterile	4	
NR-02-44	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	235	437491	6363670	35	Fruiting	4	
NR-02-45	<i>Banksia grandis</i>	1	235	437491	6363670	25	Sterile	3	Some death of foliage on top of plant
NR-02-46	<i>Hypocalymma angustifolium</i>	1	235	437491	6363670	12	Sterile	4	
NR-02-47	<i>Hypocalymma angustifolium</i>	1	235	437491	6363670	30	Sterile	4	
NR-02-48	<i>Petrophile heterophylla</i>	1	236	437492	6363675	120	Sterile	4	
NR-02-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	236	437492	6363675	45	Fruiting	4	
NR-02-50	<i>Hypocalymma angustifolium</i>	2	236	437492	6363675	55	Sterile	4	
NR-02-51	<i>Hypocalymma angustifolium</i>	1	236	437492	6363675	22	Sterile	4	
NR-02-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	236	437492	6363675	10	Sterile	4	
NR-02-53	<i>Hakea undulata</i>	1	236	437492	6363675	20	Sterile	4	
NR-02-54	<i>Hypocalymma angustifolium</i>	1	236	437492	6363675	65	Sterile	4	
NR-02-55	<i>Phyllanthus calycinus</i>	1	236	437492	6363675	4	Sterile	4	
NR-02-56	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	236	437492	6363675	3	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-57	<i>Hypocalymma angustifolium</i>	1	237	437493	6363677	13	Sterile	4	
NR-02-58	<i>Hakea lissocarpha</i>	1	237	437493	6363677	50	Sterile	4	
NR-02-59	<i>Petrophile heterophylla</i>	1	237	437493	6363677	125	Sterile	4	
NR-02-60	<i>Hypocalymma angustifolium</i>	1	237	437493	6363677	40	Sterile	4	
NR-02-61	<i>Hakea undulata</i>	1	237	437493	6363677	130	Sterile	4	
NR-02-62	<i>Hypocalymma angustifolium</i>	1	237	437493	6363677	30	Sterile	4	
NR-02-63	<i>Hypocalymma angustifolium</i>	1	237	437493	6363677	3	Sterile	4	
NR-02-64	<i>Hypocalymma angustifolium</i>	1	237	437493	6363677	30	Sterile	4	
NR-02-65	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	238	437494	6363676	20	Sterile	4	
NR-02-66	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	12	Sterile	4	
NR-02-67	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	25	Sterile	4	
NR-02-68	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	238	437494	6363676	3	Sterile	4	
NR-02-69	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	22	Sterile	4	
NR-02-70	<i>Hakea lissocarpha</i>	1	238	437494	6363676	25	Sterile	4	
NR-02-71	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	22	Sterile	4	
NR-02-72	<i>Petrophile heterophylla</i>	1	238	437494	6363676	40	Sterile	4	
NR-02-73	<i>Phyllanthus calycinus</i>	1	238	437494	6363676	3	Sterile	4	
NR-02-74	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	25	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-75	<i>Hypocalymma angustifolium</i>	1	238	437494	6363676	20	Sterile	4	
NR-02-76	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	11	Sterile	4	
NR-02-77	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	20	Sterile	4	
NR-02-78	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	20	Sterile	4	
NR-02-79	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	18	Sterile	4	
NR-02-80	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	20	Sterile	4	
NR-02-81	<i>Hypocalymma angustifolium</i>	1	239	437495	6363681	22	Sterile	3	Minor yellowing and thinning of foliage
NR-02-82	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	240	437499	6363681	7	Sterile	4	
NR-02-83	<i>Hypocalymma angustifolium</i>	1	240	437499	6363681	6	Sterile	4	
NR-02-84	<i>Hypocalymma angustifolium</i>	1	240	437499	6363681	8	Sterile	4	
NR-02-85	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	240	437499	6363681	10	Sterile	4	
NR-02-86	<i>Podolepis lessonii</i>	1	240	437499	6363681	28	Flowering, fruiting	0	Recently dead. Old flowers present
NR-02-87	<i>Hakea lissocarpha</i>	1	240	437499	6363681	6	Sterile	4	
NR-02-88	<i>Hakea lissocarpha</i>	1	240	437499	6363681	35	Sterile	4	
NR-02-89	<i>Podolepis lessonii</i>	1	240	437499	6363681	30	Flowering, fruiting	0	Recently dead. Old flowers present
NR-02-90	<i>Hypocalymma angustifolium</i>	1	240	437499	6363681	7	Sterile	4	
NR-02-91	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	240	437499	6363681	6	Sterile	4	
NR-02-92	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	13	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-93	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	25	Sterile	4	
NR-02-94	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	241	437497	6363684	30	Fruiting	4	
NR-02-95	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	42	Sterile	4	
NR-02-96	<i>Hakea lissocarpha</i>	1	241	437497	6363684	55	Sterile	4	
NR-02-97	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	25	Sterile	4	
NR-02-98	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	28	Sterile	4	
NR-02-99	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	12	Sterile	4	
NR-02-100	<i>Hypocalymma angustifolium</i>	1	241	437497	6363684	15	Sterile	4	
NR-02-101	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	242	437498	6363684	12	Sterile	4	
NR-02-102	<i>Hypocalymma angustifolium</i>	1	242	437498	6363684	16	Sterile	4	
NR-02-103	<i>Hypocalymma angustifolium</i>	1	242	437498	6363684	20	Sterile	4	
NR-02-104	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	242	437498	6363684	16	Sterile	4	
NR-02-105	<i>Anigozanthos manglesii</i>	1	242	437498	6363684	15	Sterile	4	
NR-02-106	<i>Bossiaea ornata</i>	1	242	437498	6363684	3	Sterile	3	Some death and yellowing of foliage
NR-02-107	<i>Hypocalymma angustifolium</i>	1	242	437498	6363684	3	Sterile	4	
NR-02-108	<i>Hypocalymma angustifolium</i>	1	242	437498	6363684	30	Sterile	4	
NR-02-109	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	18	Sterile	4	
NR-02-110	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	243	437500	6363688	32	Fruiting	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-111	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	7	Sterile	4	
NR-02-112	<i>Petrophile heterophylla</i>	1	243	437500	6363688	140	Sterile	4	
NR-02-113	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	8	Sterile	4	
NR-02-114	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	243	437500	6363688	15	Sterile	4	
NR-02-115	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	30	Sterile	4	
NR-02-116	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	13	Sterile	4	
NR-02-117	<i>Hypocalymma angustifolium</i>	1	243	437500	6363688	15	Sterile	4	
NR-02-118	<i>Petrophile heterophylla</i>	1	243	437500	6363688	90	Sterile	4	
NR-02-119	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	243	437500	6363688	18	Fruiting	4	
NR-02-120	<i>Podolepis lessonii</i>	2	243	437500	6363688	16	Flowering, fruiting	4	
NR-02-121	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	40	Sterile	4	
NR-02-122	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	244	437501	6363688	23	Sterile	4	
NR-02-123	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	35	Sterile	4	
NR-02-124	<i>Hypocalymma angustifolium</i>	2	244	437501	6363688	45	Sterile	4	
NR-02-125	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	244	437501	6363688	50	Fruiting	4	
NR-02-126	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	26	Sterile	4	
NR-02-127	<i>Hakea lissocarpha</i>	1	244	437501	6363688	5	Sterile	4	
NR-02-128	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	27	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-129	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	50	Sterile	4	
NR-02-130	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	30	Sterile	4	
NR-02-131	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	57	Sterile	4	
NR-02-132	<i>Hypocalymma angustifolium</i>	1	244	437501	6363688	40	Sterile	4	
NR-02-133	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	245	437503	6363691	15	Fruiting	4	
NR-02-134	<i>Hypocalymma angustifolium</i>	1	245	437503	6363691	12	Sterile	4	
NR-02-135	<i>Hypocalymma angustifolium</i>	1	245	437503	6363691	38	Sterile	4	
NR-02-136	<i>Hakea lissocarpha</i>	1	245	437503	6363691	40	Sterile	4	
NR-02-137	<i>Hypocalymma angustifolium</i>	1	245	437503	6363691	20	Sterile	4	
NR-02-138	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	245	437503	6363691	25	Fruiting	4	
NR-02-139	<i>Hypocalymma angustifolium</i>	1	245	437503	6363691	32	Sterile	4	
NR-02-140	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	245	437503	6363691	10	Sterile	4	
NR-02-141	<i>Phyllanthus calycinus</i>	1	245	437503	6363691	10	Sterile	4	
NR-02-142	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	245	437503	6363691	17	Fruiting	4	
NR-02-143	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	245	437503	6363691	42	Sterile	4	
NR-02-144	<i>Hypocalymma angustifolium</i>	1	245	437503	6363691	16	Sterile	4	
NR-02-145	<i>Phyllanthus calycinus</i>	1	245	437503	6363691	10	Sterile	4	
NR-02-146	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	246	437505	6363691	20	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-147	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	246	437505	6363691	20	Sterile	4	
NR-02-148	<i>Phyllanthus calycinus</i>	1	246	437505	6363691	22	Sterile	4	
NR-02-149	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	246	437505	6363691	37	Fruiting	4	
NR-02-150	<i>Allocasuarina humilis</i>	1	246	437505	6363691	11	Sterile	4	
NR-02-151	<i>Hypocalymma angustifolium</i>	1	246	437505	6363691	55	Sterile	4	
NR-02-152	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	246	437505	6363691	35	Fruiting	4	
NR-02-153	Restionaceae sp.	1	246	437505	6363691	15	Sterile	4	No flowering material; cannot identify
NR-02-154	<i>Lepidosperma tenue</i>	1	246	437505	6363691	30	Flowering, fruiting	4	
NR-02-155	<i>Hypocalymma angustifolium</i>	1	246	437505	6363691	20	Sterile	4	
NR-02-156	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	13	Sterile	4	
NR-02-157	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	247	437505	6363694	50	Fruiting	4	
NR-02-158	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	20	Sterile	0	Recently dead
NR-02-159	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	247	437505	6363694	28	Sterile	4	
NR-02-160	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	20	Sterile	4	
NR-02-161	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	22	Sterile	4	
NR-02-162	<i>Podolepis lessonii</i>	2	247	437505	6363694	27	Flowering, fruiting	0	Recently dead. Old flowers present
NR-02-163	<i>Allocasuarina humilis</i>	1	247	437505	6363694	5	Sterile	4	
NR-02-164	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	6	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-165	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	247	437505	6363694	25	Sterile	4	
NR-02-166	<i>Hypocalymma angustifolium</i>	1	247	437505	6363694	30	Sterile	4	
NR-02-167	<i>Hypocalymma angustifolium</i>	1	248	437506	6363696	20	Sterile	4	
NR-02-168	<i>Hypocalymma angustifolium</i>	1	248	437506	6363696	15	Sterile	4	
NR-02-169	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	248	437506	6363696	33	Fruiting	4	
NR-02-170	<i>Hypocalymma angustifolium</i>	2	248	437506	6363696	12	Sterile	4	
NR-02-171	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	248	437506	6363696	10	Sterile	4	
NR-02-172	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	248	437506	6363696	15	Sterile	4	
NR-02-173	<i>Hakea incrassata</i>	1	248	437506	6363696	30	Sterile	4	
NR-02-174	<i>Hypocalymma angustifolium</i>	1	248	437506	6363696	65	Sterile	4	
NR-02-175	<i>Hypocalymma angustifolium</i>	1	248	437506	6363696	35	Sterile	4	
NR-02-176	<i>Hypocalymma angustifolium</i>	1	248	437506	6363696	30	Sterile	4	
NR-02-177	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	249	437508	6363696	25	Sterile	4	
NR-02-178	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	249	437508	6363696	25	Sterile	4	
NR-02-179	<i>Hypocalymma angustifolium</i>	1	249	437508	6363696	10	Sterile	4	
NR-02-180	<i>Hypocalymma angustifolium</i>	1	249	437508	6363696	25	Fruiting	4	
NR-02-181	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	249	437508	6363696	30	Fruiting	4	
NR-02-182	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	249	437508	6363696	30	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-02-183	<i>Hakea undulata</i>	1	249	437508	6363696	90	Sterile	4	
NR-02-184	<i>Anigozanthos manglesii</i>	1	249	437508	6363696	45	Flowering	3	Minor drying of foliage
NR-02-185	<i>Hypocalymma angustifolium</i>	1	249	437508	6363696	30	Sterile	4	
NR-02-186	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	249	437508	6363696	40	Fruiting	4	
NR-02-187	<i>Podolepis lessonii</i>	1	249	437508	6363696	30	Flowering, fruiting	1	About to die
NR-02-188	<i>Hypocalymma angustifolium</i>	1	250	437510	6363698	45	Sterile	4	
NR-02-189	<i>Hypocalymma angustifolium</i>	1	250	437510	6363698	35	Sterile	4	
NR-02-190	<i>Hypocalymma angustifolium</i>	1	250	437510	6363698	25	Sterile	4	
NR-02-191	<i>Hypocalymma angustifolium</i>	1	250	437510	6363698	10	Sterile	4	
NR-02-192	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	250	437510	6363698	25	Fruiting	4	
NR-02-193	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	250	437510	6363698	30	Sterile	4	
NR-02-194	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	250	437510	6363698	40	Fruiting	4	
NR-02-195	<i>Lepidosperma tenue</i>	1	251	437513	6363699	30	Flowering, fruiting	4	
NR-02-196	<i>Hypocalymma angustifolium</i>	1	251	437513	6363699	15	Sterile	4	
NR-02-197	<i>Hakea lissocarpha</i>	1	251	437513	6363699	30	Sterile	4	
NR-02-198	<i>Hakea undulata</i>	1	251	437513	6363699	100	Sterile	4	
NR-02-199	<i>Phyllanthus calycinus</i>	1	251	437513	6363699	15	Fruiting	4	

**Nursery Row Transect No:** NR-03  
**Recorders:** MS, KK  
**0 m star picket easting:** WP147 439501  
**0 m star picket northing:** 6363169  
**0 m star picket photo:** 111



**Date:** 12/12/2018  
**Seed mix:** SG-S,SP  
**50 m star picket easting:** WP158 439475  
**50 m star picket northing:** 6363212  
**50 m star picket photo:** 112



**Comments:** Occasional plant present in nursery row that is not listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-01	<i>Phyllanthus calycinus</i>	1	147	439501	6363169	10	Sterile	4	
NR-03-02	<i>Hakea lissocarpha</i>	1	147	439501	6363169	20	Sterile	3	Minor drying of foliage
NR-03-03	<i>Hypocalymma angustifolium</i>	1	147	439501	6363169	25	Sterile	4	
NR-03-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	147	439501	6363169	25	Sterile	4	
NR-03-05	<i>Phyllanthus calycinus</i>	1	147	439501	6363169	10	Sterile	4	
NR-03-06	<i>Hypocalymma angustifolium</i>	1	147	439501	6363169	40	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-07	<i>Hypocalymma angustifolium</i>	1	147	439501	6363169	40	Sterile	4	
NR-03-08	<i>Hypocalymma angustifolium</i>	1	148	439503	6363169	40	Sterile	4	
NR-03-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	148	439503	6363169	60	Fruiting	4	
NR-03-10	<i>Hypocalymma angustifolium</i>	1	148	439503	6363169	45	Sterile	4	
NR-03-11	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	148	439503	6363169	30	Fruiting	4	
NR-03-12	<i>Bossiaea ornata</i>	1	148	439503	6363169	15	Sterile	4	
NR-03-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	148	439503	6363169	22	Fruiting	4	
NR-03-14	<i>Hypocalymma angustifolium</i>	1	148	439503	6363169	45	Sterile	4	
NR-03-15	<i>Bossiaea ornata</i>	1	148	439503	6363169	15	Sterile	3	Some death and yellowing of foliage
NR-03-16	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	148	439503	6363169	20	Fruiting	4	
NR-03-17	<i>Hypocalymma angustifolium</i>	3	148	439503	6363169	30	Sterile	4	
NR-03-18	<i>Bossiaea ornata</i>	1	148	439503	6363169	10	Sterile	4	
NR-03-19	<i>Phyllanthus calycinus</i>	1	148	439503	6363169	15	Sterile	4	
NR-03-20	<i>Hypocalymma angustifolium</i>	1	148	439503	6363169	40	Sterile	4	
NR-03-21	<i>Hakea undulata</i>	1	149	439501	6363174	75	Sterile	3	Minor drying of foliage
NR-03-22	<i>Petrophile heterophylla</i>	1	149	439501	6363174	65	Sterile	4	
NR-03-23	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	149	439501	6363174	25	Fruiting	4	
NR-03-24	<i>Hakea lissocarpha</i>	1	149	439501	6363174	25	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-25	<i>Bossiaea ornata</i>	1	149	439501	6363174	20	Sterile	3	Some death and yellowing of foliage
NR-03-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	149	439501	6363174	40	Fruiting	4	
NR-03-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	149	439501	6363174	25	Sterile	4	
NR-03-28	<i>Bossiaea ornata</i>	1	149	439501	6363174	4	Sterile	4	
NR-03-29	<i>Phyllanthus calycinus</i>	1	149	439501	6363174	5	Sterile	4	
NR-03-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	149	439501	6363174	30	Fruiting	4	
NR-03-31	<i>Bossiaea ornata</i>	1	150	439500	6363175	35	Sterile	3	Some death and yellowing of foliage
NR-03-32	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	150	439500	6363175	35	Fruiting	4	
NR-03-33	<i>Hypocalymma angustifolium</i>	1	150	439500	6363175	50	Sterile	4	
NR-03-34	<i>Phyllanthus calycinus</i>	1	150	439500	6363175	6	Sterile	3	Minor yellowing of foliage
NR-03-35	<i>Phyllanthus calycinus</i>	1	150	439500	6363175	5	Sterile	4	
NR-03-36	<i>Bossiaea ornata</i>	1	150	439500	6363175	4	Sterile	4	
NR-03-37	<i>Phyllanthus calycinus</i>	1	150	439500	6363175	5	Sterile	3	Minor yellowing of foliage
NR-03-38	<i>Hypocalymma angustifolium</i>	1	150	439500	6363175	40	Sterile	4	
NR-03-39	<i>Hypocalymma angustifolium</i>	1	150	439500	6363175	45	Sterile	4	
NR-03-40	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	150	439500	6363175	35	Fruiting	4	
NR-03-41	<i>Phyllanthus calycinus</i>	1	150	439500	6363175	10	Sterile	4	
NR-03-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	151	439499	6363178	50	Fruiting	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-43	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	151	439499	6363178	25	Fruiting	4	
NR-03-44	<i>Hypocalymma angustifolium</i>	1	151	439499	6363178	30	Sterile	4	
NR-03-45	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	151	439499	6363178	55	Fruiting	4	
NR-03-46	<i>Hypocalymma angustifolium</i>	1	151	439499	6363178	30	Sterile	4	
NR-03-47	<i>Hypocalymma angustifolium</i>	1	151	439499	6363178	30	Sterile	4	
NR-03-48	<i>Bossiaea ornata</i>	1	152	439498	6363179	25	Sterile	4	
NR-03-49	<i>Hypocalymma angustifolium</i>	1	152	439498	6363179	30	Sterile	4	
NR-03-50	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	152	439498	6363179	45	Fruiting	4	
NR-03-51	<i>Phyllanthus calycinus</i>	1	152	439498	6363179	5	Sterile	4	
NR-03-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	152	439498	6363179	50	Fruiting	4	
NR-03-53	<i>Bossiaea ornata</i>	1	152	439498	6363179	10	Sterile	3	Minor yellowing of foliage
NR-03-54	<i>Phyllanthus calycinus</i>	1	152	439498	6363179	5	Sterile	4	
NR-03-55	<i>Hypocalymma angustifolium</i>	1	152	439498	6363179	60	Sterile	4	
NR-03-56	<i>Hypocalymma angustifolium</i>	1	152	439498	6363179	20	Sterile	4	
NR-03-57	<i>Bossiaea ornata</i>	1	152	439498	6363179	8	Sterile	4	
NR-03-58	<i>Phyllanthus calycinus</i>	1	152	439498	6363179	8	Sterile	4	
NR-03-59	<i>Hypocalymma angustifolium</i>	1	152	439498	6363179	50	Sterile	4	
NR-03-60	<i>Phyllanthus calycinus</i>	1	152	439498	6363179	5	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-61	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	152	439498	6363179	25	Fruiting	4	
NR-03-62	<i>Hypocalymma angustifolium</i>	1	152	439498	6363179	30	Sterile	4	
NR-03-63	<i>Phyllanthus calycinus</i>	1	152	439498	6363179	5	Sterile	4	
NR-03-64	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	152	439498	6363179	50	Fruiting	4	
NR-03-65	<i>Phyllanthus calycinus</i>	1	153	439497	6363182	5	Sterile	4	
NR-03-66	<i>Bossiaea ornata</i>	1	153	439497	6363182	7	Sterile	3	Minor yellowing of foliage
NR-03-67	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	153	439497	6363182	45	Fruiting	4	
NR-03-68	<i>Hypocalymma angustifolium</i>	1	153	439497	6363182	30	Sterile	4	
NR-03-69	<i>Bossiaea ornata</i>	1	153	439497	6363182	10	Sterile	2	Widespread yellowing of foliage
NR-03-70	<i>Phyllanthus calycinus</i>	1	153	439497	6363182	6	Sterile	4	
NR-03-71	<i>Hypocalymma angustifolium</i>	1	153	439497	6363182	25	Sterile	4	
NR-03-72	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	153	439497	6363182	35	Fruiting	4	
NR-03-73	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	153	439497	6363182	35	Fruiting	4	
NR-03-74	<i>Hypocalymma angustifolium</i>	1	153	439497	6363182	35	Sterile	4	
NR-03-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	153	439497	6363182	50	Fruiting	4	
NR-03-76	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	153	439497	6363182	40	Fruiting	4	
NR-03-77	<i>Hypocalymma angustifolium</i>	1	153	439497	6363182	18	Sterile	4	
NR-03-78	<i>Podolepis lessonii</i>	1	153	439497	6363182	30	Flowering, fruiting	4	Old and new flowers present

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-79	<i>Phyllanthus calycinus</i>	1	153	439497	6363182	5	Sterile	4	
NR-03-80	<i>Hypocalymma angustifolium</i>	1	153	439497	6363182	20	Sterile	4	
NR-03-81	<i>Bossiaea ornata</i>	1	153	439497	6363182	5	Sterile	4	
NR-03-82	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	20	Fruiting	4	
NR-03-83	<i>Bossiaea ornata</i>	1	154	439496	6363190	5	Sterile	4	
NR-03-84	<i>Podolepis lessonii</i>	1	154	439496	6363190	25	Flowering, fruiting	4	Old and new flowers present
NR-03-85	<i>Hypocalymma angustifolium</i>	1	154	439496	6363190	30	Sterile	4	
NR-03-86	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	65	Fruiting	4	
NR-03-87	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	30	Fruiting	4	
NR-03-88	<i>Bossiaea ornata</i>	1	154	439496	6363190	6	Sterile	4	
NR-03-89	<i>Bossiaea ornata</i>	1	154	439496	6363190	10	Sterile	3	Minor yellowing of foliage
NR-03-90	<i>Phyllanthus calycinus</i>	1	154	439496	6363190	5	Sterile	4	
NR-03-91	<i>Hypocalymma angustifolium</i>	1	154	439496	6363190	30	Sterile	4	
NR-03-92	<i>Phyllanthus calycinus</i>	3	154	439496	6363190	5	Sterile	4	
NR-03-93	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	40	Fruiting	4	
NR-03-94	<i>Phyllanthus calycinus</i>	1	154	439496	6363190	8	Sterile	4	
NR-03-95	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	35	Fruiting	4	
NR-03-96	<i>Bossiaea ornata</i>	1	154	439496	6363190	10	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-97	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	154	439496	6363190	45	Fruiting	4	
NR-03-98	<i>Bossiaea ornata</i>	1	154	439496	6363190	8	Sterile	4	
NR-03-99	<i>Phyllanthus calycinus</i>	1	155	439491	6363194	5	Sterile	4	
NR-03-100	<i>Hypocalymma angustifolium</i>	1	155	439491	6363194	40	Sterile	4	
NR-03-101	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	155	439491	6363194	30	Fruiting	4	
NR-03-102	<i>Hypocalymma angustifolium</i>	1	155	439491	6363194	25	Sterile	4	
NR-03-103	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	155	439491	6363194	30	Fruiting	4	
NR-03-104	<i>Bossiaea ornata</i>	1	155	439491	6363194	5	Sterile	2	Approximately 40 % of foliage yellowing or dead
NR-03-105	<i>Hypocalymma angustifolium</i>	1	155	439491	6363194	35	Sterile	4	
NR-03-106	<i>Phyllanthus calycinus</i>	1	155	439491	6363194	4	Sterile	4	
NR-03-107	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	155	439491	6363194	25	Fruiting	4	
NR-03-108	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	155	439491	6363194	40	Fruiting	4	
NR-03-109	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	2	155	439491	6363194	45	Fruiting	4	
NR-03-110	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	3	155	439491	6363194	55	Fruiting	4	
NR-03-111	<i>Bossiaea ornata</i>	1	155	439491	6363194	10	Sterile	4	
NR-03-112	<i>Phyllanthus calycinus</i>	1	155	439491	6363194	7	Sterile	4	
NR-03-113	<i>Anigozanthos manglesii</i>	1	155	439491	6363194	40	Flowering	4	Old flowers present
NR-03-114	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	2	155	439491	6363194	25	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-115	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	155	439491	6363194	60	Sterile	4	
NR-03-116	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	50	Fruiting	4	
NR-03-117	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	45	Fruiting	4	
NR-03-118	<i>Hakea lissocarpha</i>	1	156	439484	6363204	15	Sterile	4	
NR-03-119	<i>Phyllanthus calycinus</i>	1	156	439484	6363204	5	Sterile	4	
NR-03-120	<i>Hypocalymma angustifolium</i>	1	156	439484	6363204	35	Sterile	4	
NR-03-121	<i>Phyllanthus calycinus</i>	1	156	439484	6363204	5	Sterile	4	
NR-03-122	<i>Bossiaea ornata</i>	1	156	439484	6363204	5	Sterile	4	
NR-03-123	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	30	Fruiting	4	
NR-03-124	<i>Phyllanthus calycinus</i>	1	156	439484	6363204	8	Sterile	4	
NR-03-125	<i>Phyllanthus calycinus</i>	2	156	439484	6363204	10	Sterile	3	Minor yellowing of foliage
NR-03-126	<i>Hypocalymma angustifolium</i>	1	156	439484	6363204	25	Sterile	4	
NR-03-127	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	35	Fruiting	4	
NR-03-128	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	30	Fruiting	4	
NR-03-129	<i>Bossiaea ornata</i>	1	156	439484	6363204	5	Sterile	4	
NR-03-130	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	156	439484	6363204	35	Fruiting	4	
NR-03-131	<i>Bossiaea ornata</i>	1	156	439484	6363204	8	Sterile	4	
NR-03-132	<i>Podolepis lessonii</i>	1	156	439484	6363204	40	Flowering, fruiting	4	Old and new flowers present

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-03-133	<i>Phyllanthus calycinus</i>	1	157	439478	6363209	5	Sterile	4	
NR-03-134	<i>Phyllanthus calycinus</i>	1	157	439478	6363209	7	Sterile	4	
NR-03-135	<i>Hypocalymma angustifolium</i>	3	157	439478	6363209	50	Sterile	4	
NR-03-136	<i>Phyllanthus calycinus</i>	1	157	439478	6363209	7	Sterile	4	
NR-03-137	<i>Phyllanthus calycinus</i>	1	157	439478	6363209	2	Sterile	4	
NR-03-138	<i>Phyllanthus calycinus</i>	1	157	439478	6363209	4	Sterile	3	Minor yellowing of foliage
NR-03-139	<i>Hakea lissocarpha</i>	1	157	439478	6363209	35	Sterile	4	
NR-03-140	<i>Bossiaea ornata</i>	1	157	439478	6363209	5	Sterile	4	

**Nursery Row Transect No:** NR-04  
**Recorders:** MS, KK  
**0 m star picket easting:** WP265 435894  
**0 m star picket northing:** 6363064  
**0 m star picket photo:** 134



**Date:** 13/12/2018  
**Seed mix:** LG-S,SP  
**50 m star picket easting:** WP274 435860  
**50 m star picket northing:** 6363103  
**50 m star picket photo:** 135



**Comments:** *Acacia pulchella* var. *glaberrima*, *Allocasuarina fraseriana*, *Corymbia calophylla*, *Daviesia rhombifolia*, *Gompholobium marginata* and *Gompholobium preissii* also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-04-01	<i>Hypocalymma angustifolium</i>	1	265	435894	6363064	17	Sterile	4	
NR-04-02	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	265	435894	6363064	9	Sterile	4	
NR-04-03	<i>Hypocalymma angustifolium</i>	1	265	435894	6363064	3	Sterile	4	
NR-04-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	265	435894	6363064	4	Sterile	4	
NR-04-05	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	265	435894	6363064	3	Sterile	3	Minor yellowing of foliage
NR-04-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	266	435884	6363075	7	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-04-07	<i>Hypocalymma angustifolium</i>	1	267	435880	6363080	12	Sterile	3	Some dead foliage
NR-04-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	267	435880	6363080	4	Sterile	4	
NR-04-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	267	435880	6363080	4	Sterile	4	
NR-04-10	<i>Hypocalymma angustifolium</i>	1	267	435880	6363080	12	Sterile	3	Some dead foliage
NR-04-11	<i>Allocasuarina humilis</i>	1	268	435877	6363084	4	Sterile	4	
NR-04-12	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	268	435877	6363084	10	Sterile	3	Some dead foliage
NR-04-13	<i>Hakea undulata</i>	1	268	435877	6363084	5	Sterile	2	Approximately 50 % of foliage dead
NR-04-14	<i>Hypocalymma angustifolium</i>	1	268	435877	6363084	12	Sterile	3	Some dead foliage
NR-04-15	<i>Hypocalymma angustifolium</i>	1	268	435877	6363084	15	Sterile	3	Some dead foliage
NR-04-16	<i>Hakea lissocarpha</i>	1	268	435877	6363084	6	Sterile	4	
NR-04-17	<i>Hypocalymma angustifolium</i>	1	269	435874	6363086	22	Sterile	4	
NR-04-18	<i>Allocasuarina humilis</i>	1	269	435874	6363086	8	Sterile	4	
NR-04-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	269	435874	6363086	20	Fruiting	4	
NR-04-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	269	435874	6363086	4	Sterile	4	
NR-04-21	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	10	Sterile	3	Some dead foliage
NR-04-22	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	20	Sterile	3	Some dead foliage
NR-04-23	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	1	Sterile	4	
NR-04-24	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	20	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-04-25	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	270	435870	6363091	2	Sterile	3	Minor yellowing of foliage
NR-04-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	270	435870	6363091	10	Sterile	4	
NR-04-27	<i>Bossiaea ornata</i>	1	270	435870	6363091	4	Sterile	4	
NR-04-28	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	25	Sterile	4	
NR-04-29	<i>Hypocalymma angustifolium</i>	1	270	435870	6363091	17	Sterile	4	
NR-04-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	271	435864	6363094	12	Fruiting	3	Some dead foliage
NR-04-31	<i>Allocasuarina humilis</i>	1	271	435864	6363094	7	Sterile	3	Minor yellowing of foliage
NR-04-32	<i>Hypocalymma angustifolium</i>	1	271	435864	6363094	25	Sterile	3	Minor yellowing of foliage
NR-04-33	<i>Hypocalymma angustifolium</i>	1	271	435864	6363094	28	Sterile	4	
NR-04-34	<i>Hakea lissocarpha</i>	1	271	435864	6363094	5	Sterile	3	Some dead foliage
NR-04-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	271	435864	6363094	10	Sterile	4	
NR-04-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	272	435863	6363097	15	Fruiting	4	
NR-04-37	<i>Hypocalymma angustifolium</i>	1	272	435863	6363097	30	Sterile	3	Minor yellowing of foliage
NR-04-38	<i>Hypocalymma angustifolium</i>	1	273	435861	6363099	7	Sterile	3	Minor yellowing of foliage
NR-04-39	<i>Hypocalymma angustifolium</i>	1	273	435861	6363099	20	Sterile	3	Minor yellowing of foliage
NR-04-40	<i>Hypocalymma angustifolium</i>	1	273	435861	6363099	25	Sterile	4	
NR-04-41	<i>Hypocalymma angustifolium</i>	1	273	435861	6363099	32	Sterile	4	
NR-04-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	274	435860	6363103	15	Fruiting	3	Some dead foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-04-43	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	274	435860	6363103	7	Sterile	4	
NR-04-44	<i>Allocasuarina humilis</i>	1	274	435860	6363103	15	Sterile	4	
NR-04-45	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	274	435860	6363103	15	Sterile	3	Minor yellowing of foliage
NR-04-46	<i>Hypocalymma angustifolium</i>	1	274	435860	6363103	40	Sterile	2	Approximately 30 % of foliage dead
NR-04-47	<i>Hypocalymma angustifolium</i>	1	274	435860	6363103	28	Sterile	2	Approximately 30 % of foliage dead

Nursery Row Transect No: NR-05  
 Recorders: MS, KK  
 0 m star picket easting: WP195 440381  
 0 m star picket northing: 6363328  
 0 m star picket photo: 123



Date: 13/12/2018  
 Seed mix: SG-S,SP  
 50 m star picket easting: WP201 440401  
 50 m star picket northing: 6363286  
 50 m star picket photo: 124



Comments:

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-05-01	<i>Hypocalymma angustifolium</i>	1	195	440381	6363328	7	Sterile	4	
NR-05-02	<i>Bossiaea ornata</i>	1	195	440381	6363328	6	Sterile	4	
NR-05-03	<i>Allocasuarina humilis</i>	1	195	440381	6363328	4	Sterile	4	
NR-05-04	<i>Hypocalymma angustifolium</i>	1	195	440381	6363328	3	Sterile	4	
NR-05-05	<i>Podolepis lessonii</i>	1	195	440381	6363328	18	Flowering, fruiting	4	Old and new flowers present
NR-05-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	195	440381	6363328	15	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-05-07	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	195	440381	6363328	18	Sterile	4	
NR-05-08	<i>Hypocalymma angustifolium</i>	1	195	440381	6363328	18	Sterile	4	
NR-05-09	<i>Isopogon dubius</i>	1	195	440381	6363328	5	Sterile	4	
NR-05-10	<i>Hakea lissocarpha</i>	1	195	440381	6363328	13	Sterile	4	
NR-05-11	<i>Hypocalymma angustifolium</i>	1	195	440381	6363328	5	Sterile	4	
NR-05-12	<i>Podolepis lessonii</i>	1	195	440381	6363328	25	Flowering, fruiting	4	Old and new flowers present
NR-05-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	195	440381	6363328	30	Fruiting	4	
NR-05-14	<i>Hypocalymma angustifolium</i>	1	196	440388	6363326	7	Sterile	4	
NR-05-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	196	440388	6363326	25	Sterile	4	
NR-05-16	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	196	440388	6363326	25	Fruiting	4	
NR-05-17	<i>Bossiaea ornata</i>	1	196	440388	6363326	10	Sterile	4	
NR-05-18	<i>Hakea lissocarpha</i>	1	196	440388	6363326	10	Sterile	4	
NR-05-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	196	440388	6363326	15	Sterile	4	
NR-05-20	<i>Petrophile heterophylla</i>	1	196	440388	6363326	55	Sterile	4	
NR-05-21	<i>Bossiaea ornata</i>	1	196	440388	6363326	4	Sterile	4	
NR-05-22	<i>Petrophile heterophylla</i>	1	196	440388	6363326	45	Sterile	4	
NR-05-23	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	197	440391	6363319	50	Fruiting	4	
NR-05-24	<i>Bossiaea ornata</i>	1	197	440391	6363319	30	Sterile	3	Some death and yellowing of foliage

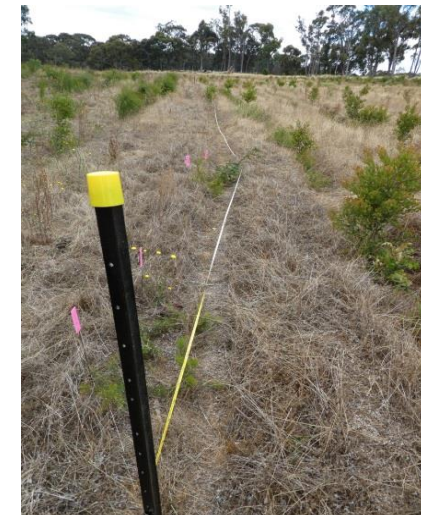
Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-05-25	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	197	440391	6363319	35	Sterile	4	
NR-05-26	<i>Hakea lissocarpha</i>	1	197	440391	6363319	40	Sterile	4	
NR-05-27	<i>Podolepis lessonii</i>	1	197	440391	6363319	12	Flowering, fruiting	4	Old and new flowers present
NR-05-28	<i>Hakea lissocarpha</i>	1	197	440391	6363319	15	Sterile	4	
NR-05-29	<i>Hakea lissocarpha</i>	1	197	440391	6363319	40	Sterile	4	
NR-05-30	<i>Banksia grandis</i>	1	197	440391	6363319	15	Sterile	3	Minor drying of foliage
NR-05-31	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	30	Fruiting	4	
NR-05-32	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	8	Sterile	4	
NR-05-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	20	Fruiting	4	
NR-05-34	<i>Hakea lissocarpha</i>	1	198	440396	6363313	40	Sterile	4	
NR-05-35	<i>Banksia grandis</i>	1	198	440396	6363313	12	Sterile	3	Some death of foliage on top of plant
NR-05-36	<i>Hakea lissocarpha</i>	1	198	440396	6363313	35	Sterile	4	
NR-05-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	25	Sterile	4	
NR-05-38	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	40	Fruiting	4	
NR-05-39	<i>Hakea lissocarpha</i>	1	198	440396	6363313	40	Sterile	4	
NR-05-40	<i>Phyllanthus calycinus</i>	1	198	440396	6363313	3	Sterile	4	
NR-05-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	199	440401	6363304	25	Sterile	4	
NR-05-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	199	440401	6363304	15	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-05-43	<i>Hakea lissocarpha</i>	1	199	440401	6363304	25	Sterile	4	
NR-05-44	<i>Phyllanthus calycinus</i>	1	199	440401	6363304	2	Sterile	4	
NR-05-45	<i>Bossiaea ornata</i>	1	199	440401	6363304	10	Sterile	4	
NR-05-46	<i>Phyllanthus calycinus</i>	1	199	440401	6363304	2	Sterile	4	
NR-05-47	<i>Bossiaea ornata</i>	1	199	440401	6363304	5	Sterile	4	
NR-05-48	<i>Banksia grandis</i>	1	200	440401	6363298	10	Sterile	3	Some death of foliage on top of plant
NR-05-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	200	440401	6363298	8	Sterile	4	
NR-05-50	<i>Hakea lissocarpha</i>	1	200	440401	6363298	25	Sterile	4	
NR-05-51	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	200	440401	6363298	5	Sterile	4	
NR-05-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	200	440401	6363298	15	Sterile	4	
NR-05-53	<i>Hakea lissocarpha</i>	1	200	440401	6363298	30	Sterile	3	Some death and yellowing of foliage
NR-05-54	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	200	440401	6363298	35	Fruiting	4	
NR-05-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	200	440401	6363298	12	Sterile	3	Minor drying of foliage
NR-05-56	<i>Bossiaea ornata</i>	1	200	440401	6363298	8	Sterile	3	Some death and yellowing of foliage
NR-05-57	<i>Hakea lissocarpha</i>	1	200	440401	6363298	8	Sterile	4	
NR-05-58	<i>Hakea lissocarpha</i>	1	200	440401	6363298	13	Sterile	4	
NR-05-59	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	198	440396	6363313	15	Sterile	4	

**Nursery Row Transect No:** NR-06  
**Recorders:** MS, KK  
**0 m star picket easting:** WP161 440525  
**0 m star picket northing:** 6362884  
**0 m star picket photo:** 114



**Date:** 12/12/2018  
**Seed mix:** CL-M  
**50 m star picket easting:** WP160 440478  
**50 m star picket northing:** 6362888  
**50 m star picket photo:** 115

**Comments:**

Sparse recruitment in nursery row.

*Banksia grandis*, *Bossiaea ornata*, *Daviesia rhombifolia*, *Gastrolobium calycinum*, *Hakea prostrata* and *Petrophile heterophylla* also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-06-01	<i>Phyllanthus calycinus</i>	1	161	440525	6362884	4	Sterile	4	
NR-06-02	<i>Hakea lissocarpha</i>	1	161	440525	6362884	20	Sterile	4	
NR-06-03	<i>Hakea lissocarpha</i>	1	161	440525	6362884	15	Sterile	4	
NR-06-04	<i>Phyllanthus calycinus</i>	1	161	440525	6362884	15	Sterile	4	
NR-06-05	<i>Phyllanthus calycinus</i>	1	162	440514	6362886	5	Sterile	4	
NR-06-06	<i>Phyllanthus calycinus</i>	1	162	440514	6362886	10	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-06-07	<i>Phyllanthus calycinus</i>	1	162	440514	6362886	7	Sterile	4	
NR-06-08	<i>Phyllanthus calycinus</i>	1	162	440514	6362886	5	Sterile	4	
NR-06-09	<i>Phyllanthus calycinus</i>	1	163	440507	6362888	8	Sterile	4	
NR-06-10	<i>Phyllanthus calycinus</i>	1	163	440507	6362888	5	Sterile	4	
NR-06-11	<i>Phyllanthus calycinus</i>	1	163	440507	6362888	7	Sterile	4	
NR-06-12	<i>Phyllanthus calycinus</i>	1	163	440507	6362888	6	Sterile	4	
NR-06-13	<i>Phyllanthus calycinus</i>	1	163	440507	6362888	10	Sterile	3	Very minor yellowing of foliage
NR-06-14	<i>Phyllanthus calycinus</i>	1	164	440496	6362888	8	Sterile	4	
NR-06-15	<i>Hakea undulata</i>	1	164	440496	6362888	13	Sterile	4	
NR-06-16	<i>Phyllanthus calycinus</i>	1	164	440496	6362888	5	Sterile	4	
NR-06-17	<i>Phyllanthus calycinus</i>	1	164	440496	6362888	4	Sterile	3	Very minor yellowing of foliage
NR-06-18	<i>Phyllanthus calycinus</i>	1	164	440496	6362888	5	Sterile	3	Very minor yellowing of foliage
NR-06-19	<i>Hakea lissocarpha</i>	1	164	440496	6362888	4	Sterile	4	
NR-06-20	<i>Lepidosperma ?squamatum</i>	1	165	440488	6362888	60	Flowering, fruiting	4	
NR-06-21	<i>Hakea lissocarpha</i>	1	165	440488	6362888	5	Sterile	4	
NR-06-22	<i>Hakea lissocarpha</i>	1	166	440482	6362887	8	Sterile	4	
NR-06-23	<i>Hakea lissocarpha</i>	1	166	440482	6362887	27	Sterile	4	
NR-06-24	<i>Hakea lissocarpha</i>	1	160	440478	6362888	7	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-06-25	<i>Hakea lissocarpha</i>	1	160	440478	6362888	10	Sterile	4	
NR-06-26	<i>Hovea trisperma</i>	1	165	440488	6362888	10	Fruiting	4	

**Nursery Row Transect No:** NR-07  
**Recorders:** MS, KK  
**0 m star picket easting:** WP202 440601  
**0 m star picket northing:** 6362697  
**0 m star picket photo:** 125



**Date:** 12/12/2018  
**Seed mix:** CL-M  
**50 m star picket easting:** WP211 440597  
**50 m star picket northing:** 6362745  
**50 m star picket photo:** 126



**Comments:**

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-01	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	18	Sterile	4	
NR-07-02	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	7	Sterile	4	
NR-07-03	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	30	Fruiting	4	
NR-07-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	20	Fruiting	4	
NR-07-05	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	10	Sterile	4	
NR-07-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	45	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-07	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	35	Fruiting	4	
NR-07-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	40	Fruiting	3	Minor yellowing of foliage
NR-07-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	20	Sterile	4	
NR-07-10	<i>Phyllanthus calycinus</i>	1	202	440601	6362697	6	Sterile	4	
NR-07-11	<i>Phyllanthus calycinus</i>	1	202	440601	6362697	3	Sterile	4	
NR-07-12	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	50	Fruiting	4	
NR-07-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	202	440601	6362697	55	Fruiting	4	
NR-07-14	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	50	Fruiting	4	
NR-07-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	18	Fruiting	3	Minor yellowing of foliage
NR-07-16	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	12	Fruiting	4	
NR-07-17	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	30	Sterile	4	
NR-07-18	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	30	Fruiting	4	
NR-07-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	40	Fruiting	4	
NR-07-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	3	Sterile	4	
NR-07-21	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	203	440599	6362703	50	Fruiting	4	
NR-07-22	<i>Hakea lissocarpha</i>	1	204	440598	6362710	15	Sterile	4	
NR-07-23	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	55	Fruiting	4	
NR-07-24	<i>Phyllanthus calycinus</i>	1	204	440598	6362710	4	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-25	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	25	Fruiting	4	
NR-07-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	40	Fruiting	4	
NR-07-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	30	Fruiting	4	
NR-07-28	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	45	Fruiting	4	
NR-07-29	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	40	Sterile	4	
NR-07-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	204	440598	6362710	25	Fruiting	4	
NR-07-31	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	25	Fruiting	4	
NR-07-32	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	48	Fruiting	4	
NR-07-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	20	Fruiting	4	
NR-07-34	<i>Anigozanthos manglesii</i>	1	205	440600	6362717	50	Flowering	4	Old flower present
NR-07-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	65	Fruiting	4	
NR-07-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	60	Fruiting	4	
NR-07-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	70	Fruiting	4	
NR-07-38	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	205	440600	6362717	65	Fruiting	4	
NR-07-39	<i>Hovea trisperma</i>	1	205	440600	6362717	40	Fruiting	4	
NR-07-40	<i>Hakea lissocarpha</i>	1	206	440598	6362720	35	Sterile	4	
NR-07-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	206	440598	6362720	35	Fruiting	4	
NR-07-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	206	440598	6362720	50	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-43	<i>Phyllanthus calycinus</i>	1	206	440598	6362720	3	Sterile	4	
NR-07-44	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	206	440598	6362720	40	Fruiting	4	
NR-07-45	<i>Phyllanthus calycinus</i>	1	206	440598	6362720	5	Fruiting	4	
NR-07-46	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	206	440598	6362720	18	Fruiting	4	
NR-07-47	<i>Hakea lissocarpha</i>	1	206	440598	6362720	40	Sterile	4	
NR-07-48	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	45	Fruiting	4	
NR-07-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	45	Fruiting	4	
NR-07-50	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	50	Fruiting	4	
NR-07-51	<i>Phyllanthus calycinus</i>	1	207	440599	6362727	4	Sterile	4	
NR-07-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	25	Fruiting	4	
NR-07-53	<i>Hakea undulata</i>	1	207	440599	6362727	50	Sterile	4	
NR-07-54	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	50	Fruiting	4	
NR-07-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	75	Fruiting	4	
NR-07-56	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	75	Fruiting	4	
NR-07-57	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	207	440599	6362727	55	Fruiting	4	
NR-07-58	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	208	440596	6362732	58	Fruiting	4	
NR-07-59	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	208	440596	6362732	35	Fruiting	4	
NR-07-60	<i>Hakea lissocarpha</i>	1	208	440596	6362732	58	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-61	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	208	440596	6362732	55	Fruiting	4	
NR-07-62	<i>Phyllanthus calycinus</i>	1	208	440596	6362732	3	Sterile	4	Near NR-07-55
NR-07-63	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	208	440596	6362732	20	Fruiting	4	
NR-07-64	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	208	440596	6362732	30	Fruiting	4	
NR-07-65	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	209	440598	6362735	30	Fruiting	4	
NR-07-66	<i>Phyllanthus calycinus</i>	1	209	440598	6362735	6	Sterile	4	
NR-07-67	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	209	440598	6362735	45	Fruiting	4	
NR-07-68	<i>Phyllanthus calycinus</i>	1	209	440598	6362735	7	Sterile	4	
NR-07-69	<i>Phyllanthus calycinus</i>	1	209	440598	6362735	5	Sterile	3	Minor yellowing of foliage
NR-07-70	<i>Phyllanthus calycinus</i>	1	209	440598	6362735	17	Sterile	4	
NR-07-71	<i>Phyllanthus calycinus</i>	1	209	440598	6362735	2	Sterile	4	
NR-07-72	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	209	440598	6362735	35	Fruiting	4	
NR-07-73	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	40	Fruiting	4	
NR-07-74	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	60	Fruiting	4	
NR-07-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	55	Fruiting	4	
NR-07-76	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	50	Fruiting	4	
NR-07-77	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	55	Fruiting	4	
NR-07-78	<i>Hakea lissocarpha</i>	1	210	440597	6362737	5	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-07-79	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	50	Fruiting	4	
NR-07-80	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	20	Fruiting	4	
NR-07-81	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	210	440597	6362737	13	Fruiting	4	
NR-07-82	<i>Phyllanthus calycinus</i>	1	211	440597	6362745	5	Sterile	4	
NR-07-83	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	211	440597	6362745	55	Fruiting	4	
NR-07-84	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	211	440597	6362745	65	Fruiting	4	
NR-07-85	<i>Phyllanthus calycinus</i>	1	211	440597	6362745	7	Sterile	4	

Nursery Row Transect No: NR-08

Recorders: MS, KK

0 m star picket easting: WP167 440691

0 m star picket northing: 6362796

0 m star picket photo: 116



Date: 12/12/2018

Seed mix: CL-M

50 m star picket easting: WP177 440664

50 m star picket northing: 6362841

50 m star picket photo: 117

**Comments:**Very low species diversity; dominated by *Acacia drummondii* subsp. *drummondii*.*Acacia saligna* and *Hakea prostrata* also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-08-01	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	167	440691	6362796	8	Fruiting	4	
NR-08-02	<i>Phyllanthus calycinus</i>	1	167	440691	6362796	8	Sterile	4	
NR-08-03	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	167	440691	6362796	50	Fruiting	4	
NR-08-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	167	440691	6362796	45	Fruiting	4	
NR-08-05	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	167	440691	6362796	45	Fruiting	4	
NR-08-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	40	Fruiting	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-08-07	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	35	Fruiting	4	
NR-08-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	40	Fruiting	4	
NR-08-09	<i>Hovea trisperma</i>	1	168	440688	6362803	80	Fruiting	4	
NR-08-10	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	70	Fruiting	4	
NR-08-11	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	85	Fruiting	4	
NR-08-12	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	50	Fruiting	4	
NR-08-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	168	440688	6362803	60	Fruiting	4	
NR-08-14	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	75	Fruiting	4	
NR-08-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	65	Fruiting	4	
NR-08-16	<i>Hovea trisperma</i>	1	169	440688	6362807	25	Fruiting	4	
NR-08-17	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	85	Fruiting	4	
NR-08-18	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	40	Fruiting	4	
NR-08-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	30	Fruiting	4	
NR-08-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	50	Fruiting	4	
NR-08-21	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	169	440688	6362807	35	Fruiting	4	
NR-08-22	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	60	Fruiting	4	
NR-08-23	<i>Phyllanthus calycinus</i>	1	170	440684	6362811	5	Sterile	3	Very minor yellowing of foliage
NR-08-24	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	45	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-08-25	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	50	Fruiting	4	
NR-08-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	25	Fruiting	4	
NR-08-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	40	Fruiting	4	
NR-08-28	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	65	Fruiting	4	
NR-08-29	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	40	Fruiting	4	
NR-08-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	170	440684	6362811	55	Fruiting	4	
NR-08-31	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	55	Fruiting	4	
NR-08-32	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	45	Fruiting	4	
NR-08-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	65	Fruiting	4	
NR-08-34	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	45	Fruiting	4	
NR-08-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	95	Fruiting	4	
NR-08-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	55	Fruiting	4	
NR-08-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	35	Fruiting	4	
NR-08-38	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	171	440681	6362814	55	Fruiting	4	
NR-08-39	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	25	Fruiting	4	
NR-08-40	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	60	Fruiting	4	
NR-08-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	90	Fruiting	4	
NR-08-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	45	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-08-43	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	12	Fruiting	4	
NR-08-44	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	18	Fruiting	4	
NR-08-45	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	45	Fruiting	4	
NR-08-46	<i>Phyllanthus calycinus</i>	1	172	440679	6362823	7	Sterile	4	
NR-08-47	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	172	440679	6362823	20	Fruiting	4	
NR-08-48	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	18	Fruiting	4	
NR-08-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	45	Fruiting	4	
NR-08-50	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	20	Fruiting	4	
NR-08-51	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	50	Fruiting	4	
NR-08-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	35	Fruiting	4	
NR-08-53	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	30	Fruiting	4	
NR-08-54	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	20	Fruiting	4	
NR-08-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	40	Fruiting	4	
NR-08-56	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	25	Fruiting	4	
NR-08-57	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	173	440676	6362827	25	Fruiting	4	
NR-08-58	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	6	Fruiting	4	
NR-08-59	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	55	Fruiting	4	
NR-08-60	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	30	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-08-61	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	35	Fruiting	4	
NR-08-62	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	25	Fruiting	4	
NR-08-63	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	40	Fruiting	4	
NR-08-64	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	174	440672	6362831	40	Fruiting	4	
NR-08-65	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	50	Fruiting	4	
NR-08-66	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	55	Fruiting	4	
NR-08-67	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	45	Fruiting	4	
NR-08-68	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	20	Fruiting	4	
NR-08-69	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	50	Fruiting	4	
NR-08-70	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	175	440670	6362836	60	Fruiting	4	
NR-08-71	<i>Phyllanthus calycinus</i>	1	176	440668	6362840	3	Sterile	4	
NR-08-72	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	176	440668	6362840	35	Fruiting	4	
NR-08-73	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	176	440668	6362840	45	Fruiting	4	
NR-08-74	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	176	440668	6362840	30	Fruiting	4	
NR-08-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	176	440668	6362840	30	Fruiting	4	
NR-08-76	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	176	440668	6362840	35	Fruiting	4	

**Nursery Row Transect No:** NR-09  
**Recorders:** MS, KK  
**0 m star picket easting:** WP178 440809  
**0 m star picket northing:** 6363152  
**0 m star picket photo:** 120



**Date:** 12/12/2018  
**Seed mix:** CL-M  
**50 m star picket easting:** WP185 440769  
**50 m star picket northing:** 6363118  
**50 m star picket photo:** 119



**Comments:** Very low species diversity; dominated by *Acacia drummondii* subsp. *drummondii*.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-01	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	25	Fruiting	4	
NR-09-02	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	12	Fruiting	4	
NR-09-03	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	35	Fruiting	4	
NR-09-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	50	Fruiting	4	
NR-09-05	<i>Hakea lissocarpha</i>	1	178	440809	6363152	20	Sterile	4	
NR-09-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	25	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-07	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	55	Fruiting	4	
NR-09-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	45	Fruiting	4	
NR-09-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	47	Fruiting	4	
NR-09-10	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	35	Fruiting	4	
NR-09-11	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	65	Fruiting	4	
NR-09-12	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	50	Fruiting	4	
NR-09-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	178	440809	6363152	65	Fruiting	4	
NR-09-14	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	65	Fruiting	4	
NR-09-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	65	Fruiting	4	
NR-09-16	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-17	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-18	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	40	Fruiting	4	
NR-09-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-21	<i>Hakea undulata</i>	1	179	440803	6363147	140	Sterile	4	
NR-09-22	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-23	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	30	Fruiting	4	
NR-09-24	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	25	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-25	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	20	Fruiting	4	
NR-09-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	30	Fruiting	4	
NR-09-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	35	Fruiting	4	
NR-09-28	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	179	440803	6363147	50	Fruiting	4	
NR-09-29	<i>Phyllanthus calycinus</i>	1	179	440803	6363147	2	Sterile	4	
NR-09-30	<i>Phyllanthus calycinus</i>	3	179	440803	6363147	3	Sterile	4	
NR-09-31	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	12	Sterile	4	
NR-09-32	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	12	Sterile	4	
NR-09-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	15	Sterile	4	
NR-09-34	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	10	Sterile	4	
NR-09-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	20	Fruiting	4	
NR-09-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	25	Fruiting	4	
NR-09-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	55	Fruiting	4	
NR-09-38	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	25	Fruiting	4	
NR-09-39	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	20	Fruiting	4	
NR-09-40	<i>Hakea lissocarpha</i>	1	180	440795	6363142	25	Sterile	4	
NR-09-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	10	Sterile	4	
NR-09-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	6	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-43	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	4	Sterile	4	
NR-09-44	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	15	Sterile	4	
NR-09-45	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	30	Fruiting	4	
NR-09-46	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	35	Fruiting	4	
NR-09-47	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	180	440795	6363142	8	Sterile	4	
NR-09-48	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	45	Fruiting	3	Minor yellowing of foliage
NR-09-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	25	Sterile	4	
NR-09-50	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	15	Sterile	4	
NR-09-51	<i>Phyllanthus calycinus</i>	1	181	440787	6363138	3	Sterile	4	
NR-09-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	20	Fruiting	4	
NR-09-53	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	45	Fruiting	4	
NR-09-54	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	20	Fruiting	4	
NR-09-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	65	Fruiting	4	
NR-09-56	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	35	Fruiting	4	
NR-09-57	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	30	Fruiting	4	
NR-09-58	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	60	Fruiting	4	
NR-09-59	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	30	Fruiting	4	
NR-09-60	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	100	Fruiting	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-61	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	100	Fruiting	4	
NR-09-62	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	15	Sterile	4	
NR-09-63	<i>Hakea undulata</i>	1	181	440787	6363138	120	Sterile	4	
NR-09-64	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	181	440787	6363138	35	Fruiting	4	
NR-09-65	<i>Hakea lissocarpha</i>	1	182	440782	6363132	25	Sterile	4	
NR-09-66	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	25	Fruiting	4	
NR-09-67	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	30	Fruiting	4	
NR-09-68	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	35	Fruiting	4	
NR-09-69	<i>Hakea lissocarpha</i>	1	182	440782	6363132	45	Sterile	4	
NR-09-70	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	45	Fruiting	4	
NR-09-71	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	60	Fruiting	4	
NR-09-72	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	80	Fruiting	4	
NR-09-73	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	35	Fruiting	4	
NR-09-74	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	35	Fruiting	4	
NR-09-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	40	Fruiting	4	
NR-09-76	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	50	Fruiting	4	
NR-09-77	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	40	Fruiting	4	
NR-09-78	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	40	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-79	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	45	Fruiting	4	
NR-09-80	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	25	Fruiting	4	
NR-09-81	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	182	440782	6363132	40	Fruiting	4	
NR-09-82	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	35	Fruiting	4	
NR-09-83	<i>Phyllanthus calycinus</i>	1	183	440779	6363130	5	Sterile	4	
NR-09-84	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	40	Fruiting	4	
NR-09-85	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	35	Fruiting	4	
NR-09-86	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	55	Fruiting	4	
NR-09-87	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	30	Fruiting	4	
NR-09-88	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	25	Fruiting	4	
NR-09-89	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	10	Fruiting	4	
NR-09-90	<i>Hakea lissocarpha</i>	1	183	440779	6363130	8	Sterile	4	
NR-09-91	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	65	Fruiting	4	
NR-09-92	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	70	Fruiting	4	
NR-09-93	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	40	Fruiting	4	
NR-09-94	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	25	Fruiting	4	
NR-09-95	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	30	Fruiting	4	
NR-09-96	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	30	Fruiting	4	

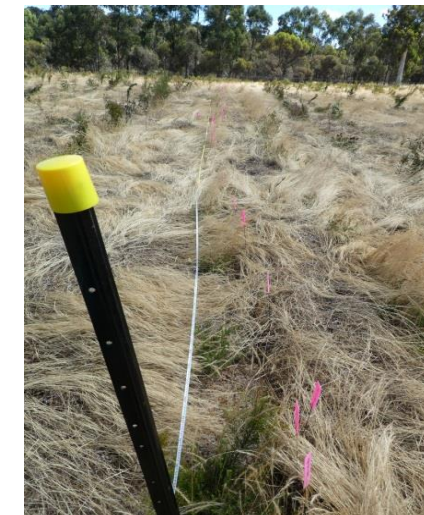
Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-97	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	183	440779	6363130	30	Fruiting	4	
NR-09-98	<i>Hakea lissocarpha</i>	1	183	440779	6363130	10	Sterile	4	
NR-09-99	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	35	Fruiting	4	
NR-09-100	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	25	Fruiting	4	
NR-09-101	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	8	Sterile	4	
NR-09-102	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	18	Sterile	4	
NR-09-103	<i>Phyllanthus calycinus</i>	1	184	440773	6363125	2	Sterile	4	
NR-09-104	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	40	Sterile	4	
NR-09-105	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	40	Sterile	4	
NR-09-106	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	50	Fruiting	4	
NR-09-107	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	35	Fruiting	4	
NR-09-108	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	30	Fruiting	4	
NR-09-109	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	40	Fruiting	4	
NR-09-110	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	10	Sterile	4	
NR-09-111	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	45	Fruiting	4	
NR-09-112	<i>Hakea lissocarpha</i>	1	184	440773	6363125	10	Sterile	4	
NR-09-113	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	35	Fruiting	4	
NR-09-114	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	15	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-09-115	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	184	440773	6363125	45	Sterile	3	Some death and yellowing of foliage
NR-09-116	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	185	440769	6363118	30	Fruiting	4	
NR-09-117	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	185	440769	6363118	10	Sterile	4	
NR-09-118	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	185	440769	6363118	80	Fruiting	4	

**Nursery Row Transect No:** NR-10  
**Recorders:** MS, KK  
**0 m star picket easting:** WP188 440962  
**0 m star picket northing:** 6363075  
**0 m star picket photo:** 121



**Date:** 12/12/2018  
**Seed mix:** CL-M  
**50 m star picket easting:** WP194 440982  
**50 m star picket northing:** 6363123  
**50 m star picket photo:** 122



**Comments:** Very low species diversity; dominated by *Acacia drummondii* subsp. *drummondii*.

Significant cover of *Vulpia myuros*.

*Banksia grandis* also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-01	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	18	Sterile	3	Some death and yellowing of foliage
NR-10-02	<i>Petrophile heterophylla</i>	1	188	440962	6363075	100	Sterile	4	
NR-10-03	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	10	Fruiting	4	
NR-10-04	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	15	Fruiting	4	
NR-10-05	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	18	Fruiting	4	
NR-10-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	15	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-07	<i>Hibbertia amplexicaulis</i>	1	188	440962	6363075	10	Sterile	4	
NR-10-08	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	10	Sterile	4	
NR-10-09	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	10	Fruiting	4	
NR-10-10	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	20	Fruiting	3	Some death and yellowing of foliage
NR-10-11	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	18	Fruiting	3	Some death and yellowing of foliage
NR-10-12	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	25	Fruiting	4	
NR-10-13	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	188	440962	6363075	35	Fruiting	4	
NR-10-14	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	20	Fruiting	4	
NR-10-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	10	Sterile	4	
NR-10-16	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	25	Fruiting	4	
NR-10-17	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	30	Fruiting	4	
NR-10-18	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	20	Fruiting	3	Some death and yellowing of foliage
NR-10-19	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	35	Fruiting	4	
NR-10-20	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	35	Fruiting	4	
NR-10-21	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	6	Sterile	4	
NR-10-22	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	25	Fruiting	4	
NR-10-23	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	38	Fruiting	4	
NR-10-24	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	189	440963	6363085	20	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-25	<i>Hakea lissocarpha</i>	1	190	440970	6363093	15	Sterile	4	
NR-10-26	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	45	Fruiting	4	
NR-10-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	45	Fruiting	4	
NR-10-28	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	50	Fruiting	3	Some death and yellowing of foliage
NR-10-29	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	35	Fruiting	3	Some death and yellowing of foliage
NR-10-30	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	35	Fruiting	3	Some death and yellowing of foliage
NR-10-31	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	10	Sterile	4	
NR-10-32	<i>Phyllanthus calycinus</i>	1	190	440970	6363093	2	Sterile	4	
NR-10-33	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	10	Sterile	4	
NR-10-34	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	20	Fruiting	4	
NR-10-35	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	15	Fruiting	4	
NR-10-36	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	55	Fruiting	3	Some death and yellowing of foliage
NR-10-37	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	30	Fruiting	4	
NR-10-38	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	15	Fruiting	3	Some death and yellowing of foliage
NR-10-39	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	190	440970	6363093	15	Fruiting	3	Some death and yellowing of foliage
NR-10-40	<i>Phyllanthus calycinus</i>	1	191	440973	6363099	4	Sterile	4	
NR-10-41	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	15	Fruiting	4	
NR-10-42	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	40	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-43	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	12	Fruiting	4	
NR-10-44	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	15	Sterile	4	
NR-10-45	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	10	Fruiting	4	
NR-10-46	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	20	Fruiting	4	
NR-10-47	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	10	Fruiting	4	
NR-10-48	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	10	Sterile	4	
NR-10-49	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	5	Sterile	4	
NR-10-50	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	15	Fruiting	4	
NR-10-51	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	5	Sterile	3	Some death and yellowing of foliage
NR-10-52	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	20	Fruiting	4	
NR-10-53	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	25	Fruiting	4	
NR-10-54	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	65	Fruiting	4	
NR-10-55	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	50	Fruiting	4	
NR-10-56	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	191	440973	6363099	45	Fruiting	4	
NR-10-57	<i>Hakea lissocarpha</i>	1	192	440976	6363109	8	Sterile	4	
NR-10-58	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	35	Fruiting	4	
NR-10-59	<i>Phyllanthus calycinus</i>	3	192	440976	6363109	4	Sterile	3	Minor drying of foliage
NR-10-60	<i>Phyllanthus calycinus</i>	1	192	440976	6363109	3	Sterile	3	Minor drying of foliage



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-61	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	60	Fruiting	4	
NR-10-62	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	10	Fruiting	4	
NR-10-63	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	25	Fruiting	4	
NR-10-64	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	35	Fruiting	4	
NR-10-65	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	18	Fruiting	4	
NR-10-66	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	35	Fruiting	4	
NR-10-67	<i>Hovea trisperma</i>	1	192	440976	6363109	10	Fruiting	3	Some death and yellowing of foliage
NR-10-68	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	192	440976	6363109	18	Fruiting	4	
NR-10-69	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	35	Fruiting	4	
NR-10-70	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	30	Fruiting	4	
NR-10-71	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	45	Fruiting	4	
NR-10-72	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	25	Fruiting	4	
NR-10-73	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	20	Fruiting	3	Some death and yellowing of foliage
NR-10-74	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	28	Fruiting	4	
NR-10-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	193	440982	6363115	32	Fruiting	4	
NR-10-76	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	194	440982	6363123	15	Sterile	4	
NR-10-77	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	194	440982	6363123	20	Sterile	4	
NR-10-78	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	194	440982	6363123	22	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-10-79	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	194	440982	6363123	6	Sterile	4	
NR-10-80	<i>Hakea lissocarpha</i>	1	194	440982	6363123	35	Sterile	4	
NR-10-81	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	194	440982	6363123	30	Sterile	4	

**Nursery Row Transect No:** NR-11  
**Recorders:** MS, KK  
**0 m star picket easting:** WP276 438466  
**0 m star picket northing:** 6362973  
**0 m star picket photo:** 136



**Date:** 13/12/2018  
**Seed mix:** DS-PS  
**50 m star picket easting:** WP286 438419  
**50 m star picket northing:** 6362994  
**50 m star picket photo:** 138

**Comments:**

Many *Bossiaea eriocarpa* plants with yellowing or dead foliage.

*Hakea prostrata* also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-01	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	35	Fruiting	3	Some death and yellowing of foliage
NR-11-02	<i>Phyllanthus calycinus</i>	1	276	438466	6362973	3	Sterile	4	
NR-11-03	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	45	Fruiting	4	
NR-11-04	<i>Banksia grandis</i>	1	276	438466	6362973	15	Sterile	3	Some death of foliage on top of plant
NR-11-05	<i>Phyllanthus calycinus</i>	1	276	438466	6362973	3	Sterile	4	
NR-11-06	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	37	Sterile	3	Minor drying of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-07	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	6	Sterile	4	
NR-11-08	<i>Hypocalymma angustifolium</i>	1	276	438466	6362973	15	Sterile	4	
NR-11-09	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	38	Sterile	3	Some death and yellowing of foliage
NR-11-10	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	30	Sterile	3	Some death and yellowing of foliage
NR-11-11	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	15	Sterile	2	Approximately 35 % of foliage dead
NR-11-12	<i>Phyllanthus calycinus</i>	1	276	438466	6362973	2	Sterile	4	
NR-11-13	<i>Bossiaea eriocarpa</i>	1	276	438466	6362973	6	Sterile	3	Some death and yellowing of foliage
NR-11-14	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	13	Sterile	3	Some death and yellowing of foliage
NR-11-15	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	40	Sterile	4	
NR-11-16	<i>Phyllanthus calycinus</i>	1	277	438461	6362977	2	Sterile	4	
NR-11-17	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	45	Fruiting	4	
NR-11-18	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	25	Sterile	4	
NR-11-19	<i>Hakea lissocarpha</i>	1	277	438461	6362977	20	Sterile	3	Some death and yellowing of foliage
NR-11-20A	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	45	Sterile	3	Some death and yellowing of foliage
NR-11-20B	<i>Hovea trisperma</i>	1	277	438461	6362977	5	Fruiting	4	
NR-11-21	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	25	Sterile	4	
NR-11-22	<i>Hypocalymma angustifolium</i>	1	277	438461	6362977	15	Sterile	4	
NR-11-23	<i>Gompholobium preissii</i>	1	277	438461	6362977	3	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-24	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	35	Sterile	3	Some death and yellowing of foliage
NR-11-25	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	25	Sterile	4	
NR-11-26	<i>Banksia grandis</i>	1	277	438461	6362977	13	Sterile	3	Some death of foliage on top of plant
NR-11-27	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	16	Sterile	4	
NR-11-28	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	40	Flowering, fruiting	4	
NR-11-29	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	40	Sterile	3	Some death and yellowing of foliage
NR-11-30	<i>Bossiaea eriocarpa</i>	1	277	438461	6362977	46	Sterile	4	
NR-11-31	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	35	Fruiting	4	
NR-11-32	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	40	Fruiting	4	
NR-11-33A	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	20	Fruiting	3	Minor thinning of foliage
NR-11-33B	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	278	438454	6362978	12	Sterile	4	
NR-11-33C	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	45	Fruiting	3	Some death and yellowing of foliage
NR-11-34	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	28	Fruiting	3	Some death and yellowing of foliage
NR-11-35	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	25	Sterile	4	
NR-11-36	<i>Gompholobium marginata</i>	1	278	438454	6362978	3	Sterile	4	
NR-11-37	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	30	Fruiting	3	Some death and yellowing of foliage
NR-11-38	<i>Banksia grandis</i>	1	278	438454	6362978	13	Sterile	3	Some death of foliage on top of plant
NR-11-39	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	278	438454	6362978	12	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-40	<i>Phyllanthus calycinus</i>	1	278	438454	6362978	2	Sterile	4	
NR-11-41	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	35	Fruiting	4	
NR-11-42	<i>Hovea trisperma</i>	1	278	438454	6362978	30	Fruiting	4	
NR-11-43	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	278	438454	6362978	15	Sterile	4	
NR-11-44	<i>Bossiaea eriocarpa</i>	1	278	438454	6362978	35	Fruiting	4	
NR-11-45	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	2	278	438454	6362978	11	Sterile	4	
NR-11-46	<i>Banksia grandis</i>	1	279	438452	6362979	20	Sterile	4	
NR-11-47	<i>Bossiaea eriocarpa</i>	2	279	438452	6362979	40	Fruiting	3	Some death and yellowing of foliage
NR-11-48	<i>Hypocalymma angustifolium</i>	1	279	438452	6362979	10	Sterile	4	
NR-11-49	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	50	Fruiting	4	
NR-11-50	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	55	Fruiting	3	Some death and yellowing of foliage
NR-11-51	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	25	Fruiting	4	
NR-11-52	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	25	Fruiting	4	
NR-11-53	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	40	Fruiting	4	
NR-11-54	<i>Bossiaea ornata</i>	1	279	438452	6362979	6	Sterile	4	
NR-11-55	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	40	Fruiting	3	Some death and yellowing of foliage
NR-11-56	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	40	Fruiting	4	
NR-11-57	<i>Banksia grandis</i>	1	279	438452	6362979	17	Sterile	3	Some death of foliage on top of plant

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-58	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	40	Sterile	4	
NR-11-59	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	43	Fruiting	4	
NR-11-60	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	40	Fruiting	4	
NR-11-61	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	45	Fruiting	4	
NR-11-62	<i>Bossiaea eriocarpa</i>	1	279	438452	6362979	50	Fruiting	3	Some death and yellowing of foliage
NR-11-63	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	38	Fruiting	4	
NR-11-64	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	30	Fruiting	3	Some death and yellowing of foliage
NR-11-65	<i>Bossiaea eriocarpa</i>	2	280	438447	6362980	45	Fruiting	4	
NR-11-66	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	50	Fruiting	3	Some death and yellowing of foliage
NR-11-67	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	30	Fruiting	3	Some death and yellowing of foliage
NR-11-68A	<i>Hypocalymma angustifolium</i>	1	280	438447	6362980	35	Sterile	4	
NR-11-68B	<i>Bossiaea eriocarpa</i>	2	280	438447	6362980	40	Fruiting	4	
NR-11-69	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	65	Fruiting	4	
NR-11-70	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	40	Fruiting	4	
NR-11-71	<i>Gompholobium marginata</i>	1	280	438447	6362980	4	Fruiting	4	
NR-11-72	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	50	Fruiting	4	
NR-11-73	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	28	Fruiting	3	Some death and yellowing of foliage
NR-11-74	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	55	Fruiting	3	Some death and yellowing of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-75	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	25	Fruiting	4	
NR-11-76	<i>Bossiaea eriocarpa</i>	1	280	438447	6362980	60	Fruiting	3	Some death and yellowing of foliage
NR-11-77	<i>Hypocalymma angustifolium</i>	1	280	438447	6362980	10	Sterile	4	
NR-11-78	<i>Banksia grandis</i>	1	280	438447	6362980	15	Sterile	3	Some death of foliage on top of plant
NR-11-79	<i>Gompholobium preissii</i>	1	280	438447	6362980	4	Sterile	4	
NR-11-80	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	45	Fruiting	3	Some death and yellowing of foliage
NR-11-81	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	30	Fruiting	4	
NR-11-82	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	35	Fruiting	3	Some death and yellowing of foliage
NR-11-83	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	28	Fruiting	4	
NR-11-84	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	40	Fruiting	3	Some death and yellowing of foliage
NR-11-85	<i>Banksia grandis</i>	1	281	438440	6362984	15	Sterile	4	
NR-11-86	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	40	Fruiting	4	
NR-11-87	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	50	Fruiting	4	
NR-11-88	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	30	Sterile	4	
NR-11-89	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	8	Sterile	3	Some death and yellowing of foliage
NR-11-90	<i>Gompholobium marginata</i>	1	281	438440	6362984	3	Sterile	4	
NR-11-91	<i>Hypocalymma angustifolium</i>	1	281	438440	6362984	10	Sterile	3	Some death and yellowing of foliage
NR-11-92	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	13	Sterile	3	Some death and yellowing of foliage



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-93	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	30	Fruiting	2	Approximately 40 % of foliage dead
NR-11-94	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	35	Fruiting	3	Some death and yellowing of foliage
NR-11-95	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	25	Fruiting	3	Some death and yellowing of foliage
NR-11-96	<i>Bossiaea eriocarpa</i>	1	281	438440	6362984	8	Sterile	4	
NR-11-97	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	15	Sterile	4	
NR-11-98	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	28	Sterile	4	
NR-11-99	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	25	Fruiting	3	Some death and yellowing of foliage
NR-11-100	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	27	Fruiting	4	
NR-11-101	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	35	Fruiting	3	Some death and yellowing of foliage
NR-11-102	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	28	Fruiting	4	
NR-11-103	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	55	Fruiting	4	
NR-11-104	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	35	Fruiting	4	
NR-11-105	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	50	Fruiting	4	
NR-11-106	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	60	Fruiting	3	Some death and yellowing of foliage
NR-11-107	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	10	Sterile	4	
NR-11-108	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	20	Fruiting	3	Some death and yellowing of foliage
NR-11-109	<i>Bossiaea eriocarpa</i>	1	282	438436	6362985	10	Sterile	3	Some death and yellowing of foliage
NR-11-110	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	20	Fruiting	3	Some death and yellowing of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-111	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	40	Fruiting	4	
NR-11-112	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	45	Fruiting	4	
NR-11-113	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	50	Fruiting	4	
NR-11-114	<i>Hovea trisperma</i>	1	283	438428	6362987	7	Fruiting	4	
NR-11-115	<i>Gompholobium marginata</i>	1	283	438428	6362987	5	Fruiting	4	
NR-11-116	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	25	Fruiting	4	
NR-11-117	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	30	Fruiting	4	
NR-11-118	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	42	Fruiting	4	
NR-11-119	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	45	Fruiting	4	
NR-11-120	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	10	Fruiting	4	
NR-11-121	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	18	Fruiting	3	Some death and yellowing of foliage
NR-11-122	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	36	Fruiting	2	Approximately 30 % of foliage dead
NR-11-123	<i>Podolepis lessonii</i>	1	283	438428	6362987	18	Fruiting	4	
NR-11-124	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	40	Fruiting	3	Some death and yellowing of foliage
NR-11-125	<i>Allocasuarina humilis</i>	1	283	438428	6362987	6	Fruiting	4	
NR-11-126	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	45	Fruiting	4	
NR-11-127	<i>Phyllanthus calycinus</i>	1	283	438428	6362987	3	Fruiting	4	
NR-11-128	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	50	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-129	<i>Bossiaea eriocarpa</i>	1	283	438428	6362987	60	Fruiting	4	
NR-11-130	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	45	Fruiting	4	
NR-11-131	<i>Phyllanthus calycinus</i>	1	284	438426	6362992	5	Sterile	4	
NR-11-132	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	45	Fruiting	4	
NR-11-133	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	30	Fruiting	3	Some death and yellowing of foliage
NR-11-134	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	80	Fruiting	4	
NR-11-135	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	284	438426	6362992	10	Sterile	4	
NR-11-136	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	30	Fruiting	4	
NR-11-137	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	30	Sterile	4	
NR-11-138	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	45	Sterile	4	
NR-11-139	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	60	Fruiting	4	
NR-11-140	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	45	Fruiting	4	
NR-11-141	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	20	Fruiting	4	
NR-11-142	<i>Bossiaea eriocarpa</i>	1	284	438426	6362992	45	Fruiting	3	Some death and yellowing of foliage
NR-11-143	<i>Phyllanthus calycinus</i>	1	284	438426	6362992	4	Fruiting	4	
NR-11-144	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	284	438426	6362992	15	Fruiting	3	Some death and yellowing of foliage
NR-11-145	<i>Bossiaea eriocarpa</i>	1	285	438420	6362988	35	Fruiting	3	Some death and yellowing of foliage
NR-11-146	<i>Bossiaea eriocarpa</i>	1	285	438420	6362988	35	Fruiting	3	Some death and yellowing of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-11-147	<i>Bossiaea eriocarpa</i>	1	285	438420	6362988	35	Fruiting	3	Some death and yellowing of foliage
NR-11-148	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	285	438420	6362988	10	Fruiting	4	
NR-11-149	<i>Bossiaea eriocarpa</i>	1	285	438420	6362988	30	Fruiting	4	
NR-11-150	<i>Bossiaea eriocarpa</i>	2	285	438420	6362988	35	Fruiting	4	
NR-11-151	<i>Bossiaea eriocarpa</i>	2	285	438420	6362988	35	Fruiting	4	
NR-11-152	<i>Bossiaea eriocarpa</i>	1	285	438420	6362988	20	Fruiting	4	
NR-11-153	<i>Bossiaea eriocarpa</i>	1	286	438419	6362994	40	Fruiting	4	
NR-11-154	<i>Bossiaea eriocarpa</i>	3	286	438419	6362994	25	Fruiting	4	
NR-11-155	<i>Bossiaea eriocarpa</i>	1	286	438419	6362994	20	Fruiting	4	
NR-11-156	<i>Hakea lissocarpha</i>	1	286	438419	6362994	30	Fruiting	4	
NR-11-157	<i>Bossiaea eriocarpa</i>	1	286	438419	6362994	15	Fruiting	4	
NR-11-158	<i>Bossiaea eriocarpa</i>	1	286	438419	6362994	35	Fruiting	4	

**Nursery Row Transect No:** NR-12  
**Recorders:** MS, KK  
**0 m star picket easting:** WP213 438504  
**0 m star picket northing:** 6363295  
**0 m star picket photo:** 127



**Date:** 13/12/2018  
**Seed mix:** DS-PS  
**50 m star picket easting:** WP230 438491  
**50 m star picket northing:** 6363345  
**50 m star picket photo:** 128

**Comments:**

Soil quite hard and lateritic; not 'deep sand'.

Kennedia prostrata and Hakea prostrata also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-01	<i>Bossiaea eriocarpa</i>	5	213	438504	6363295	65	Fruiting	4	
NR-12-02	<i>Banksia grandis</i>	1	213	438504	6363295	25	Sterile	3	Some death of foliage on top of plant
NR-12-03	<i>Bossiaea eriocarpa</i>	1	213	438504	6363295	55	Fruiting	4	
NR-12-04	<i>Hypocalymma angustifolium</i>	1	213	438504	6363295	50	Sterile	4	
NR-12-05	<i>Phyllanthus calycinus</i>	4	213	438504	6363295	4	Sterile	4	
NR-12-06	<i>Bossiaea eriocarpa</i>	8	213	438504	6363295	58	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-07	<i>Phyllanthus calycinus</i>	2	213	438504	6363295	7	Sterile	4	
NR-12-08	<i>Hypocalymma angustifolium</i>	1	213	438504	6363295	50	Sterile	4	
NR-12-09	<i>Gompholobium marginata</i>	1	213	438504	6363295	8	Fruiting	4	
NR-12-10	<i>Phyllanthus calycinus</i>	1	213	438504	6363295	6	Sterile	4	
NR-12-11	<i>Podolepis lessonii</i>	2	213	438504	6363295	20	Flowering, fruiting	4	Old and new flowers present
NR-12-12	<i>Hypocalymma angustifolium</i>	1	213	438504	6363295	30	Sterile	4	
NR-12-13	<i>Gompholobium marginata</i>	1	213	438504	6363295	4	Sterile	4	
NR-12-14	<i>Phyllanthus calycinus</i>	1	214	438502	6363296	5	Sterile	4	
NR-12-15	<i>Bossiaea eriocarpa</i>	1	214	438502	6363296	35	Fruiting	4	
NR-12-16	<i>Bossiaea eriocarpa</i>	1	214	438502	6363296	40	Sterile	4	
NR-12-17	<i>Phyllanthus calycinus</i>	2	214	438502	6363296	3	Sterile	4	
NR-12-18	<i>Bossiaea eriocarpa</i>	1	214	438502	6363296	35	Sterile	4	
NR-12-19	<i>Hypocalymma angustifolium</i>	1	214	438502	6363296	12	Sterile	4	
NR-12-20	<i>Bossiaea eriocarpa</i>	1	214	438502	6363296	25	Fruiting	4	
NR-12-21	<i>Phyllanthus calycinus</i>	1	214	438502	6363296	4	Sterile	4	
NR-12-22	<i>Hypocalymma angustifolium</i>	1	214	438502	6363296	55	Sterile	4	
NR-12-23	<i>Banksia grandis</i>	1	214	438502	6363296	45	Sterile	4	
NR-12-24	<i>Gompholobium preissii</i>	1	214	438502	6363296	3	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-25	<i>Bossiaea eriocarpa</i>	5	214	438502	6363296	50	Fruiting	4	
NR-12-26	<i>Phyllanthus calycinus</i>	1	214	438502	6363296	4	Sterile	4	
NR-12-27	<i>Hypocalymma angustifolium</i>	1	214	438502	6363296	40	Sterile	4	
NR-12-28A	<i>Bossiaea eriocarpa</i>	2	214	438502	6363296	45	Fruiting	4	
NR-12-28B	<i>Phyllanthus calycinus</i>	1	214	438502	6363296	9	Sterile	3	Minor yellowing of foliage
NR-12-29A	<i>Gompholobium marginata</i>	1	214	438502	6363296	4	Sterile	4	
NR-12-29B	<i>Podolepis lessonii</i>	2	215	438504	6363297	20	Flowering, fruiting	4	Old and new flowers present
NR-12-30	<i>Hypocalymma angustifolium</i>	1	215	438504	6363297	45	Sterile	4	
NR-12-31	<i>Bossiaea eriocarpa</i>	3	215	438504	6363297	35	Fruiting	4	
NR-12-32A	<i>Hypocalymma angustifolium</i>	1	215	438504	6363297	40	Sterile	4	
NR-12-32B	<i>Phyllanthus calycinus</i>	2	215	438504	6363297	4	Sterile	3	Minor yellowing of foliage
NR-12-33	<i>Bossiaea eriocarpa</i>	4	215	438504	6363297	38	Fruiting	4	
NR-12-34A	<i>Podolepis lessonii</i>	5	215	438504	6363297	20	Flowering, fruiting	4	Old and new flowers present
NR-12-34B	<i>Gompholobium marginata</i>	1	215	438504	6363297	5	Sterile	4	
NR-12-35	<i>Phyllanthus calycinus</i>	1	215	438504	6363297	7	Sterile	3	Minor yellowing of foliage
NR-12-36A	<i>Bossiaea eriocarpa</i>	3	215	438504	6363297	50	Fruiting	4	
NR-12-36B	<i>Gompholobium preissii</i>	1	215	438504	6363297	3	Fruiting	4	
NR-12-37A	<i>Hypocalymma angustifolium</i>	1	215	438504	6363297	35	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-37B	<i>Phyllanthus calycinus</i>	1	215	438504	6363297	4	Sterile	4	
NR-12-38	<i>Bossiaea eriocarpa</i>	3	215	438504	6363297	40	Fruiting	4	
NR-12-39A	<i>Phyllanthus calycinus</i>	1	215	438504	6363297	4	Sterile	4	
NR-12-39B	<i>Gompholobium marginata</i>	1	215	438504	6363297	10	Sterile	4	
NR-12-40	<i>Hypocalymma angustifolium</i>	1	215	438504	6363297	35	Sterile	4	
NR-12-41A	<i>Bossiaea eriocarpa</i>	1	215	438504	6363297	30	Fruiting	4	
NR-12-41B	<i>Gompholobium marginata</i>	1	215	438504	6363297	4	Sterile	4	
NR-12-42A	<i>Bossiaea eriocarpa</i>	2	216	438501	6363303	40	Fruiting	4	
NR-12-42B	<i>Gompholobium preissii</i>	1	216	438501	6363303	3	Fruiting	4	
NR-12-42C	<i>Gompholobium marginata</i>	1	216	438501	6363303	6	Sterile	4	
NR-12-42D	<i>Phyllanthus calycinus</i>	1	216	438501	6363303	3	Sterile	4	
NR-12-43A	<i>Bossiaea eriocarpa</i>	2	216	438501	6363303	70	Fruiting	4	
NR-12-43B	<i>Podolepis lessonii</i>	3	216	438501	6363303	10	Flowering, fruiting	4	Old and new flowers present
NR-12-43C	<i>Gompholobium marginata</i>	1	216	438501	6363303	4	Sterile	4	
NR-12-44A	<i>Bossiaea eriocarpa</i>	1	216	438501	6363303	30	Fruiting	4	
NR-12-44B	<i>Phyllanthus calycinus</i>	2	216	438501	6363303	5	Sterile	4	
NR-12-45A	<i>Bossiaea eriocarpa</i>	3	216	438501	6363303	25	Fruiting	4	
NR-12-45B	<i>Allocasuarina humilis</i>	1	216	438501	6363303	9	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-46	<i>Hypocalymma angustifolium</i>	2	216	438501	6363303	30	Sterile	4	
NR-12-47	<i>Bossiaea eriocarpa</i>	4	216	438501	6363303	45	Fruiting	4	
NR-12-48	<i>Phyllanthus calycinus</i>	1	216	438501	6363303	4	Sterile	4	Minor yellowing of foliage
NR-12-49	<i>Bossiaea eriocarpa</i>	1	216	438501	6363303	30	Fruiting	4	
NR-12-50A	<i>Phyllanthus calycinus</i>	1	216	438501	6363303	6	Sterile	4	Minor yellowing of foliage
NR-12-50B	<i>Hovea trisperma</i>	1	216	438501	6363303	15	Fruiting	4	
NR-12-50C	<i>Bossiaea eriocarpa</i>	1	216	438501	6363303	65	Fruiting	4	
NR-12-51	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	8	Sterile	4	
NR-12-52A	<i>Gompholobium marginata</i>	1	217	438500	6363305	3	Sterile	4	
NR-12-52B	<i>Gompholobium preissii</i>	1	217	438500	6363305	4	Sterile	4	
NR-12-53	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	7	Sterile	3	Minor yellowing of foliage
NR-12-54	<i>Bossiaea eriocarpa</i>	5	217	438500	6363305	60	Fruiting	4	
NR-12-55	<i>Hypocalymma angustifolium</i>	1	217	438500	6363305	65	Sterile	4	
NR-12-56	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	6	Sterile	4	
NR-12-57	<i>Bossiaea eriocarpa</i>	1	217	438500	6363305	25	Sterile	4	
NR-12-58	<i>Hypocalymma angustifolium</i>	1	217	438500	6363305	35	Sterile	4	
NR-12-59	<i>Bossiaea eriocarpa</i>	1	217	438500	6363305	25	Sterile	4	
NR-12-60	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	10	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-61	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	4	Sterile	4	
NR-12-62	<i>Bossiaea eriocarpa</i>	1	217	438500	6363305	45	Fruiting	4	
NR-12-63	<i>Bossiaea eriocarpa</i>	3	217	438500	6363305	35	Fruiting	4	
NR-12-64	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	8	Sterile	4	
NR-12-65	<i>Bossiaea eriocarpa</i>	1	217	438500	6363305	35	Fruiting	4	
NR-12-66	<i>Phyllanthus calycinus</i>	1	217	438500	6363305	10	Sterile	4	
NR-12-67	<i>Hypocalymma angustifolium</i>	1	218	438498	6363308	40	Sterile	4	
NR-12-68A	<i>Bossiaea eriocarpa</i>	2	218	438498	6363308	30	Fruiting	4	
NR-12-68B	<i>Phyllanthus calycinus</i>	2	218	438498	6363308	7	Sterile	4	
NR-12-69	<i>Phyllanthus calycinus</i>	1	218	438498	6363308	7	Sterile	4	
NR-12-70	<i>Bossiaea eriocarpa</i>	1	218	438498	6363308	30	Sterile	4	
NR-12-71A	<i>Phyllanthus calycinus</i>	1	218	438498	6363308	5	Sterile	4	
NR-12-71B	<i>Gompholobium marginata</i>	1	218	438498	6363308	20	Fruiting	4	
NR-12-72A	<i>Bossiaea eriocarpa</i>	2	218	438498	6363308	30	Fruiting	4	
NR-12-72B	<i>Podolepis lessonii</i>	4	218	438498	6363308	25	Flowering, fruiting	4	Old and new flowers present
NR-12-73	<i>Gompholobium marginata</i>	1	218	438498	6363308	13	Fruiting	4	
NR-12-74	<i>Bossiaea eriocarpa</i>	3	218	438498	6363308	40	Fruiting	4	
NR-12-75	<i>Hovea trisperma</i>	1	218	438498	6363308	20	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-76	<i>Gompholobium marginata</i>	1	218	438498	6363308	2	Sterile	4	
NR-12-77	<i>Bossiaea eriocarpa</i>	1	218	438498	6363308	35	Fruiting	4	
NR-12-78	<i>Hypocalymma angustifolium</i>	1	218	438498	6363308	60	Sterile	4	
NR-12-79	<i>Bossiaea eriocarpa</i>	4	218	438498	6363308	45	Fruiting	4	
NR-12-80	<i>Bossiaea eriocarpa</i>	1	218	438498	6363308	55	Fruiting	4	
NR-12-81	<i>Hypocalymma angustifolium</i>	1	219	438497	6363311	50	Sterile	4	
NR-12-82	<i>Phyllanthus calycinus</i>	2	219	438497	6363311	3	Sterile	4	
NR-12-83	<i>Bossiaea eriocarpa</i>	3	219	438497	6363311	45	Fruiting	4	
NR-12-84	<i>Bossiaea eriocarpa</i>	1	219	438497	6363311	18	Fruiting	4	
NR-12-85	<i>Bossiaea eriocarpa</i>	5	219	438497	6363311	40	Fruiting	4	
NR-12-86	<i>Bossiaea eriocarpa</i>	1	219	438497	6363311	35	Fruiting	4	
NR-12-87A	<i>Phyllanthus calycinus</i>	1	219	438497	6363311	8	Sterile	4	
NR-12-87B	<i>Podolepis lessonii</i>	2	219	438497	6363311	30	Flowering, fruiting	4	Old and new flowers present
NR-12-87C	<i>Gompholobium marginata</i>	1	219	438497	6363311	10	Fruiting	4	
NR-12-88	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	219	438497	6363311	18	Sterile	4	
NR-12-89	<i>Bossiaea eriocarpa</i>	1	219	438497	6363311	40	Fruiting	4	
NR-12-90	<i>Gompholobium marginata</i>	1	219	438497	6363311	8	Sterile	4	
NR-12-91	<i>Hovea trisperma</i>	1	219	438497	6363311	13	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-92	<i>Bossiaea eriocarpa</i>	2	219	438497	6363311	55	Fruiting	4	
NR-12-93	<i>Gompholobium preissii</i>	1	219	438497	6363311	4	Fruiting	4	
NR-12-94	<i>Phyllanthus calycinus</i>	1	219	438497	6363311	7	Sterile	3	Minor yellowing of foliage
NR-12-95	<i>Podolepis lessonii</i>	2	219	438497	6363311	30	Flowering, fruiting	4	Old and new flowers present
NR-12-96	<i>Hypocalymma angustifolium</i>	1	220	438497	6363315	25	Sterile	4	
NR-12-97	<i>Gompholobium marginata</i>	1	220	438497	6363315	17	Fruiting	4	
NR-12-98	<i>Phyllanthus calycinus</i>	1	220	438497	6363315	3	Sterile	4	
NR-12-99	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	15	Fruiting	4	
NR-12-100	<i>Hypocalymma angustifolium</i>	1	220	438497	6363315	20	Sterile	4	
NR-12-101A	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	18	Fruiting	4	
NR-12-101B	<i>Phyllanthus calycinus</i>	2	220	438497	6363315	6	Sterile	3	Minor yellowing of foliage
NR-12-102A	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	50	Fruiting	4	
NR-12-102B	<i>Gompholobium marginata</i>	1	220	438497	6363315	10	Fruiting	4	
NR-12-103	<i>Gompholobium marginata</i>	2	220	438497	6363315	4	Fruiting	4	
NR-12-104	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	40	Fruiting	4	
NR-12-105	<i>Phyllanthus calycinus</i>	1	220	438497	6363315	8	Sterile	3	Minor yellowing of foliage
NR-12-106	<i>Hypocalymma angustifolium</i>	1	220	438497	6363315	40	Sterile	4	
NR-12-107	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	60	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-108	<i>Hypocalymma angustifolium</i>	2	220	438497	6363315	55	Sterile	4	
NR-12-109	<i>Bossiaea eriocarpa</i>	1	220	438497	6363315	55	Fruiting	4	
NR-12-110	<i>Phyllanthus calycinus</i>	1	220	438497	6363315	13	Sterile	3	Minor yellowing of foliage
NR-12-111	<i>Gompholobium marginata</i>	1	221	438499	6363315	10	Fruiting	4	
NR-12-112	<i>Bossiaea eriocarpa</i>	1	221	438499	6363315	45	Fruiting	4	
NR-12-113A	<i>Phyllanthus calycinus</i>	1	221	438499	6363315	10	Sterile	4	
NR-12-113B	<i>Hypocalymma angustifolium</i>	1	221	438499	6363315	35	Sterile	4	
NR-12-113C	<i>Gompholobium marginata</i>	1	221	438499	6363315	13	Fruiting	4	
NR-12-114	<i>Bossiaea eriocarpa</i>	3	221	438499	6363315	50	Fruiting	4	
NR-12-115	<i>Hypocalymma angustifolium</i>	4	221	438499	6363315	60	Sterile	4	
NR-12-116A	<i>Phyllanthus calycinus</i>	1	221	438499	6363315	7	Sterile	4	
NR-12-116B	<i>Gompholobium marginata</i>	1	221	438499	6363315	6	Fruiting	4	
NR-12-117	<i>Phyllanthus calycinus</i>	2	221	438499	6363315	10	Sterile	3	Minor yellowing of foliage
NR-12-118	<i>Gompholobium marginata</i>	1	221	438499	6363315	7	Sterile	4	
NR-12-119	<i>Bossiaea eriocarpa</i>	1	221	438499	6363315	25	Fruiting	4	
NR-12-120	<i>Phyllanthus calycinus</i>	1	221	438499	6363315	7	Sterile	4	
NR-12-121	<i>Hypocalymma angustifolium</i>	1	221	438499	6363315	35	Sterile	4	
NR-12-122	<i>Phyllanthus calycinus</i>	2	221	438499	6363315	7	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-123	<i>Bossiaea eriocarpa</i>	2	221	438499	6363315	40	Fruiting	4	
NR-12-124	<i>Phyllanthus calycinus</i>	1	221	438499	6363315	3	Sterile	3	Minor yellowing of foliage
NR-12-125	<i>Bossiaea eriocarpa</i>	2	222	438496	6363321	28	Fruiting	4	
NR-12-126	<i>Phyllanthus calycinus</i>	3	222	438496	6363321	3	Sterile	3	Minor yellowing of foliage
NR-12-127	<i>Bossiaea eriocarpa</i>	1	222	438496	6363321	20	Sterile	4	
NR-12-128	<i>Hypocalymma angustifolium</i>	1	222	438496	6363321	55	Sterile	4	
NR-12-129A	<i>Bossiaea eriocarpa</i>	1	222	438496	6363321	35	Fruiting	4	
NR-12-129B	<i>Phyllanthus calycinus</i>	1	222	438496	6363321	5	Sterile	3	Minor yellowing of foliage
NR-12-130	<i>Gompholobium preissii</i>	1	222	438496	6363321	5	Fruiting	4	
NR-12-131	<i>Bossiaea eriocarpa</i>	2	222	438496	6363321	50	Fruiting	4	
NR-12-132	<i>Phyllanthus calycinus</i>	4	222	438496	6363321	15	Fruiting	3	Minor yellowing of foliage
NR-12-133	<i>Gompholobium marginata</i>	2	222	438496	6363321	7	Fruiting	4	
NR-12-134	<i>Bossiaea eriocarpa</i>	3	222	438496	6363321	25	Fruiting	4	
NR-12-135	<i>Gompholobium marginata</i>	1	222	438496	6363321	6	Fruiting	4	
NR-12-136	<i>Phyllanthus calycinus</i>	1	222	438496	6363321	5	Fruiting	4	
NR-12-137	<i>Bossiaea eriocarpa</i>	3	222	438496	6363321	30	Fruiting	4	
NR-12-138A	<i>Phyllanthus calycinus</i>	1	222	438496	6363321	4	Sterile	4	
NR-12-138B	<i>Hypocalymma angustifolium</i>	1	222	438496	6363321	10	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-139	<i>Phyllanthus calycinus</i>	2	222	438496	6363321	4	Sterile	4	
NR-12-140	<i>Gompholobium marginata</i>	2	223	438495	6363321	5	Fruiting	4	
NR-12-141	<i>Bossiaea eriocarpa</i>	3	223	438495	6363321	60	Fruiting	4	
NR-12-142	<i>Podolepis lessonii</i>	1	223	438495	6363321	8	Flowering, fruiting	4	Old and new flowers present
NR-12-143A	<i>Bossiaea eriocarpa</i>	3	223	438495	6363321	50	Fruiting	4	
NR-12-143B	<i>Gompholobium preissii</i>	1	223	438495	6363321	2	Sterile	4	
NR-12-144	<i>Phyllanthus calycinus</i>	4	223	438495	6363321	5	Sterile	3	Minor yellowing of foliage
NR-12-145	<i>Bossiaea eriocarpa</i>	1	223	438495	6363321	40	Fruiting	4	
NR-12-146	<i>Phyllanthus calycinus</i>	1	223	438495	6363321	4	Sterile	3	Minor yellowing of foliage
NR-12-147A	<i>Gompholobium marginata</i>	1	223	438495	6363321	9	Fruiting	4	
NR-12-147B	<i>Bossiaea eriocarpa</i>	1	223	438495	6363321	50	Fruiting	4	
NR-12-147C	<i>Podolepis lessonii</i>	1	223	438495	6363321	15	Flowering, fruiting	4	Old and new flowers present
NR-12-148	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	223	438495	6363321	28	Sterile	4	
NR-12-149	<i>Hypocalymma angustifolium</i>	1	223	438495	6363321	30	Sterile	4	
NR-12-150	<i>Bossiaea eriocarpa</i>	2	223	438495	6363321	35	Fruiting	4	
NR-12-151	<i>Gompholobium marginata</i>	1	223	438495	6363321	4	Sterile	4	
NR-12-152	<i>Hypocalymma angustifolium</i>	1	223	438495	6363321	30	Sterile	4	
NR-12-153	<i>Bossiaea eriocarpa</i>	1	223	438495	6363321	25	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-154	<i>Phyllanthus calycinus</i>	1	223	438495	6363321	6	Sterile	4	
NR-12-155	<i>Phyllanthus calycinus</i>	1	224	438496	6363324	3	Sterile	3	Minor yellowing of foliage
NR-12-156	<i>Bossiaea eriocarpa</i>	2	224	438496	6363324	28	Fruiting	4	
NR-12-157	<i>Bossiaea eriocarpa</i>	2	224	438496	6363324	55	Fruiting	4	
NR-12-158	<i>Bossiaea eriocarpa</i>	2	224	438496	6363324	50	Fruiting	4	
NR-12-159	<i>Gompholobium preissii</i>	1	224	438496	6363324	13	Fruiting	4	
NR-12-160	<i>Hypocalymma angustifolium</i>	1	224	438496	6363324	30	Sterile	4	
NR-12-161	<i>Bossiaea eriocarpa</i>	1	224	438496	6363324	60	Fruiting	4	
NR-12-162	<i>Phyllanthus calycinus</i>	1	224	438496	6363324	5	Sterile	4	
NR-12-163	<i>Podolepis lessonii</i>	1	224	438496	6363324	15	Flowering, fruiting	4	Old and new flowers present
NR-12-164	<i>Phyllanthus calycinus</i>	1	224	438496	6363324	6	Sterile	3	Minor yellowing of foliage
NR-12-165	<i>Bossiaea eriocarpa</i>	3	224	438496	6363324	45	Fruiting	4	
NR-12-166	<i>Bossiaea eriocarpa</i>	3	224	438496	6363324	25	Fruiting	4	
NR-12-167	<i>Hypocalymma angustifolium</i>	1	224	438496	6363324	30	Sterile	4	
NR-12-168	<i>Phyllanthus calycinus</i>	1	224	438496	6363324	6	Sterile	3	Minor yellowing of foliage
NR-12-169	<i>Bossiaea eriocarpa</i>	2	224	438496	6363324	35	Fruiting	4	
NR-12-170	<i>Phyllanthus calycinus</i>	2	224	438496	6363324	8	Sterile	3	Minor yellowing of foliage
NR-12-171	<i>Bossiaea eriocarpa</i>	1	224	438496	6363324	26	Fruiting	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-172	<i>Hakea lissocarpha</i>	1	225	438494	6363329	13	Sterile	4	
NR-12-173A	<i>Bossiaea eriocarpa</i>	3	225	438494	6363329	45	Fruiting	4	
NR-12-173B	<i>Gompholobium marginata</i>	1	225	438494	6363329	13	Sterile	4	
NR-12-174	<i>Phyllanthus calycinus</i>	1	225	438494	6363329	5	Sterile	3	Minor yellowing of foliage
NR-12-175	<i>Bossiaea eriocarpa</i>	3	225	438494	6363329	50	Fruiting	4	
NR-12-176A	<i>Bossiaea eriocarpa</i>	3	225	438494	6363329	45	Fruiting	4	
NR-12-176B	<i>Gompholobium marginata</i>	1	225	438494	6363329	13	Fruiting	4	
NR-12-177	<i>Hypocalymma angustifolium</i>	1	225	438494	6363329	25	Sterile	4	
NR-12-178A	<i>Gompholobium preissii</i>	1	225	438494	6363329	6	Fruiting	4	
NR-12-178B	<i>Gompholobium marginata</i>	1	225	438494	6363329	13	Fruiting	4	
NR-12-179	<i>Bossiaea eriocarpa</i>	1	225	438494	6363329	27	Sterile	4	
NR-12-180	<i>Bossiaea eriocarpa</i>	1	225	438494	6363329	40	Fruiting	4	
NR-12-181A	<i>Bossiaea eriocarpa</i>	4	225	438494	6363329	35	Fruiting	4	
NR-12-181B	<i>Gompholobium marginata</i>	1	225	438494	6363329	9	Sterile	4	
NR-12-182	<i>Phyllanthus calycinus</i>	2	225	438494	6363329	12	Sterile	4	
NR-12-183	<i>Bossiaea eriocarpa</i>	1	225	438494	6363329	35	Fruiting	4	
NR-12-184	<i>Bossiaea eriocarpa</i>	1	225	438494	6363329	37	Fruiting	4	
NR-12-185	<i>Bossiaea eriocarpa</i>	2	226	438488	6363338	45	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-186	<i>Gompholobium marginata</i>	1	226	438488	6363338	5	Sterile	4	
NR-12-187	<i>Hypocalymma angustifolium</i>	1	226	438488	6363338	30	Sterile	4	
NR-12-188	<i>Bossiaea eriocarpa</i>	2	226	438488	6363338	32	Fruiting	4	
NR-12-189A	<i>Bossiaea eriocarpa</i>	2	226	438488	6363338	45	Fruiting	4	
NR-12-189B	<i>Gompholobium preissii</i>	1	226	438488	6363338	3	Sterile	4	
NR-12-190	<i>Bossiaea eriocarpa</i>	2	226	438488	6363338	30	Fruiting	4	
NR-12-191	<i>Bossiaea eriocarpa</i>	3	226	438488	6363338	25	Fruiting	4	
NR-12-192	<i>Bossiaea eriocarpa</i>	2	226	438488	6363338	20	Fruiting	4	
NR-12-193	<i>Bossiaea eriocarpa</i>	3	226	438488	6363338	25	Fruiting	4	
NR-12-194	<i>Bossiaea eriocarpa</i>	4	226	438488	6363338	40	Fruiting	4	
NR-12-195	<i>Hypocalymma angustifolium</i>	1	226	438488	6363338	40	Sterile	4	
NR-12-196	<i>Bossiaea eriocarpa</i>	3	226	438488	6363338	40	Fruiting	4	
NR-12-197	<i>Bossiaea eriocarpa</i>	3	226	438488	6363338	40	Fruiting	4	
NR-12-198	<i>Bossiaea eriocarpa</i>	1	226	438488	6363338	35	Fruiting	4	
NR-12-199	<i>Hovea trisperma</i>	1	226	438488	6363338	15	Sterile	3	Minor yellowing of foliage
NR-12-200A	<i>Hypocalymma angustifolium</i>	1	226	438488	6363338	30	Sterile	4	
NR-12-200B	<i>Bossiaea eriocarpa</i>	1	226	438488	6363338	35	Fruiting	4	
NR-12-201	<i>Bossiaea eriocarpa</i>	3	227	438493	6363335	35	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-202A	<i>Bossiaea eriocarpa</i>	3	227	438493	6363335	30	Fruiting	4	
NR-12-202B	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	5	Sterile	4	
NR-12-203	<i>Podolepis lessonii</i>	1	227	438493	6363335	15	Flowering, fruiting	4	Old and new flowers present
NR-12-204	<i>Gompholobium marginata</i>	1	227	438493	6363335	7	Fruiting	3	Minor yellowing of foliage
NR-12-205	<i>Bossiaea eriocarpa</i>	2	227	438493	6363335	30	Fruiting	4	
NR-12-206	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	7	Sterile	4	
NR-12-207	<i>Bossiaea eriocarpa</i>	2	227	438493	6363335	45	Fruiting	4	
NR-12-208	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	6	Sterile	4	
NR-12-209A	<i>Gompholobium marginata</i>	1	227	438493	6363335	10	Sterile	4	
NR-12-209B	<i>Gompholobium preissii</i>	1	227	438493	6363335	2	Sterile	4	
NR-12-210	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	4	Sterile	4	
NR-12-211A	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	5	Sterile	4	
NR-12-211B	<i>Hypocalymma angustifolium</i>	1	227	438493	6363335	20	Sterile	4	
NR-12-212	<i>Bossiaea eriocarpa</i>	1	227	438493	6363335	40	Fruiting	4	
NR-12-213A	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	7	Sterile	4	
NR-12-213B	<i>Bossiaea eriocarpa</i>	1	227	438493	6363335	35	Fruiting	4	
NR-12-214	<i>Phyllanthus calycinus</i>	1	227	438493	6363335	7	Sterile	4	
NR-12-215	<i>Bossiaea eriocarpa</i>	1	229	438493	6363336	20	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-216	<i>Bossiaea eriocarpa</i>	1	229	438493	6363336	35	Fruiting	4	
NR-12-217	<i>Phyllanthus calycinus</i>	1	229	438493	6363336	5	Sterile	3	Minor yellowing of foliage
NR-12-218	<i>Bossiaea eriocarpa</i>	3	229	438493	6363336	35	Fruiting	4	
NR-12-219	<i>Bossiaea eriocarpa</i>	2	229	438493	6363336	30	Fruiting	4	
NR-12-220	<i>Podolepis lessonii</i>	1	229	438493	6363336	15	Flowering, fruiting	4	Old and new flowers present
NR-12-221	<i>Bossiaea eriocarpa</i>	2	229	438493	6363336	35	Fruiting	4	
NR-12-222	<i>Bossiaea eriocarpa</i>	2	229	438493	6363336	35	Fruiting	4	
NR-12-223	<i>Hypocalymma angustifolium</i>	1	229	438493	6363336	35	Sterile	4	
NR-12-224	<i>Bossiaea eriocarpa</i>	2	229	438493	6363336	20	Fruiting	4	
NR-12-225A	<i>Hypocalymma angustifolium</i>	1	229	438493	6363336	15	Sterile	4	
NR-12-225B	<i>Phyllanthus calycinus</i>	1	229	438493	6363336	5	Sterile	3	Minor yellowing of foliage
NR-12-226	<i>Gompholobium preissii</i>	2	229	438493	6363336	5	Sterile	4	
NR-12-227	<i>Bossiaea eriocarpa</i>	1	229	438493	6363336	40	Fruiting	4	
NR-12-228	<i>Gompholobium preissii</i>	1	229	438493	6363336	5	Sterile	4	
NR-12-229	<i>Bossiaea eriocarpa</i>	3	229	438493	6363336	35	Fruiting	4	
NR-12-230	<i>Bossiaea eriocarpa</i>	1	229	438493	6363336	40	Fruiting	4	
NR-12-231	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	40	Fruiting	4	
NR-12-232	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	40	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-233	<i>Podolepis lessonii</i>	1	228	438492	6363340	15	Flowering, fruiting	4	Old and new flowers present
NR-12-234	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	35	Fruiting	4	
NR-12-235	<i>Bossiaea eriocarpa</i>	3	228	438492	6363340	30	Fruiting	4	
NR-12-236	<i>Podolepis lessonii</i>	1	228	438492	6363340	15	Flowering, fruiting	4	Old and new flowers present
NR-12-237	<i>Bossiaea eriocarpa</i>	1	228	438492	6363340	35	Fruiting	4	
NR-12-238	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	35	Fruiting	4	
NR-12-239	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	228	438492	6363340	15	Sterile	4	
NR-12-240	<i>Hypocalymma angustifolium</i>	1	228	438492	6363340	40	Sterile	4	
NR-12-241	<i>Bossiaea eriocarpa</i>	1	228	438492	6363340	30	Fruiting	4	
NR-12-242	<i>Bossiaea eriocarpa</i>	1	228	438492	6363340	40	Fruiting	4	
NR-12-243	<i>Podolepis lessonii</i>	1	228	438492	6363340	15	Flowering, fruiting	4	Old and new flowers present
NR-12-244	<i>Bossiaea eriocarpa</i>	1	228	438492	6363340	25	Fruiting	4	
NR-12-245	<i>Phyllanthus calycinus</i>	1	228	438492	6363340	7	Sterile	4	
NR-12-246	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	25	Fruiting	4	
NR-12-247	<i>Bossiaea eriocarpa</i>	2	228	438492	6363340	20	Fruiting	4	
NR-12-248	<i>Bossiaea eriocarpa</i>	3	230	438491	6363345	40	Fruiting	4	
NR-12-249	<i>Bossiaea eriocarpa</i>	2	230	438491	6363345	20	Fruiting	4	
NR-12-250	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	10	Sterile	3	Minor yellowing of foliage

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-12-251	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	5	Sterile	3	Minor yellowing of foliage
NR-12-252	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	5	Sterile	3	Minor yellowing of foliage
NR-12-253	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	10	Fruiting	3	Minor yellowing of foliage
NR-12-254	<i>Bossiaea eriocarpa</i>	2	230	438491	6363345	20	Fruiting	4	
NR-12-255	<i>Hypocalymma angustifolium</i>	3	230	438491	6363345	30	Sterile	4	
NR-12-256	<i>Bossiaea eriocarpa</i>	2	230	438491	6363345	30	Fruiting	4	
NR-12-257	<i>Gompholobium preissii</i>	1	230	438491	6363345	5	Sterile	4	
NR-12-258	<i>Hypocalymma angustifolium</i>	1	230	438491	6363345	30	Sterile	4	
NR-12-259	<i>Bossiaea eriocarpa</i>	1	230	438491	6363345	20	Fruiting	4	
NR-12-260	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	7	Sterile	3	Minor yellowing of foliage
NR-12-261	<i>Phyllanthus calycinus</i>	1	230	438491	6363345	7	Sterile	3	Minor yellowing of foliage
NR-12-262	<i>Hypocalymma angustifolium</i>	1	230	438491	6363345	20	Sterile	3	Minor yellowing of foliage
NR-12-263	<i>Bossiaea eriocarpa</i>	1	230	438491	6363345	20	Fruiting	4	
NR-12-264	<i>Hypocalymma angustifolium</i>	1	230	438491	6363345	10	Sterile	4	

**Nursery Row Transect No:** NR-13  
**Recorders:** MS, KK  
**0 m star picket easting:** WP287 438617  
**0 m star picket northing:** 6363342  
**0 m star picket photo:** 139



**Date:** 13/12/2018  
**Seed mix:** DS-PS  
**50 m star picket easting:** WP306 438574  
**50 m star picket northing:** 6363368  
**50 m star picket photo:** 140



**Comments:** Majority of plants appear to be in good health.

Hakea prostrata also present in nursery row despite not being listed in seed mix or tubestock list for nursery rows in this seed mix area.

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-01	<i>Bossiaea eriocarpa</i>	2	287	438617	6363342.2	32	Fruiting	4	
NR-13-02	<i>Phyllanthus calycinus</i>	1	287	438617	6363342.2	6	Sterile	4	
NR-13-03	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	40	Sterile	4	
NR-13-04	<i>Phyllanthus calycinus</i>	1	287	438617	6363342.2	4	Sterile	4	
NR-13-05	<i>Bossiaea eriocarpa</i>	1	287	438617	6363342.2	45	Fruiting	4	
NR-13-06	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	287	438617	6363342.2	15	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-07	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	42	Sterile	4	
NR-13-08	<i>Phyllanthus calycinus</i>	1	287	438617	6363342.2	6	Sterile	4	
NR-13-09	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	33	Sterile	4	
NR-13-10	<i>Bossiaea eriocarpa</i>	1	287	438617	6363342.2	30	Fruiting	4	
NR-13-11	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	45	Sterile	4	
NR-13-12	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	30	Sterile	4	
NR-13-13A	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	287	438617	6363342.2	30	Sterile	4	
NR-13-13B	<i>Phyllanthus calycinus</i>	1	287	438617	6363342.2	10	Sterile	4	
NR-13-14	<i>Bossiaea eriocarpa</i>	1	287	438617	6363342.2	25	Fruiting	4	
NR-13-15	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	287	438617	6363342.2	50	Fruiting	4	
NR-13-16A	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	45	Sterile	4	
NR-13-16B	<i>Gompholobium marginata</i>	1	287	438617	6363342.2	10	Sterile	4	
NR-13-17	<i>Bossiaea eriocarpa</i>	3	287	438617	6363342.2	45	Fruiting	4	
NR-13-18	<i>Podolepis lessonii</i>	2	287	438617	6363342.2	20	Flowering, fruiting	1	About to die
NR-13-19	<i>Phyllanthus calycinus</i>	1	287	438617	6363342.2	6	Sterile	4	
NR-13-20	<i>Bossiaea eriocarpa</i>	1	287	438617	6363342.2	25	Fruiting	4	
NR-13-21	<i>Bossiaea eriocarpa</i>	2	287	438617	6363342.2	40	Fruiting	4	
NR-13-22	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	287	438617	6363342.2	22	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-23	<i>Hypocalymma angustifolium</i>	1	287	438617	6363342.2	25	Sterile	4	
NR-13-24	<i>Bossiaea eriocarpa</i>	2	287	438617	6363342.2	20	Fruiting	4	
NR-13-25	<i>Bossiaea eriocarpa</i>	1	287	438617	6363342.2	35	Fruiting	4	
NR-13-26	<i>Phyllanthus calycinus</i>	1	288	438616	6363344.7	5	Sterile	4	
NR-13-27	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	288	438616	6363344.7	30	Fruiting	4	
NR-13-28	<i>Hypocalymma angustifolium</i>	1	288	438616	6363344.7	25	Sterile	4	
NR-13-29	<i>Gompholobium marginata</i>	1	288	438616	6363344.7	8	Flowering, fruiting	4	
NR-13-30	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	40	Fruiting	4	
NR-13-31	<i>Phyllanthus calycinus</i>	1	288	438616	6363344.7	2	Sterile	4	
NR-13-32A	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	55	Fruiting	4	
NR-13-32B	<i>Gompholobium marginata</i>	1	288	438616	6363344.7	6	Sterile	4	
NR-13-33A	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	28	Fruiting	4	
NR-13-33B	<i>Hypocalymma angustifolium</i>	1	288	438616	6363344.7	15	Sterile	4	
NR-13-34	<i>Banksia grandis</i>	1	288	438616	6363344.7	40	Sterile	4	
NR-13-35	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	28	Sterile	4	
NR-13-36	<i>Hypocalymma angustifolium</i>	1	288	438616	6363344.7	25	Sterile	4	
NR-13-37A	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	30	Fruiting	4	
NR-13-37B	<i>Phyllanthus calycinus</i>	2	288	438616	6363344.7	4	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-38	<i>Bossiaea eriocarpa</i>	1	288	438616	6363344.7	45	Fruiting	4	
NR-13-39	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	289	438615	6363346.3	35	Sterile	4	
NR-13-40	<i>Podolepis lessonii</i>	1	289	438615	6363346.3	35	Flowering, fruiting	4	
NR-13-41	<i>Phyllanthus calycinus</i>	1	289	438615	6363346.3	7	Sterile	4	
NR-13-42	<i>Phyllanthus calycinus</i>	1	289	438615	6363346.3	7	Sterile	4	
NR-13-43	<i>Bossiaea eriocarpa</i>	1	289	438615	6363346.3	30	Fruiting	4	
NR-13-44	<i>Banksia grandis</i>	1	289	438615	6363346.3	28	Sterile	4	Some death of foliage on top of plant
NR-13-45	<i>Phyllanthus calycinus</i>	1	289	438615	6363346.3	7	Sterile	4	
NR-13-46	<i>Hovea trisperma</i>	1	289	438615	6363346.3	13	Fruiting	4	
NR-13-47	<i>Bossiaea eriocarpa</i>	1	289	438615	6363346.3	40	Fruiting	4	
NR-13-48	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	5	Sterile	4	
NR-13-49	<i>Bossiaea eriocarpa</i>	1	291	438613	6363347.2	38	Fruiting	3	Some death and yellowing of foliage
NR-13-50	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	3	Sterile	4	
NR-13-51	<i>Hypocalymma angustifolium</i>	1	291	438613	6363347.2	28	Sterile	4	
NR-13-52	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	4	Sterile	4	
NR-13-53	<i>Bossiaea eriocarpa</i>	1	291	438613	6363347.2	50	Fruiting	4	
NR-13-54	<i>Gompholobium marginata</i>	1	291	438613	6363347.2	5	Fruiting	4	
NR-13-55	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	4	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-56	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	5	Sterile	4	
NR-13-57	<i>Gompholobium marginata</i>	1	291	438613	6363347.2	10	Sterile	4	
NR-13-58	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	5	Sterile	4	
NR-13-59	<i>Phyllanthus calycinus</i>	1	291	438613	6363347.2	7	Sterile	4	
NR-13-60	<i>Hypocalymma angustifolium</i>	1	292	438611	6363346	40	Sterile	4	
NR-13-61	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	60	Fruiting	4	
NR-13-62	<i>Phyllanthus calycinus</i>	1	292	438611	6363346	11	Sterile	3	Some death and yellowing of foliage
NR-13-63	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	55	Fruiting	4	
NR-13-64	<i>Podolepis lessonii</i>	3	292	438611	6363346	40	Flowering, fruiting	4	
NR-13-65	<i>Phyllanthus calycinus</i>	1	292	438611	6363346	5	Sterile	4	
NR-13-66	<i>Phyllanthus calycinus</i>	1	292	438611	6363346	3	Sterile	4	
NR-13-67	<i>Gompholobium preissii</i>	1	292	438611	6363346	8	Fruiting	4	
NR-13-68A	<i>Gompholobium marginata</i>	1	292	438611	6363346	4	Fruiting	4	
NR-13-68B	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	40	Fruiting	4	
NR-13-69	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	40	Fruiting	4	On edge of furrow
NR-13-70	<i>Phyllanthus calycinus</i>	1	292	438611	6363346	4	Sterile	4	
NR-13-71	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	38	Fruiting	4	
NR-13-72	<i>Podolepis lessonii</i>	1	292	438611	6363346	22	Flowering, fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-73	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	40	Fruiting	4	
NR-13-74	<i>Bossiaea eriocarpa</i>	2	292	438611	6363346	65	Fruiting	4	
NR-13-75	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	292	438611	6363346	15	Sterile	4	
NR-13-76	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	40	Fruiting	4	
NR-13-77	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	292	438611	6363346	30	Sterile	4	
NR-13-78	<i>Hypocalymma angustifolium</i>	1	292	438611	6363346	28	Sterile	4	
NR-13-79	<i>Phyllanthus calycinus</i>	1	292	438611	6363346	6	Sterile	4	
NR-13-80	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	30	Fruiting	4	
NR-13-81	<i>Bossiaea eriocarpa</i>	1	292	438611	6363346	35	Fruiting	4	
NR-13-82	<i>Phyllanthus calycinus</i>	1	293	438608	6363348.2	6	Sterile	4	
NR-13-83	<i>Hypocalymma angustifolium</i>	1	293	438608	6363348.2	25	Sterile	4	
NR-13-84	<i>Bossiaea eriocarpa</i>	1	293	438608	6363348.2	45	Fruiting	4	
NR-13-85	<i>Phyllanthus calycinus</i>	1	293	438608	6363348.2	4	Sterile	4	
NR-13-86	<i>Bossiaea eriocarpa</i>	1	293	438608	6363348.2	60	Fruiting	4	
NR-13-87	<i>Phyllanthus calycinus</i>	1	293	438608	6363348.2	2	Sterile	4	
NR-13-88	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	35	Fruiting	4	
NR-13-89	<i>Hypocalymma angustifolium</i>	1	294	438605	6363350.6	35	Sterile	4	
NR-13-90	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	70	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-91A	<i>Gompholobium marginata</i>	1	294	438605	6363350.6	7	Sterile	4	
NR-13-91B	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	294	438605	6363350.6	30	Sterile	4	
NR-13-92	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	55	Fruiting	4	
NR-13-93	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	3	Sterile	4	
NR-13-94	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	6	Sterile	4	
NR-13-95	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	40	Fruiting	4	
NR-13-96	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	4	Sterile	4	
NR-13-97	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	4	Sterile	4	
NR-13-98	<i>Hypocalymma angustifolium</i>	1	294	438605	6363350.6	10	Sterile	4	
NR-13-99	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	6	Sterile	4	
NR-13-100	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	50	Fruiting	4	
NR-13-101	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	5	Sterile	4	
NR-13-102	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	45	Fruiting	4	
NR-13-103	<i>Hypocalymma angustifolium</i>	1	294	438605	6363350.6	10	Sterile	4	
NR-13-104	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	3	Sterile	4	
NR-13-105	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	55	Fruiting	4	
NR-13-106	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	4	Sterile	4	
NR-13-107	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	40	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-108	<i>Bossiaea eriocarpa</i>	1	294	438605	6363350.6	30	Fruiting	4	
NR-13-109	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	294	438605	6363350.6	10	Sterile	4	
NR-13-110	<i>Phyllanthus calycinus</i>	1	294	438605	6363350.6	4	Sterile	4	
NR-13-111	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	10	Sterile	4	
NR-13-112	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	295	438602	6363352.4	25	Sterile	4	
NR-13-113	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	60	Fruiting	4	
NR-13-114	<i>Gompholobium marginata</i>	1	295	438602	6363352.4	8	Sterile	3	Minor yellowing of foliage
NR-13-115	<i>Gompholobium marginata</i>	1	295	438602	6363352.4	4	Fruiting	4	
NR-13-116	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	3	Sterile	4	
NR-13-117	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	50	Sterile	4	
NR-13-118	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	35	Fruiting	4	
NR-13-119	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	2	Sterile	4	
NR-13-120	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	6	Sterile	4	
NR-13-121	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	45	Fruiting	4	On edge of furrow
NR-13-122	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	40	Fruiting	4	
NR-13-123	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	4	Sterile	4	
NR-13-124	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	25	Fruiting	4	
NR-13-125	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	4	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-126	<i>Banksia grandis</i>	1	295	438602	6363352.4	25	Sterile	3	Some death of foliage on top of plant
NR-13-127	<i>Hovea trisperma</i>	1	295	438602	6363352.4	8	Fruiting	4	
NR-13-128	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	35	Fruiting	4	
NR-13-129	<i>Hypocalymma angustifolium</i>	1	295	438602	6363352.4	6	Sterile	4	
NR-13-130	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	4	Sterile	4	
NR-13-131	<i>Phyllanthus calycinus</i>	1	295	438602	6363352.4	8	Sterile	4	
NR-13-132A	<i>Bossiaea eriocarpa</i>	1	295	438602	6363352.4	50	Fruiting	4	
NR-13-132B	<i>Gompholobium marginata</i>	1	295	438602	6363352.4	6	Fruiting	4	
NR-13-133	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	296	438599	6363356	45	Fruiting	4	
NR-13-134	<i>Hypocalymma angustifolium</i>	1	296	438599	6363356	15	Sterile	4	
NR-13-135	<i>Hypocalymma angustifolium</i>	1	296	438599	6363356	30	Sterile	4	
NR-13-136	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	50	Sterile	4	
NR-13-137	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	35	Fruiting	4	
NR-13-138	<i>Hypocalymma angustifolium</i>	1	296	438599	6363356	15	Sterile	4	
NR-13-139	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	296	438599	6363356	15	Fruiting	4	
NR-13-140	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	50	Fruiting	4	
NR-13-141A	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	55	Fruiting	4	
NR-13-141B	<i>Gompholobium preissii</i>	1	296	438599	6363356	2	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-142	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	35	Fruiting	4	
NR-13-143	<i>Phyllanthus calycinus</i>	1	296	438599	6363356	10	Sterile	4	
NR-13-144	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	35	Fruiting	4	
NR-13-145	<i>Phyllanthus calycinus</i>	1	296	438599	6363356	5	Sterile	4	
NR-13-146	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	50	Fruiting	4	
NR-13-147	<i>Phyllanthus calycinus</i>	1	296	438599	6363356	12	Sterile	4	
NR-13-148	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	296	438599	6363356	28	Sterile	4	
NR-13-149	<i>Bossiaea eriocarpa</i>	1	296	438599	6363356	32	Fruiting	4	On edge of furrow
NR-13-150	<i>Hypocalymma angustifolium</i>	1	297	438597	6363357.2	60	Fruiting	4	
NR-13-151	<i>Gompholobium marginata</i>	1	297	438597	6363357.2	7	Fruiting	4	
NR-13-152	<i>Bossiaea eriocarpa</i>	1	297	438597	6363357.2	26	Fruiting	4	
NR-13-153	<i>Bossiaea eriocarpa</i>	1	297	438597	6363357.2	42	Fruiting	4	
NR-13-154	<i>Bossiaea eriocarpa</i>	1	297	438597	6363357.2	45	Fruiting	4	
NR-13-155	<i>Bossiaea eriocarpa</i>	1	297	438597	6363357.2	25	Fruiting	4	
NR-13-156	<i>Bossiaea eriocarpa</i>	1	297	438597	6363357.2	30	Fruiting	4	
NR-13-157	<i>Phyllanthus calycinus</i>	1	297	438597	6363357.2	6	Sterile	3	Some death and yellowing of foliage
NR-13-158	<i>Phyllanthus calycinus</i>	1	298	438595	6363358.7	4	Sterile	4	
NR-13-159	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	298	438595	6363358.7	3	Sterile	4	



Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-160	<i>Phyllanthus calycinus</i>	1	298	438595	6363358.7	4	Sterile	4	
NR-13-161	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	298	438595	6363358.7	35	Sterile	4	
NR-13-162	<i>Bossiaea eriocarpa</i>	1	298	438595	6363358.7	25	Fruiting	4	
NR-13-163	<i>Hypocalymma angustifolium</i>	1	298	438595	6363358.7	35	Sterile	4	
NR-13-164	<i>Bossiaea eriocarpa</i>	1	298	438595	6363358.7	50	Fruiting	4	
NR-13-165	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	298	438595	6363358.7	25	Sterile	4	
NR-13-166	<i>Bossiaea eriocarpa</i>	1	298	438595	6363358.7	70	Fruiting	4	
NR-13-167	<i>Phyllanthus calycinus</i>	1	299	438593	6363358.8	7	Sterile	4	
NR-13-168	<i>Gompholobium preissii</i>	1	299	438593	6363358.8	3	Sterile	4	
NR-13-169	<i>Banksia grandis</i>	1	299	438593	6363358.8	25	Sterile	4	
NR-13-170	<i>Gompholobium preissii</i>	1	299	438593	6363358.8	6	Flowering	4	
NR-13-171	<i>Hypocalymma angustifolium</i>	1	299	438593	6363358.8	40	Sterile	4	
NR-13-172A	<i>Phyllanthus calycinus</i>	1	299	438593	6363358.8	7	Sterile	4	
NR-13-172B	<i>Gompholobium marginata</i>	1	299	438593	6363358.8	8	Sterile	4	
NR-13-173	<i>Bossiaea eriocarpa</i>	1	299	438593	6363358.8	60	Fruiting	4	
NR-13-174	<i>Phyllanthus calycinus</i>	1	299	438593	6363358.8	8	Sterile	4	
NR-13-175	<i>Bossiaea eriocarpa</i>	1	299	438593	6363358.8	40	Fruiting	4	
NR-13-176	<i>Bossiaea eriocarpa</i>	1	299	438593	6363358.8	60	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-177	<i>Bossiaea eriocarpa</i>	1	299	438593	6363358.8	35	Fruiting	4	
NR-13-178	<i>Hovea trisperma</i>	1	299	438593	6363358.8	12	Fruiting	4	
NR-13-179	<i>Phyllanthus calycinus</i>	1	299	438593	6363358.8	6	Sterile	4	
NR-13-180	<i>Gompholobium marginata</i>	1	300	438590	6363360	5	Fruiting	4	
NR-13-181	<i>Bossiaea eriocarpa</i>	1	300	438590	6363360	15	Fruiting	4	
NR-13-182	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	4	Fruiting	4	
NR-13-183	<i>Gompholobium preissii</i>	1	300	438590	6363360	6	Fruiting	4	
NR-13-184	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	6	Sterile	4	
NR-13-185	<i>Bossiaea eriocarpa</i>	1	300	438590	6363360	45	Fruiting	4	
NR-13-186	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	7	Sterile	4	
NR-13-187	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	6	Sterile	4	
NR-13-188	<i>Bossiaea eriocarpa</i>	1	300	438590	6363360	40	Fruiting	4	
NR-13-189	<i>Bossiaea eriocarpa</i>	1	300	438590	6363360	18	Fruiting	4	
NR-13-190	<i>Hypocalymma angustifolium</i>	1	300	438590	6363360	45	Sterile	4	
NR-13-191	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	4	Sterile	4	
NR-13-192	<i>Phyllanthus calycinus</i>	1	300	438590	6363360	5	Sterile	4	
NR-13-193	<i>Hypocalymma angustifolium</i>	1	300	438590	6363360	40	Sterile	4	
NR-13-194	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	300	438590	6363360	40	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-195	<i>Bossiaea eriocarpa</i>	1	300	438590	6363360	15	Sterile	4	
NR-13-196	<i>Bossiaea eriocarpa</i>	1	301	438587	6363362	20	Fruiting	4	
NR-13-197	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	12	Sterile	4	
NR-13-198	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	301	438587	6363362	35	Fruiting	4	
NR-13-199A	<i>Bossiaea eriocarpa</i>	1	301	438587	6363362	50	Fruiting	4	
NR-13-199B	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	7	Sterile	4	
NR-13-200	<i>Hypocalymma angustifolium</i>	1	301	438587	6363362	18	Sterile	4	
NR-13-201	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	4	Sterile	4	
NR-13-202	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	6	Sterile	4	
NR-13-203	<i>Hypocalymma angustifolium</i>	1	301	438587	6363362	45	Sterile	4	
NR-13-204	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	301	438587	6363362	27	Sterile	4	
NR-13-205	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	5	Sterile	4	
NR-13-206	<i>Gompholobium preissii</i>	1	301	438587	6363362	4	Sterile	4	
NR-13-207	<i>Bossiaea eriocarpa</i>	1	301	438587	6363362	40	Fruiting	4	
NR-13-208	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	301	438587	6363362	25	Sterile	4	
NR-13-209	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	6	Sterile	4	
NR-13-210	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	8	Sterile	4	
NR-13-211	<i>Phyllanthus calycinus</i>	1	301	438587	6363362	8	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-212	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	7	Sterile	4	
NR-13-213	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	10	Sterile	4	
NR-13-214A	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	47	Fruiting	4	
NR-13-214B	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	12	Sterile	4	
NR-13-214C	<i>Gompholobium marginata</i>	1	302	438584	6363361	13	Sterile	4	
NR-13-215	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	40	Fruiting	4	
NR-13-216	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	20	Fruiting	4	
NR-13-217	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	40	Fruiting	4	
NR-13-218	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	10	Sterile	4	
NR-13-219	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	20	Sterile	4	
NR-13-220	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	4	Sterile	4	
NR-13-221	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	40	Fruiting	4	
NR-13-222	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	15	Sterile	4	
NR-13-223	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	3	Sterile	4	
NR-13-224	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	5	Sterile	4	
NR-13-225	<i>Bossiaea eriocarpa</i>	1	302	438584	6363361	50	Fruiting	4	
NR-13-226	<i>Phyllanthus calycinus</i>	2	302	438584	6363361	10	Sterile	4	
NR-13-227	<i>Hypocalymma angustifolium</i>	1	302	438584	6363361	55	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-228	<i>Phyllanthus calycinus</i>	2	302	438584	6363361	7	Sterile	4	
NR-13-229	<i>Phyllanthus calycinus</i>	1	302	438584	6363361	6	Sterile	4	
NR-13-230	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	5	Sterile	4	
NR-13-231	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	303	438581	6363364	40	Sterile	4	
NR-13-232	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	40	Fruiting	4	
NR-13-233	<i>Phyllanthus calycinus</i>	2	303	438581	6363364	6	Sterile	4	
NR-13-234	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	35	Fruiting	4	
NR-13-235	? <i>Phyllanthus calycinus</i>	1	303	438581	6363364	1	Sterile	4	Seedling
NR-13-236	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	40	Fruiting	3	Some dead foliage
NR-13-237	<i>Hypocalymma angustifolium</i>	1	303	438581	6363364	35	Sterile	4	
NR-13-238	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	8	Sterile	4	
NR-13-239	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	40	Fruiting	4	
NR-13-240	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	6	Sterile	4	
NR-13-241	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	6	Sterile	4	
NR-13-242	<i>Gompholobium preissii</i>	1	303	438581	6363364	2	Sterile	4	
NR-13-243	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	40	Fruiting	4	
NR-13-244	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	50	Fruiting	4	
NR-13-245	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	303	438581	6363364	35	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-246	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	15	Sterile	4	
NR-13-247	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	35	Fruiting	4	
NR-13-248	<i>Phyllanthus calycinus</i>	1	303	438581	6363364	10	Sterile	4	
NR-13-249	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	45	Fruiting	4	
NR-13-250	<i>Bossiaea eriocarpa</i>	1	303	438581	6363364	30	Fruiting	4	
NR-13-251	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	303	438581	6363364	35	Fruiting	4	
NR-13-252	<i>Gompholobium marginata</i>	1	303	438581	6363364	15	Fruiting	3	Some death and yellowing of foliage
NR-13-253	<i>Phyllanthus calycinus</i>	1	304	438578	6363365	15	Sterile	4	
NR-13-254	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	304	438578	6363365	35	Fruiting	4	
NR-13-255	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	304	438578	6363365	35	Fruiting	4	
NR-13-256	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	304	438578	6363365	30	Sterile	3	Some death and yellowing of foliage
NR-13-257	<i>Phyllanthus calycinus</i>	1	304	438578	6363365	15	Sterile	4	
NR-13-258	<i>Bossiaea eriocarpa</i>	2	304	438578	6363365	35	Fruiting	4	
NR-13-259	<i>Phyllanthus calycinus</i>	1	304	438578	6363365	5	Sterile	4	
NR-13-260	<i>Gompholobium preissii</i>	1	304	438578	6363365	5	Sterile	3	Some death and yellowing of foliage
NR-13-261	<i>Banksia sessilis</i>	1	304	438578	6363365	30	Sterile	4	
NR-13-262	<i>Gompholobium preissii</i>	1	304	438578	6363365	7	Sterile	4	
NR-13-263	<i>Hypocalymma angustifolium</i>	1	304	438578	6363365	30	Sterile	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-264	<i>Phyllanthus calycinus</i>	1	304	438578	6363365	15	Sterile	4	
NR-13-265	<i>Phyllanthus calycinus</i>	1	305	438576	6363365	10	Sterile	4	
NR-13-266	<i>Phyllanthus calycinus</i>	1	305	438576	6363365	10	Sterile	4	
NR-13-267	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	305	438576	6363365	40	Fruiting	4	
NR-13-268	<i>Bossiaea eriocarpa</i>	1	305	438576	6363365	50	Fruiting	4	
NR-13-269	<i>Phyllanthus calycinus</i>	1	305	438576	6363365	15	Sterile	4	
NR-13-270	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	305	438576	6363365	20	Sterile	4	
NR-13-271	<i>Bossiaea eriocarpa</i>	1	305	438576	6363365	30	Fruiting	4	On edge of furrow
NR-13-272	<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	1	305	438576	6363365	20	Sterile	4	
NR-13-273	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	305	438576	6363365	30	Fruiting	4	
NR-13-274	<i>Hypocalymma angustifolium</i>	1	305	438576	6363365	20	Sterile	4	
NR-13-275	<i>Bossiaea eriocarpa</i>	3	305	438576	6363365	45	Fruiting	4	
NR-13-276	<i>Hypocalymma angustifolium</i>	1	305	438576	6363365	40	Sterile	4	
NR-13-277	<i>Isopogon dubius</i>	1	305	438576	6363365	30	Fruiting	4	
NR-13-278	<i>Hypocalymma angustifolium</i>	1	305	438576	6363365	20	Sterile	4	
NR-13-279	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	306	438574	6363368	30	Fruiting	4	
NR-13-280	<i>Bossiaea eriocarpa</i>	1	306	438574	6363368	35	Fruiting	4	
NR-13-281	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	306	438574	6363368	30	Fruiting	4	

Plant Number	Taxon	No. of Plants	WP	Easting	Northing	Height (cm)	Reproductive Status	Health Ranking	Comments
NR-13-282	<i>Bossiaea eriocarpa</i>	1	306	438574	6363368	45	Fruiting	4	
NR-13-283	<i>Acacia drummondii</i> subsp. <i>drummondii</i>	1	306	438574	6363368	45	Fruiting	4	
NR-13-284	<i>Bossiaea eriocarpa</i>	1	306	438574	6363368	40	Fruiting	4	
NR-13-285	<i>Phyllanthus calycinus</i>	1	306	438574	6363368	10	Sterile	4	
NR-13-286	<i>Bossiaea eriocarpa</i>	1	306	438574	6363368	45	Fruiting	4	
NR-13-287	<i>Phyllanthus calycinus</i>	1	306	438574	6363368	10	Sterile	4	
NR-13-288	<i>Bossiaea eriocarpa</i>	1	306	438574	6363368	30	Fruiting	4	On edge of furrow



**Appendix R: Species Introduced into Nursery Rows vs. Species Recorded during the Nursery Row Review**

**M LMU**

Taxon	Recorded in Nursery Row Review?
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	Y
<i>Allocasuarina humilis</i>	N
<i>Anigozanthos manglesii</i>	Y
<i>Hakea undulata</i>	Y
<i>Hibbertia amplexicaulis</i>	Y
<i>Hovea trisperma</i>	Y
<i>Hypocalymma angustifolium</i>	N
<i>Lepidosperma squamatum</i>	Y
<i>Lepidosperma tenue</i>	N
<i>Leucopogon capitellatus</i>	N
<i>Leucopogon nutans</i>	N
<i>Leucopogon propinquus</i>	N
<i>Ranunculus colonorum</i>	N
<i>Stackhousia monogyna</i>	N
<i>Stackhousia scoparia</i>	N
<i>Stylidium affine</i>	N
<b>% of Taxa Recorded</b>	<b>37.5 %</b>

**PS LMU**

Taxon	Recorded in Nursery Row Review?
<i>Allocasuarina humilis</i>	Y
<i>Anigozanthos manglesii</i>	N
<i>Banksia grandis</i>	Y
<i>Banksia sessilis</i>	Y
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	Y
<i>Bossiaea eriocarpa</i>	Y
<i>Gompholobium marginatum</i>	Y
<i>Gompholobium preissii</i>	Y
<i>Hakea lissocarpha</i>	Y
<i>Hibbertia amplexicaulis</i>	N
<i>Hovea trisperma</i>	Y
<i>Hypocalymma angustifolium</i>	Y
<i>Labichea punctata</i>	N
<i>Lechenaultia biloba</i>	N
<i>Lepidosperma asperatum</i>	N
<i>Lepidosperma squamatum</i>	N
<i>Lepidosperma tenue</i>	N
<i>Leucopogon nutans</i>	N
<i>Leucopogon propinquus</i>	N
<i>Orthrosanthus laxus</i>	N
<i>Phyllanthus calycinus</i>	Y
<i>Pimelea preissii</i>	N
<i>Podolepis lessonii</i>	Y
<i>Stackhousia monogyna</i>	N
<i>Stackhousia scoparia</i>	N
<i>Tetralix octandra</i>	N
<i>Tricoryne elatior</i>	N
<i>Tripterococcus brunonis</i>	N
<b>% of Taxa Recorded</b>	<b>42.9 %</b>

**S,SP LMU**

<b>Taxon</b>	<b>Recorded in Nursery Row Review?</b>
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	Y
<i>Allocasuarina humilis</i>	N
<i>Anigozanthos manglesii</i>	Y
<i>Astroloma ciliatum</i>	Y
<i>Astroloma compactum</i>	Y
<i>Astroloma epacridis</i>	Y
<i>Banksia grandis</i>	Y
<i>Banksia sessilis</i>	Y
<i>Boronia fastigiata</i>	Y
<i>Bossiaea ornata</i>	N
<i>Conostylis setigera</i>	Y
<i>Eucalyptus marginata</i>	Y
<i>Hakea incrassata</i>	N
<i>Hakea lissocarpha</i>	N
<i>Hakea undulata</i>	N
<i>Hibbertia amplexicaulis</i>	N
<i>Hypocalymma angustifolium</i>	N
<i>Isopogon dubius</i>	N
<i>Lechenaultia biloba</i>	N
<i>Lepidosperma apricola</i>	N
<i>Lepidosperma asperatum</i>	Y
<i>Lepidosperma squamatum</i>	N
<i>Lepidosperma tenue</i>	Y
<i>Leucopogon capitellatus</i>	N
<i>Leucopogon nutans</i>	N
<i>Leucopogon propinquus</i>	N
<i>Lomandra micrantha</i>	N
<i>Macrozamia riedlei</i>	N
<i>Orthrosanthus laxus</i>	Y
<i>Patersonia occidentalis</i>	N
<i>Petrophile heterophylla</i>	Y
<i>Phyllanthus calycinus</i>	Y
<i>Podolepis lessonii</i>	Y
<i>Stackhousia monogyna</i>	Y
<i>Stackhousia scoparia</i>	Y
<i>Stylidium affine</i>	Y
<i>Tetraria capillaris</i>	Y
<i>Tetraria octandra</i>	N
<i>Thysanotus multiflorus</i>	Y
<i>Trachymene pilosa</i>	Y
<i>Tricoryne elatior</i>	N
<i>Tripterococcus brunonis</i>	N
<b>% of Taxa Recorded</b>	<b>52.4 %</b>

## Appendix S: Soil Chemistry Raw Data

# Analysis Results

CSBP Soil and Plant Laboratory



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Woodman Environmental Consulting

Lab No		7RS18007	7RS18008	7RS18009	7RS18010	7RS18011	7RS18012	7RS18013	7RS18014
Name		A1-RM-01 Rep 01	A1-RM-01 Rep 02	A1-RM-01 Rep 03	A1-RM-02 Rep 01	A1-RM-02 Rep 02	A1-RM-02 Rep 03	A-RS-01 Rep 01	A-RS-01 Rep 02
Code		1	2	3	4	5	6	10	11
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GR	BRGR	DKGR	BRBK	BRBK	BRBK	BRYW	GRBR
Gravel	%	0	0	0	0	0	0	5	5
Texture		2.0	3.5	3.0	2.0	2.0	2.0	1.5	1.0
Ammonium Nitrogen	mg/kg	2	13	4	98	128	172	3	4
Nitrate Nitrogen	mg/kg	< 1	< 1	< 1	< 1	< 1	< 1	2	2
Phosphorus Colwell	mg/kg	< 2	< 2	< 2	19	77	34	9	11
Potassium Colwell	mg/kg	64	48	61	72	97	68	30	37
Sulfur	mg/kg	118.2	146.5	155.7	301.1	560.9	1337.0	8.3	3.8
Organic Carbon	%	1.18	2.49	1.91	5.69	5.97	6.02	3.62	5.00
Conductivity	dS/m	0.337	0.984	0.378	1.550	1.430	1.320	0.060	0.060
pH Level (CaCl2)		4.8	5.7	5.8	5.5	6.0	5.2	4.5	4.7
pH Level (H2O)		5.7	6.3	6.9	5.9	6.4	5.6	5.4	5.7
DTPA Copper	mg/kg	0.41	0.45	0.51	0.51	2.01	0.38	0.16	0.21
DTPA Iron	mg/kg	152.68	306.83	228.05	394.30	122.70	338.90	34.60	51.92
DTPA Manganese	mg/kg	10.09	34.10	15.45	68.11	48.57	129.90	1.43	4.72
DTPA Zinc	mg/kg	0.42	1.63	0.33	0.85	1.80	0.97	< 0.01	0.18
Exc. Aluminium	meq/100g	0.016	0.003	0.057	0.019	0.017	0.023	0.793	1.246
Exc. Calcium	meq/100g	0.94	2.74	1.27	16.26	23.58	17.22	1.03	1.69
Exc. Magnesium	meq/100g	1.67	4.54	2.43	22.30	25.66	15.90	0.30	0.28
Exc. Potassium	meq/100g	0.14	0.12	0.13	0.35	0.40	0.23	0.09	0.12

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18007	7RS18008	7RS18009	7RS18010	7RS18011	7RS18012	7RS18013	7RS18014
Exc. Sodium	meq/100g	1.55	4.66	1.83	18.60	16.24	12.12	0.26	0.19
Boron Hot CaCl <sub>2</sub>	mg/kg	0.31	0.65	0.42	7.40	6.80	7.97	0.56	0.36

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18015	7RS18016	7RS18017	7RS18018	7RS18019	7RS18020	7RS18021	7RS18022
Name		A-RS-01 Rep 03	AY-RM-01 Rep 01	AY-RM-01 Rep 02	AY-RM-01 Rep 03	L-RM-01 Rep 01	L-RM-01 Rep 02	L-RM-01 Rep 03	L-RM-02 Rep 01
Code		12	13	14	15	16	17	18	19
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRBR	DKBR	DKBR	BRGR	GRBR	BR	GRBR	GRBR
Gravel	%	0	5	5-10	0	5	5	5	5
Texture		1.5	1.5	1.5	2.0	2.0	2.0	1.5	2.0
Ammonium Nitrogen	mg/kg	3	3	3	9	5	9	8	3
Nitrate Nitrogen	mg/kg	10	< 1	1	10	1	< 1	< 1	3
Phosphorus Colwell	mg/kg	7	3	< 2	4	3	3	3	2
Potassium Colwell	mg/kg	32	88	117	134	78	146	72	37
Sulfur	mg/kg	5.0	26.8	18.9	23.5	2.5	5.8	3.4	16.0
Organic Carbon	%	4.93	4.22	3.20	4.37	2.13	2.66	1.71	2.32
Conductivity	dS/m	0.117	0.784	0.752	1.504	0.045	0.134	0.030	0.268
pH Level (CaCl2)		4.7	5.0	5.3	5.4	4.3	4.2	4.3	4.3
pH Level (H2O)		5.6	5.7	5.9	5.8	5.6	5.5	5.7	5.5
DTPA Copper	mg/kg	0.14	0.35	0.47	0.47	0.42	0.24	0.37	0.32
DTPA Iron	mg/kg	55.73	40.40	75.89	83.39	175.90	188.67	160.35	53.13
DTPA Manganese	mg/kg	2.65	108.09	148.81	106.00	40.71	67.47	48.89	17.97
DTPA Zinc	mg/kg	0.05	0.10	0.14	0.19	0.17	0.10	0.02	0.02
Exc. Aluminium	meq/100g	0.418	0.090	0.059	0.092	0.811	0.412	0.784	0.494
Exc. Calcium	meq/100g	2.51	4.60	4.59	6.96	0.85	1.80	0.82	1.06
Exc. Magnesium	meq/100g	1.62	5.34	5.59	8.44	0.93	1.57	0.84	0.97
Exc. Potassium	meq/100g	0.10	0.20	0.26	0.31	0.19	0.33	0.17	0.10

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18015	7RS18016	7RS18017	7RS18018	7RS18019	7RS18020	7RS18021	7RS18022
Exc. Sodium	meq/100g	0.38	3.64	3.31	5.10	0.18	0.48	0.14	1.23
Boron Hot CaCl <sub>2</sub>	mg/kg	0.79	0.69	0.84	1.09	0.55	0.75	0.47	0.40



# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18023	7RS18024	7RS18025	7RS18026	7RS18027	7RS18028	7RS18029	7RS18030
Name		L-RM-02 Rep 02	L-RM-02 Rep 03	L-RS-01 Rep 01	L-RS-01 Rep 02	L-RS-01 Rep 03	L-RS-02 Rep 01	L-RS-02 Rep 02	L-RS-02 Rep 03
Code		20	21	22	23	24	25	26	27
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GR	BRYW	GRBR	GR	GRBR	GRBR	GRBR	GRBR
Gravel	%	5	5-10	5-10	5-10	5	0	0	0
Texture		2.0	2.0	1.5	1.5	2.0	1.0	1.0	1.0
Ammonium Nitrogen	mg/kg	1	2	5	5	17	3	7	3
Nitrate Nitrogen	mg/kg	3	2	4	3	8	2	7	4
Phosphorus Colwell	mg/kg	< 2	2	12	9	6	22	40	30
Potassium Colwell	mg/kg	26	46	84	126	110	53	58	82
Sulfur	mg/kg	24.5	37.4	8.8	9.9	17.5	6.0	3.3	3.8
Organic Carbon	%	1.79	2.03	3.83	3.82	4.57	1.99	3.01	3.03
Conductivity	dS/m	0.274	0.381	0.046	0.054	0.131	0.052	0.036	0.052
pH Level (CaCl2)		5.0	5.1	4.9	4.4	4.5	4.6	4.7	4.8
pH Level (H2O)		5.6	5.8	5.9	5.3	5.5	5.7	5.7	5.9
DTPA Copper	mg/kg	0.18	0.25	0.54	0.60	0.42	0.78	0.43	0.45
DTPA Iron	mg/kg	52.75	59.22	35.29	28.91	59.74	29.90	19.34	24.89
DTPA Manganese	mg/kg	2.92	1.51	41.48	58.22	230.21	3.10	5.30	3.53
DTPA Zinc	mg/kg	0.06	0.05	0.14	0.24	0.11	0.26	0.23	0.22
Exc. Aluminium	meq/100g	0.259	0.360	2.146	0.604	0.508	0.680	0.290	0.444
Exc. Calcium	meq/100g	1.16	0.71	1.40	3.19	3.21	1.07	3.31	2.32
Exc. Magnesium	meq/100g	1.17	1.01	0.34	0.90	1.55	0.12	0.52	0.34
Exc. Potassium	meq/100g	0.07	0.12	0.22	0.31	0.27	0.12	0.14	0.20

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18023	7RS18024	7RS18025	7RS18026	7RS18027	7RS18028	7RS18029	7RS18030
Exc. Sodium	meq/100g	1.40	1.74	0.22	0.30	0.70	0.12	0.05	0.16
Boron Hot CaCl2	mg/kg	0.37	0.47	0.43	0.60	0.67	0.23	0.34	0.27

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18031	7RS18032	7RS18033	7RS18034	7RS18035	7RS18037	7RS18038	7RS18039
Name		L-RS-03 Rep 01	L-RS-03 Rep 02	L-RS-03 Rep 03	L-RS-04 Rep 01	L-RS-04 Rep 02	L-RS-04 Rep 03	L-RS-05 Rep 01	L-RS-05 Rep 02
Code		28	29	30	31	32	33	34	35
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRGR	BRGR	BRGR	GRBR	GRBR	GRBR	GR	DKGR
Gravel	%	25-30	25-30	25-30	0	0	0	15-20	15-20
Texture		1.0	1.0	1.0	1.0	1.0	1.0	1.5	2.0
Ammonium Nitrogen	mg/kg	16	177	13	3	6	4	6	10
Nitrate Nitrogen	mg/kg	22	109	15	2	5	4	4	26
Phosphorus Colwell	mg/kg	48	87	47	26	26	29	41	83
Potassium Colwell	mg/kg	118	213	112	117	91	127	56	53
Sulfur	mg/kg	11.1	28.8	6.0	6.0	5.9	4.0	8.2	9.3
Organic Carbon	%	5.53	5.28	2.99	2.21	2.07	2.07	3.69	4.97
Conductivity	dS/m	0.069	0.224	0.067	0.109	0.076	0.073	0.116	0.085
pH Level (CaCl2)		4.6	4.6	4.5	4.5	4.2	4.3	4.4	4.4
pH Level (H2O)		5.5	5.3	5.5	5.4	5.0	5.2	5.3	5.2
DTPA Copper	mg/kg	0.78	1.30	0.80	0.54	0.50	0.55	1.57	1.75
DTPA Iron	mg/kg	63.48	92.09	51.27	34.19	32.04	25.57	90.34	96.27
DTPA Manganese	mg/kg	56.06	92.23	37.57	6.99	16.10	10.64	11.49	22.37
DTPA Zinc	mg/kg	1.11	6.31	0.56	0.30	0.46	0.49	0.30	0.72
Exc. Aluminium	meq/100g	1.004	0.356	0.828	0.489	0.201	0.210	1.396	1.326
Exc. Calcium	meq/100g	5.55	11.34	5.70	1.10	3.15	2.49	0.68	1.64
Exc. Magnesium	meq/100g	0.70	1.84	0.66	0.19	0.50	0.46	0.20	0.33
Exc. Potassium	meq/100g	0.24	0.40	0.22	0.28	0.22	0.30	0.15	0.15

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18031	7RS18032	7RS18033	7RS18034	7RS18035	7RS18037	7RS18038	7RS18039
Exc. Sodium	meq/100g	0.33	0.19	0.20	0.27	0.21	0.27	0.47	0.13
Boron Hot CaCl2	mg/kg	0.42	0.69	0.41	0.30	0.32	0.34	0.43	0.40

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18040	7RS18041	7RS18042	7RS18043	7RS18044	7RS18045	7RS18046	7RS18047
Name		L-RS-05 Rep 03	L-RS-06 Rep 01	L-RS-06 Rep 02	L-RS-06 Rep 03	L-RS-07 Rep 01	L-RS-07 Rep 02	L-RS-07 Rep 03	L-RS-08 Rep 01
Code		36	37	38	39	40	41	42	43
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	DKBR	BR	BRGR	GRBR	GRBR	GRBR	BRGR
Gravel	%	15-20	15-20	15-20	5-10	0	0	5	5
Texture		1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.0
Ammonium Nitrogen	mg/kg	5	6	5	13	5	7	4	6
Nitrate Nitrogen	mg/kg	15	8	10	11	4	3	3	7
Phosphorus Colwell	mg/kg	89	28	17	23	40	33	38	44
Potassium Colwell	mg/kg	57	253	49	128	78	99	122	91
Sulfur	mg/kg	6.4	3.7	8.4	7.4	6.1	7.2	12.0	7.6
Organic Carbon	%	4.72	5.33	3.52	5.27	4.01	2.76	3.57	3.59
Conductivity	dS/m	0.057	0.076	0.037	0.062	0.074	0.053	0.096	0.043
pH Level (CaCl2)		4.4	4.6	4.6	4.6	4.7	4.8	4.9	4.7
pH Level (H2O)		5.1	5.5	5.7	5.8	5.6	5.8	6.0	5.7
DTPA Copper	mg/kg	1.90	1.05	0.53	0.60	1.04	0.86	0.99	1.20
DTPA Iron	mg/kg	85.01	49.74	29.91	45.90	28.00	26.90	34.61	34.97
DTPA Manganese	mg/kg	15.52	45.80	15.39	55.12	29.10	16.32	23.61	36.18
DTPA Zinc	mg/kg	0.68	0.38	0.07	0.17	0.50	0.26	0.32	0.33
Exc. Aluminium	meq/100g	1.409	0.823	0.692	0.774	0.395	0.372	0.501	0.609
Exc. Calcium	meq/100g	1.49	6.85	1.41	4.15	2.02	1.36	1.80	1.46
Exc. Magnesium	meq/100g	0.38	0.64	0.20	0.49	0.51	0.36	0.48	0.29
Exc. Potassium	meq/100g	0.16	0.57	0.12	0.27	0.16	0.23	0.26	0.20

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18040	7RS18041	7RS18042	7RS18043	7RS18044	7RS18045	7RS18046	7RS18047
Exc. Sodium	meq/100g	0.11	0.30	0.14	0.18	0.33	0.21	0.43	0.20
Boron Hot CaCl <sub>2</sub>	mg/kg	0.39	0.53	0.32	0.42	0.39	0.46	0.52	0.37

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18048	7RS18049	7RS18050	7RS18051	7RS18052	7RS18053	7RS18054	7RS18055
Name		L-RS-08 Rep 02	L-RS-08 Rep 03	MG-RM-01 Rep 01	MG-RM-01 Rep 02	MG-RM-01 Rep 03	M-RM-01 Rep 01	M-RM-01 Rep 02	M-RM-01 Rep 03
Code		44	45	46	47	48	49	50	51
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRGR	BRGR	GRBR	BRGR	DKBR	BRGR	GRBR	BRGR
Gravel	%	5	5-10	15-20	5-10	5-10	5-10	25-30	15-20
Texture		1.0	1.0	1.5	1.5	2.0	1.0	1.0	1.0
Ammonium Nitrogen	mg/kg	4	6	5	2	2	30	4	4
Nitrate Nitrogen	mg/kg	6	8	3	< 1	< 1	< 1	< 1	5
Phosphorus Colwell	mg/kg	39	40	5	6	6	14	11	14
Potassium Colwell	mg/kg	58	113	110	243	334	408	174	286
Sulfur	mg/kg	6.2	7.1	5.4	5.0	3.4	15.1	4.6	8.6
Organic Carbon	%	3.37	3.82	3.85	3.68	3.16	5.19	4.45	5.41
Conductivity	dS/m	0.074	0.058	0.042	0.045	0.034	0.206	0.040	0.089
pH Level (CaCl2)		4.7	4.4	4.6	4.7	4.6	5.1	5.3	4.5
pH Level (H2O)		5.7	5.6	5.6	6.0	5.8	6.0	6.0	5.5
DTPA Copper	mg/kg	1.20	1.30	0.93	0.83	1.27	0.99	0.67	1.84
DTPA Iron	mg/kg	32.94	32.37	85.65	60.11	47.25	68.66	62.55	48.69
DTPA Manganese	mg/kg	38.08	28.08	5.77	19.27	9.32	25.86	9.76	17.39
DTPA Zinc	mg/kg	0.48	0.36	0.13	0.20	0.14	1.25	0.17	0.74
Exc. Aluminium	meq/100g	0.471	0.570	0.650	0.455	0.530	0.134	0.211	0.136
Exc. Calcium	meq/100g	1.79	1.60	3.21	3.79	3.57	21.19	11.60	23.07
Exc. Magnesium	meq/100g	0.38	0.34	1.08	1.63	2.13	7.93	3.44	5.32
Exc. Potassium	meq/100g	0.14	0.25	0.23	0.52	0.71	0.78	0.33	0.49

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18048	7RS18049	7RS18050	7RS18051	7RS18052	7RS18053	7RS18054	7RS18055
Exc. Sodium	meq/100g	0.43	0.18	0.16	0.21	0.24	0.78	0.23	0.42
Boron Hot CaCl2	mg/kg	0.35	0.39	0.45	0.77	0.71	3.05	1.25	2.48



# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18056	7RS18057	7RS18058	7RS18059	7RS18060	7RS18061	7RS18062	7RS18063
Name		M-RS-01 Rep 01	M-RS-01 Rep 02	M-RS-01 Rep 03	M-RS-02 Rep 01	M-RS-02 Rep 02	M-RS-02 Rep 03	M-RS-03 Rep 01	M-RS-03 Rep 02
Code		52	53	54	55	56	57	58	59
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BR	DKBR	DKBR	BR	BR	BR	GRBR	DKGR
Gravel	%	25-30	25-30	25-30	5-10	5-10	5-10	25-30	15-20
Texture		2.0	1.0	1.5	2.0	2.0	1.5	2.0	1.5
Ammonium Nitrogen	mg/kg	5	5	6	4	10	5	4	8
Nitrate Nitrogen	mg/kg	3	7	13	< 1	7	4	5	12
Phosphorus Colwell	mg/kg	52	91	72	37	56	47	22	52
Potassium Colwell	mg/kg	170	282	193	207	233	107	35	67
Sulfur	mg/kg	9.2	7.5	4.5	5.9	7.3	5.9	6.4	6.9
Organic Carbon	%	5.16	5.39	5.39	4.82	5.43	5.13	4.82	5.36
Conductivity	dS/m	0.068	0.071	0.053	0.093	0.060	0.055	0.046	0.078
pH Level (CaCl2)		5.5	4.9	4.7	4.7	4.7	4.5	4.7	4.4
pH Level (H2O)		6.3	5.6	5.8	5.4	5.6	5.6	5.7	5.3
DTPA Copper	mg/kg	1.17	1.46	1.30	0.69	0.97	0.85	1.08	1.54
DTPA Iron	mg/kg	71.45	85.33	67.49	62.28	64.01	67.92	56.27	123.58
DTPA Manganese	mg/kg	8.69	16.13	12.22	8.57	23.56	10.01	6.87	20.05
DTPA Zinc	mg/kg	0.33	0.84	0.82	0.20	0.38	0.37	0.28	1.52
Exc. Aluminium	meq/100g	1.139	0.580	0.668	0.921	1.324	1.038	0.917	1.039
Exc. Calcium	meq/100g	3.86	7.61	11.64	3.46	4.11	4.01	2.45	5.36
Exc. Magnesium	meq/100g	0.65	1.29	1.48	0.58	0.89	0.73	0.29	0.60
Exc. Potassium	meq/100g	0.40	0.61	0.29	0.46	0.53	0.25	0.10	0.16

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18056	7RS18057	7RS18058	7RS18059	7RS18060	7RS18061	7RS18062	7RS18063
Exc. Sodium	meq/100g	0.30	0.17	0.19	0.68	0.34	0.32	0.22	0.32
Boron Hot CaCl <sub>2</sub>	mg/kg	0.63	0.78	0.92	0.69	0.80	0.68	0.45	0.52

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18064	7RS18065	7RS18066	7RS18068	7RS18069	7RS18070	7RS18071	7RS18072
Name		M-RS-03 Rep 03	M-RS-04 Rep 01	M-RS-04 Rep 02	M-RS-04 Rep 03	PS-RS-01 Rep 01	PS-RS-01 Rep 02	PS-RS-01 Rep 03	PS-RS-02 Rep 01
Code		60	61	62	63	64	65	66	67
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRGR	BRGR	BRGR	BRGR	BRGR	BRGR	BRGR	GRBR
Gravel	%	35-40	35-40	35-40	25-30	15-20	5-10	15-20	0
Texture		1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.0
Ammonium Nitrogen	mg/kg	7	12	8	10	3	5	7	8
Nitrate Nitrogen	mg/kg	11	36	57	59	6	11	12	13
Phosphorus Colwell	mg/kg	36	37	39	37	42	37	37	48
Potassium Colwell	mg/kg	97	34	40	53	221	127	114	81
Sulfur	mg/kg	5.7	10.1	5.7	6.4	5.0	4.0	3.6	6.6
Organic Carbon	%	5.03	4.36	5.18	5.27	5.48	5.10	5.15	3.09
Conductivity	dS/m	0.081	0.075	0.119	0.103	0.073	0.063	0.039	0.035
pH Level (CaCl2)		4.5	4.5	4.4	4.3	4.6	4.9	4.9	4.7
pH Level (H2O)		5.4	5.2	5.2	5.1	5.5	5.9	5.8	5.6
DTPA Copper	mg/kg	0.95	0.90	0.94	1.00	2.36	1.31	2.03	1.55
DTPA Iron	mg/kg	103.63	69.83	61.31	67.21	47.46	45.38	57.05	31.80
DTPA Manganese	mg/kg	15.27	19.81	16.46	29.10	4.94	4.02	6.24	9.73
DTPA Zinc	mg/kg	0.42	0.27	0.19	0.34	0.96	0.58	0.89	1.03
Exc. Aluminium	meq/100g	1.545	0.903	0.862	1.078	0.379	0.912	0.909	0.228
Exc. Calcium	meq/100g	3.06	3.67	4.30	3.73	5.06	3.24	3.75	3.43
Exc. Magnesium	meq/100g	0.34	0.33	0.40	0.39	0.96	0.65	0.76	0.57
Exc. Potassium	meq/100g	0.21	0.09	0.09	0.13	0.47	0.27	0.28	0.17

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18064	7RS18065	7RS18066	7RS18068	7RS18069	7RS18070	7RS18071	7RS18072
Exc. Sodium	meq/100g	0.27	0.08	0.12	0.14	0.39	0.20	0.13	0.09
Boron Hot CaCl <sub>2</sub>	mg/kg	0.53	0.34	0.38	0.34	0.69	0.50	0.54	0.42

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18073	7RS18074	7RS18075	7RS18076	7RS18077	7RS18078	7RS18079	7RS18080
Name		PS-RS-02 Rep 02	PS-RS-02 Rep 03	PS-RS-03 Rep 01	PS-RS-03 Rep 02	PS-RS-03 Rep 03	P-RM-01 Rep 01	P-RM-01 Rep 02	P-RM-01 Rep 03
Code		68	69	70	71	72	73	74	75
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRBR	GRBR	YWBR	GRBR	GRYW	BR	BR	DKBR
Gravel	%	0	0	0	0	0	5-10	15-20	25-30
Texture		1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	4	3	2	2	5	5	10	8
Nitrate Nitrogen	mg/kg	7	5	2	4	6	< 1	4	1
Phosphorus Colwell	mg/kg	68	43	46	77	78	5	4	5
Potassium Colwell	mg/kg	127	101	15	22	32	57	77	94
Sulfur	mg/kg	8.6	5.9	2.2	4.2	6.9	9.5	3.0	3.2
Organic Carbon	%	3.08	3.11	0.75	1.91	2.12	4.29	4.73	5.18
Conductivity	dS/m	0.055	0.047	0.016	0.030	0.034	0.031	0.041	0.036
pH Level (CaCl2)		5.1	5.0	4.6	4.8	4.6	4.8	5.0	5.0
pH Level (H2O)		6.2	6.0	5.8	6.2	5.7	5.9	6.0	6.1
DTPA Copper	mg/kg	1.61	1.04	0.83	0.83	0.72	1.18	0.72	0.60
DTPA Iron	mg/kg	37.27	27.42	19.29	28.48	26.69	79.52	85.74	63.07
DTPA Manganese	mg/kg	10.92	6.14	1.76	3.22	4.71	7.30	11.63	9.21
DTPA Zinc	mg/kg	1.55	0.78	0.64	0.65	0.84	0.35	0.20	0.18
Exc. Aluminium	meq/100g	0.223	0.164	0.137	0.293	0.203	0.905	0.192	0.184
Exc. Calcium	meq/100g	3.72	4.38	0.79	1.31	1.94	3.37	11.06	9.00
Exc. Magnesium	meq/100g	0.62	0.75	0.10	0.13	0.23	0.56	1.70	2.11
Exc. Potassium	meq/100g	0.26	0.21	0.04	0.05	0.07	0.11	0.17	0.21

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18073	7RS18074	7RS18075	7RS18076	7RS18077	7RS18078	7RS18079	7RS18080
Exc. Sodium	meq/100g	0.18	0.20	0.05	0.08	0.07	0.10	0.11	0.14
Boron Hot CaCl2	mg/kg	0.45	0.37	0.12	0.14	0.21	0.66	0.62	0.64

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18081	7RS18082	7RS18083	7RS18084	7RS18085	7RS18086	7RS18087	7RS18088
Name		P-RM-02 Rep 01	P-RM-02 Rep 02	P-RM-02 Rep 03	SP-RM-01 Rep 01	SP-RM-01 Rep 02	SP-RM-01 Rep 03	SP-RM-02 Rep 01	SP-RM-02 Rep 02
Code		76	77	78	79	80	81	82	83
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	DKGR	DKGR	GRBR	GR	DKGR	DKGR	DKGR
Gravel	%	5-10	5	5	55-60	55-60	65-70	35-40	25-30
Texture		1.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	6	14	7	2	5	3	3	1
Nitrate Nitrogen	mg/kg	5	< 1	< 1	< 1	< 1	< 1	1	1
Phosphorus Colwell	mg/kg	4	9	6	2	3	4	5	4
Potassium Colwell	mg/kg	110	198	80	34	60	58	104	65
Sulfur	mg/kg	2.7	3.7	2.2	12.0	11.4	2.0	2.7	1.5
Organic Carbon	%	3.70	4.85	4.46	1.97	4.02	4.16	4.06	2.88
Conductivity	dS/m	0.040	0.054	0.025	0.026	0.018	0.018	0.022	0.015
pH Level (CaCl2)		4.8	4.7	5.4	5.5	5.1	4.9	5.3	5.1
pH Level (H2O)		6.0	5.9	6.2	6.0	6.3	6.3	6.3	6.4
DTPA Copper	mg/kg	0.43	0.53	0.78	1.47	0.46	0.39	0.70	0.56
DTPA Iron	mg/kg	63.34	44.48	67.92	40.29	68.68	33.51	23.50	15.31
DTPA Manganese	mg/kg	40.91	31.14	27.75	17.57	3.15	2.64	5.39	2.62
DTPA Zinc	mg/kg	0.19	0.63	0.19	1.54	0.19	0.07	0.34	0.11
Exc. Aluminium	meq/100g	0.198	0.122	0.183	0.031	0.254	0.183	0.186	0.174
Exc. Calcium	meq/100g	6.77	8.18	6.18	2.39	3.98	5.15	3.75	2.24
Exc. Magnesium	meq/100g	1.53	2.49	1.22	0.63	1.08	1.24	0.77	0.38
Exc. Potassium	meq/100g	0.20	0.36	0.16	0.07	0.14	0.13	0.23	0.14

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18081	7RS18082	7RS18083	7RS18084	7RS18085	7RS18086	7RS18087	7RS18088
Exc. Sodium	meq/100g	0.10	0.19	0.09	0.11	0.10	0.10	0.11	0.08
Boron Hot CaCl2	mg/kg	0.55	0.80	0.45	0.32	0.32	0.35	0.37	0.22



# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18089	7RS18090	7RS18091	7RS18092	7RS18093	7RS18094	7RS18095	7RS18096
Name		SP-RM-02 Rep 03	SP-RM-03 Rep 01	SP-RM-03 Rep 02	SP-RM-03 Rep 03	SP-RS-01 Rep 01	SP-RS-01 Rep 02	SP-RS-01 Rep 03	SP-RS-02 Rep 01
Code		84	85	86	87	88	89	90	91
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	BRGR	BRBK	BRBK	BR	BR	BR	LTBR
Gravel	%	25-30	35-40	25-30	15-20	5-10	5-10	5-10	55-60
Texture		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	5	7	7	10	2	3	4	1
Nitrate Nitrogen	mg/kg	3	10	3	15	9	7	5	1
Phosphorus Colwell	mg/kg	5	7	10	6	12	13	6	6
Potassium Colwell	mg/kg	99	167	249	164	71	61	81	< 15
Sulfur	mg/kg	2.8	7.3	7.0	8.8	5.3	5.4	6.5	3.1
Organic Carbon	%	4.15	4.87	4.99	5.27	3.26	2.53	2.45	1.02
Conductivity	dS/m	0.016	0.050	0.039	0.063	0.026	0.025	0.015	0.011
pH Level (CaCl2)		5.1	5.3	4.6	4.7	4.7	4.9	5.0	5.0
pH Level (H2O)		6.1	6.2	5.8	6.1	5.8	6.0	6.1	6.2
DTPA Copper	mg/kg	0.29	0.16	0.36	0.20	0.19	0.32	0.22	0.29
DTPA Iron	mg/kg	34.49	77.56	114.29	124.06	25.70	28.59	28.20	44.34
DTPA Manganese	mg/kg	7.47	8.29	41.21	30.33	3.70	5.70	4.25	4.39
DTPA Zinc	mg/kg	0.10	0.13	0.72	0.20	0.08	0.04	0.04	0.12
Exc. Aluminium	meq/100g	0.137	0.106	0.209	0.196	0.352	0.482	0.205	0.226
Exc. Calcium	meq/100g	5.45	14.79	20.56	19.63	2.74	1.75	2.41	1.02
Exc. Magnesium	meq/100g	1.68	5.08	8.27	4.20	0.36	0.20	0.36	0.15
Exc. Potassium	meq/100g	0.20	0.34	0.48	0.31	0.17	0.14	0.19	0.04

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18089	7RS18090	7RS18091	7RS18092	7RS18093	7RS18094	7RS18095	7RS18096
Exc. Sodium	meq/100g	0.12	0.22	0.34	0.32	0.09	0.08	0.07	0.06
Boron Hot CaCl2	mg/kg	0.61	1.77	1.76	1.26	0.35	0.31	0.35	0.17

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18103	7RS18104	7RS18105	7RS18106	7RS18107	7RS18108	7RS18109	7RS18110
Name		SP-RS-02 Rep 02	SP-RS-02 Rep 03	SP-RS-03 Rep 01	SP-RS-03 Rep 02	SP-RS-03 Rep 03	SP-RS-04 Rep 01	SP-RS-04 Rep 02	SP-RS-04 Rep 03
Code		92	93	94	95	96	97	98	99
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRBR	BRGR	GRBR	LTGR	DKGR	BRYW	DKBR	BRGR
Gravel	%	45-50	55-60	0	0	0	5-10	15-20	15-20
Texture		1.5	1.5	1.0	1.0	1.0	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	2	2	4	2	7	3	12	10
Nitrate Nitrogen	mg/kg	2	2	3	4	6	6	12	11
Phosphorus Colwell	mg/kg	9	10	18	11	25	9	24	29
Potassium Colwell	mg/kg	21	18	62	17	77	54	147	149
Sulfur	mg/kg	3.5	3.6	1.9	3.9	3.8	6.5	6.8	3.5
Organic Carbon	%	2.06	2.96	2.73	1.26	4.33	2.80	5.38	5.82
Conductivity	dS/m	0.015	0.019	0.039	0.019	0.044	0.024	0.054	0.064
pH Level (CaCl2)		5.0	4.9	5.3	4.8	4.9	5.2	5.1	4.9
pH Level (H2O)		6.2	6.1	6.3	5.8	5.9	6.1	6.0	5.8
DTPA Copper	mg/kg	0.18	0.25	0.10	0.11	0.22	0.19	0.23	0.24
DTPA Iron	mg/kg	28.02	37.76	20.99	26.83	33.96	32.09	38.76	53.85
DTPA Manganese	mg/kg	2.25	4.61	9.78	5.71	18.81	1.37	10.12	16.94
DTPA Zinc	mg/kg	0.07	0.05	0.66	0.12	0.46	0.12	0.24	0.31
Exc. Aluminium	meq/100g	0.322	0.518	0.116	0.582	0.390	0.301	0.308	0.567
Exc. Calcium	meq/100g	1.71	2.50	3.83	0.32	3.95	1.65	6.50	6.89
Exc. Magnesium	meq/100g	0.15	0.22	0.46	0.06	0.58	0.22	0.94	0.84
Exc. Potassium	meq/100g	0.04	0.05	0.13	0.05	0.16	0.12	0.32	0.30

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18103	7RS18104	7RS18105	7RS18106	7RS18107	7RS18108	7RS18109	7RS18110
Exc. Sodium	meq/100g	0.07	0.07	0.07	0.05	0.07	0.07	0.10	0.16
Boron Hot CaCl <sub>2</sub>	mg/kg	0.16	0.29	0.22	0.14	0.24	0.28	0.55	0.56

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18111	7RS18112	7RS18113	7RS18114	7RS18115	7RS18116	7RS18117	7RS18118
Name		SP-RS-05 Rep 01	SP-RS-05 Rep 02	SP-RS-05 Rep 03	SP-RS-06 Rep 01	SP-RS-06 Rep 02	SP-RS-06 Rep 03	SP-RS-07 Rep 01	SP-RS-07 Rep 02
Code		100	101	102	103	104	105	106	107
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRBR	GRYW	GRBK	BRGR	BRGR	BRGR	GRBK	DKGR
Gravel	%	25-30	35-40	5-10	5-10	5-10	5-10	25-30	45-50
Texture		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	3	3	59	4	7	7	5	5
Nitrate Nitrogen	mg/kg	8	6	19	2	4	7	7	8
Phosphorus Colwell	mg/kg	21	13	47	15	16	19	34	36
Potassium Colwell	mg/kg	< 15	29	127	76	73	65	80	88
Sulfur	mg/kg	5.7	4.8	17.6	7.7	5.4	6.1	6.3	5.9
Organic Carbon	%	3.37	2.88	4.20	2.69	3.13	3.41	5.07	3.85
Conductivity	dS/m	0.030	0.028	0.066	0.029	0.034	0.046	0.045	0.040
pH Level (CaCl2)		4.8	4.9	5.0	4.5	4.7	4.6	4.8	4.8
pH Level (H2O)		5.5	5.9	5.9	5.6	5.8	5.5	5.8	5.8
DTPA Copper	mg/kg	0.15	0.24	0.29	0.22	0.25	0.19	0.24	0.26
DTPA Iron	mg/kg	31.02	30.25	40.23	80.46	47.65	52.77	43.07	53.91
DTPA Manganese	mg/kg	1.42	1.79	25.52	6.66	4.54	11.49	12.45	24.39
DTPA Zinc	mg/kg	0.07	0.08	0.62	0.10	0.06	0.04	0.20	0.47
Exc. Aluminium	meq/100g	0.794	0.372	0.206	1.294	0.851	0.961	0.698	0.398
Exc. Calcium	meq/100g	0.65	1.51	12.92	1.08	1.60	2.32	4.10	7.00
Exc. Magnesium	meq/100g	0.08	0.14	1.57	0.26	0.30	0.42	0.39	0.67
Exc. Potassium	meq/100g	0.05	0.08	0.30	0.19	0.18	0.17	0.18	0.15

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18111	7RS18112	7RS18113	7RS18114	7RS18115	7RS18116	7RS18117	7RS18118
Exc. Sodium	meq/100g	0.07	0.08	0.12	0.10	0.11	0.08	0.24	0.20
Boron Hot CaCl2	mg/kg	0.26	0.24	0.63	0.42	0.37	0.43	0.53	0.54

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18119	7RS18120	7RS18121	7RS18122	7RS18123	7RS18124	7RS18125	7RS18126
Name		SP-RS-07 Rep 03	SP-RS-08 Rep 01	SP-RS-08 Rep 02	SP-RS-08 Rep 03	SP-RS-09 Rep 01	SP-RS-09 Rep 02	SP-RS-09 Rep 03	SP-RS-10 Rep 01
Code		108	109	110	111	112	113	114	115
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	GR	GRBR	GR	DKBR	DKBR	DKBR	GR
Gravel	%	45-50	5-10	5-10	0	5-10	15-20	5-10	35-40
Texture		1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	4	8	4	4	5	6	3	5
Nitrate Nitrogen	mg/kg	9	13	2	3	9	6	4	6
Phosphorus Colwell	mg/kg	27	33	18	30	49	52	71	43
Potassium Colwell	mg/kg	71	167	96	122	195	161	173	121
Sulfur	mg/kg	5.6	9.9	8.6	5.7	8.8	10.3	6.8	5.8
Organic Carbon	%	4.89	4.97	3.27	4.15	4.85	4.58	4.41	4.79
Conductivity	dS/m	0.040	0.087	0.031	0.063	0.057	0.051	0.046	0.045
pH Level (CaCl2)		4.9	4.8	4.8	4.9	5.0	4.9	4.9	4.7
pH Level (H2O)		5.8	5.7	5.9	5.9	6.0	5.9	6.0	5.8
DTPA Copper	mg/kg	0.19	0.37	0.33	0.36	0.65	0.62	0.49	0.29
DTPA Iron	mg/kg	36.78	43.41	33.87	32.15	34.91	33.44	39.25	51.43
DTPA Manganese	mg/kg	10.68	5.63	1.80	4.37	9.29	15.17	10.34	3.94
DTPA Zinc	mg/kg	0.19	0.41	0.21	0.39	0.70	0.57	0.47	0.22
Exc. Aluminium	meq/100g	0.549	0.726	0.770	0.473	0.391	0.459	0.591	0.963
Exc. Calcium	meq/100g	4.18	3.26	0.64	3.11	3.57	2.55	2.07	2.62
Exc. Magnesium	meq/100g	0.39	0.52	0.11	0.49	0.65	0.43	0.31	0.31
Exc. Potassium	meq/100g	0.18	0.34	0.22	0.26	0.40	0.35	0.40	0.29

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18119	7RS18120	7RS18121	7RS18122	7RS18123	7RS18124	7RS18125	7RS18126
Exc. Sodium	meq/100g	0.15	0.23	0.10	0.19	0.13	0.12	0.13	0.18
Boron Hot CaCl2	mg/kg	0.32	0.47	0.33	0.38	0.46	0.44	0.38	0.37



# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18127	7RS18128	7RS18129	7RS18130	7RS18131	7RS18133	7RS18134	7RS18135
Name		SP-RS-10 Rep 02	SP-RS-10 Rep 03	SP-RS-11 Rep 01	SP-RS-11 Rep 02	SP-RS-11 Rep 03	SP-RS-12 Rep 01	SP-RS-12 Rep 02	SP-RS-12 Rep 03
Code		116	117	118	119	120	121	122	123
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	DKGR	GRYW	DKGR	DKGR	GRBR	GRBK	GRBR
Gravel	%	55-60	55-60	0	0	15-20	65-70	25-30	25-30
Texture		1.5	1.5	1.0	1.0	1.0	1.5	1.0	1.5
Ammonium Nitrogen	mg/kg	5	4	2	12	9	5	72	13
Nitrate Nitrogen	mg/kg	4	6	3	3	4	4	86	3
Phosphorus Colwell	mg/kg	58	61	14	29	22	22	83	40
Potassium Colwell	mg/kg	152	53	40	26	48	135	366	196
Sulfur	mg/kg	6.1	4.6	6.5	7.5	4.9	6.4	23.9	6.3
Organic Carbon	%	4.31	5.13	1.79	4.49	5.02	4.98	5.57	5.26
Conductivity	dS/m	0.062	0.059	0.038	0.054	0.080	0.047	0.165	0.062
pH Level (CaCl2)		4.9	4.7	5.0	4.9	4.8	4.7	5.0	4.9
pH Level (H2O)		5.9	5.7	5.8	5.8	5.8	5.8	5.7	5.9
DTPA Copper	mg/kg	0.45	0.53	0.17	0.19	0.41	0.42	0.67	0.76
DTPA Iron	mg/kg	51.79	50.90	25.58	37.12	46.03	52.70	82.42	65.81
DTPA Manganese	mg/kg	4.97	4.45	3.80	22.48	35.88	6.87	37.39	25.78
DTPA Zinc	mg/kg	0.52	0.51	0.17	0.38	0.78	0.21	2.16	1.41
Exc. Aluminium	meq/100g	0.575	1.118	0.384	0.410	0.343	1.012	0.342	0.335
Exc. Calcium	meq/100g	4.82	2.98	0.73	4.30	7.46	3.76	12.58	9.85
Exc. Magnesium	meq/100g	0.61	0.35	0.10	0.54	0.80	0.54	2.17	1.47
Exc. Potassium	meq/100g	0.35	0.13	0.10	0.07	0.11	0.32	0.72	0.41

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18127	7RS18128	7RS18129	7RS18130	7RS18131	7RS18133	7RS18134	7RS18135
Exc. Sodium	meq/100g	0.29	0.13	0.08	0.12	0.10	0.18	0.15	0.13
Boron Hot CaCl2	mg/kg	0.44	0.39	0.18	0.28	0.27	0.34	0.99	0.59

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18136	7RS18137	7RS18138	7RS18139	7RS18140	7RS18141	7RS18142	7RS18143
Name		SP-RS-13 Rep 01	SP-RS-13 Rep 02	SP-RS-13 Rep 03	SP-RS-14 Rep 01	SP-RS-14 Rep 02	SP-RS-14 Rep 03	S-RM-01 Rep 01	S-RM-01 Rep 02
Code		124	125	126	127	128	129	130	131
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	DKGR	GRBR	LTGR	LTGR	GRWH	BR	BROR
Gravel	%	35-40	25-30	35-40	0	0	0	5-10	25-30
Texture		1.5	1.5	1.5	1.0	1.0	1.0	1.5	1.5
Ammonium Nitrogen	mg/kg	7	8	4	3	2	2	5	4
Nitrate Nitrogen	mg/kg	10	11	4	1	< 1	< 1	< 1	< 1
Phosphorus Colwell	mg/kg	61	59	28	13	11	11	4	4
Potassium Colwell	mg/kg	786	400	69	67	47	65	53	90
Sulfur	mg/kg	8.3	6.1	5.9	2.6	2.4	1.5	3.6	4.7
Organic Carbon	%	5.71	5.34	4.93	2.13	2.40	1.87	4.03	3.64
Conductivity	dS/m	0.156	0.164	0.047	0.073	0.033	0.025	0.073	0.106
pH Level (CaCl2)		5.0	5.2	4.7	4.7	4.2	4.3	5.1	5.6
pH Level (H2O)		6.0	6.0	5.9	6.0	5.7	5.9	6.3	6.5
DTPA Copper	mg/kg	0.85	0.76	0.50	0.28	0.45	0.21	0.84	1.78
DTPA Iron	mg/kg	80.20	83.66	57.07	28.76	41.82	24.97	37.71	39.31
DTPA Manganese	mg/kg	24.65	24.61	15.56	3.01	3.14	1.64	9.77	5.38
DTPA Zinc	mg/kg	1.63	3.13	0.62	0.16	0.22	0.10	0.21	0.16
Exc. Aluminium	meq/100g	0.260	0.094	0.592	0.473	0.546	0.430	0.239	0.046
Exc. Calcium	meq/100g	12.23	19.36	9.86	1.24	1.22	1.32	4.63	4.59
Exc. Magnesium	meq/100g	1.38	2.23	0.97	0.20	0.18	0.15	1.33	1.15
Exc. Potassium	meq/100g	1.81	0.83	0.19	0.15	0.12	0.17	0.13	0.21

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18136	7RS18137	7RS18138	7RS18139	7RS18140	7RS18141	7RS18142	7RS18143
Exc. Sodium	meq/100g	0.82	0.46	0.21	0.10	0.09	0.07	0.14	0.09
Boron Hot CaCl <sub>2</sub>	mg/kg	0.92	1.11	0.57	0.20	0.29	0.19	0.29	0.48

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		7RS18144	7RS18145	7RS18146	7RS18147	7RS18148	7RS18149	7RS18150	7RS18151
Name		S-RM-01 Rep 03	S-RM-02 Rep 01	S-RM-02 Rep 02	S-RM-02 Rep 03	S-RM-03 Rep 01	S-RM-03 Rep 02	S-RM-03 Rep 03	S-RM-04 Rep 01
Code		132	133	134	135	136	137	138	139
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRYW	BRBK	DKBR	DKBR	BR	BRBK	BRRD	GRBK
Gravel	%	35-40	5-10	5-10	15-20	25-30	25-30	5-10	25-30
Texture		1.5	1.0	1.5	1.5	1.5	1.5	2.0	1.0
Ammonium Nitrogen	mg/kg	3	6	10	5	5	6	2	10
Nitrate Nitrogen	mg/kg	< 1	< 1	< 1	2	2	13	2	27
Phosphorus Colwell	mg/kg	3	15	15	11	7	10	5	8
Potassium Colwell	mg/kg	87	272	330	255	248	86	183	172
Sulfur	mg/kg	6.7	4.3	4.5	3.3	3.5	5.8	2.8	5.1
Organic Carbon	%	3.33	4.63	4.86	4.89	5.07	4.88	5.48	2.95
Conductivity	dS/m	0.058	0.069	0.069	0.051	0.025	0.045	0.023	0.081
pH Level (CaCl2)		5.6	5.4	5.8	5.7	5.4	5.9	5.2	4.6
pH Level (H2O)		6.5	6.2	6.6	6.5	6.5	6.5	6.2	5.6
DTPA Copper	mg/kg	0.45	0.68	0.64	0.42	1.75	2.19	2.09	0.45
DTPA Iron	mg/kg	45.31	74.23	52.14	29.07	24.99	89.32	28.05	67.46
DTPA Manganese	mg/kg	9.03	23.18	13.76	11.00	1.49	39.89	3.43	52.19
DTPA Zinc	mg/kg	0.09	1.74	0.79	0.53	0.13	0.22	0.11	0.70
Exc. Aluminium	meq/100g	0.100	0.084	0.060	0.080	0.220	1.000	0.550	0.248
Exc. Calcium	meq/100g	3.60	30.30	20.00	10.60	4.70	17.30	5.08	11.00
Exc. Magnesium	meq/100g	1.02	9.30	6.75	3.67	1.99	5.40	1.76	4.50
Exc. Potassium	meq/100g	0.16	0.64	0.71	0.53	0.56	0.21	0.42	0.41

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18144	7RS18145	7RS18146	7RS18147	7RS18148	7RS18149	7RS18150	7RS18151
Exc. Sodium	meq/100g	0.23	0.31	0.22	0.18	0.28	0.29	0.23	0.22
Boron Hot CaCl <sub>2</sub>	mg/kg	0.39	2.34	1.86	1.30	0.61	1.28	0.49	1.26

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No	7RS18152	7RS18153
Name	S-RM-04 Rep 02	S-RM-04 Rep 03
Code	140	141
Customer	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth	0-10	0-10

Colour		GR	BRBK
Gravel	%	25-30	5-10
Texture		1.5	1.5
Ammonium Nitrogen	mg/kg	25	12
Nitrate Nitrogen	mg/kg	9	19
Phosphorus Colwell	mg/kg	13	14
Potassium Colwell	mg/kg	187	192
Sulfur	mg/kg	8.1	10.0
Organic Carbon	%	4.92	5.03
Conductivity	dS/m	0.067	0.112
pH Level (CaCl2)		4.4	4.8
pH Level (H2O)		5.5	5.6
DTPA Copper	mg/kg	0.33	1.04
DTPA Iron	mg/kg	104.00	136.20
DTPA Manganese	mg/kg	23.82	131.56
DTPA Zinc	mg/kg	0.56	2.85
Exc. Aluminium	meq/100g	1.046	0.124
Exc. Calcium	meq/100g	6.62	24.81
Exc. Magnesium	meq/100g	2.33	8.90
Exc. Potassium	meq/100g	0.40	0.37

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	7RS18152	7RS18153
Exc. Sodium	meq/100g	0.19	0.29
Boron Hot CaCl2	mg/kg	0.88	1.68



## Appendix T: Soil Penetrance Raw Data

Note: The 'tip size' is the diameter of the tip of the soil penetrometer. The force in kilograms per square centimetre is calculated from the force in kilograms and the area of the tip.

## Remnant Vegetation Plots

### A1-RM-01

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Clayey					Soil too wet to measure soil penetrance
<b>Average</b>							

**A1-RM-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Clayey					Soil too wet to measure soil penetrance
<b>Average</b>							

**AY-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	6.0	7.6	
				2	3.6	4.6	
				3	5.0	6.4	
				4	8.4	10.7	
				5	11.0	14.0	
				6	11.0	14.0	
				7	11.0	14.0	
				8	10.2	13.0	
				9	11.0	14.0	
				10	11.0	14.0	
<b>Average</b>					<b>8.8</b>	<b>11.2</b>	

**L-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Clayey	10	1	11.0	14.0	
				2	11.0	14.0	
				3	11.0	14.0	
				4	11.0	14.0	
				5	9.1	11.6	
				6	11.0	14.0	
				7	11.0	14.0	
				8	11.0	14.0	
				9	11.0	14.0	
				10	11.0	14.0	
<b>Average</b>					<b>10.8</b>	<b>13.8</b>	

**L-RM-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
27/11/2018	MS, KK	Clayey	10	1	7.8	9.9	
				2	8.8	11.2	
				3	11.0	14.0	
				4	8.3	10.6	
				5	6.6	8.4	
				6	3.5	4.5	
				7	5.9	7.5	
				8	5.0	6.4	
				9	3.0	3.8	
				10	8.4	10.7	
<b>Average</b>					<b>6.8</b>	<b>8.7</b>	

**M-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Clayey	10	1	4.8	6.1	
				2	2.1	2.7	
				3	5.1	6.5	
				4	5.3	6.7	
				5	4.3	5.5	
				6	4.1	5.2	
				7	2.5	3.2	
				8	5.5	7.0	
				9	3.1	3.9	
				10	5.1	6.5	
<b>Average</b>					<b>4.2</b>	<b>5.3</b>	

**MG-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	6.8	8.7	
				2	4.0	5.1	
				3	6.1	7.8	
				4	5.9	7.5	
				5	7.5	9.5	
				6	11.0	14.0	
				7	9.2	11.7	
				8	9.7	12.4	
				9	11.0	14.0	
				10	11.0	14.0	
<b>Average</b>					<b>8.2</b>	<b>10.5</b>	

**R-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	2.0	2.5	
				2	1.7	2.2	
				3	1.5	1.9	
				4	9.0	11.5	
				5	11.0	14.0	
				6	8.8	11.2	
				7	8.7	11.1	
				8	8.8	11.2	
				9	11.0	14.0	
				10	10.6	13.5	
<b>Average</b>					<b>7.3</b>	<b>9.3</b>	

**R-RM-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	3.3	4.2	
				2	7.4	9.4	
				3	2.1	2.7	
				4	5.7	7.3	
				5	8.9	11.3	
				6	4.0	5.1	
				7	9.7	12.4	
				8	6.7	8.5	
				9	6.5	8.3	
				10	6.5	8.3	
<b>Average</b>					<b>6.1</b>	<b>7.7</b>	

**S-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
28/11/2018	MS, KK	Sandy clay/Clayey sand	10	1	8.1	10.3	
				2	4.5	5.7	
				3	2.7	3.4	
				4	5.0	6.4	
				5	3.6	4.6	
				6	3.5	4.5	
				7	2.3	2.9	
				8	1.6	2.0	
				9	6.1	7.8	
				10	6.0	7.6	
<b>Average</b>					<b>4.3</b>	<b>5.5</b>	

**S-RM-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	3.3	4.2	
				2	5.2	6.6	
				3	2.7	3.4	
				4	4.2	5.3	
				5	9.2	11.7	
				6	5.7	7.3	
				7	3.8	4.8	
				8	4.3	5.5	
				9	11.0	14.0	
				10	9.9	12.6	
<b>Average</b>					<b>5.9</b>	<b>7.6</b>	

**S-RM-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	3.5	4.5	
				2	5.7	7.3	
				3	3.0	3.8	
				4	3.1	3.9	
				5	2.7	3.4	
				6	5.1	6.5	
				7	5.3	6.7	
				8	10.0	12.7	
				9	6.2	7.9	
				10	5.6	7.1	
<b>Average</b>					<b>5.0</b>	<b>6.4</b>	

**S-RM-04**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	3.5	4.5	
				2	3.8	4.8	
				3	7.2	9.2	
				4	9.7	12.4	
				5	4.3	5.5	
				6	5.5	7.0	
				7	7.7	9.8	
				8	4.5	5.7	
				9	10.0	12.7	
				10	9.2	11.7	
<b>Average</b>					<b>6.5</b>	<b>8.3</b>	



**SP-RM-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	3.4	4.3	
				2	5.1	6.5	
				3	3.2	4.1	
				4	4.7	6.0	
				5	9.2	11.7	
				6	4.4	5.6	
				7	2.5	3.2	
				8	6.1	7.8	
				9	2.8	3.6	
				10	4.8	6.1	
<b>Average</b>					<b>4.6</b>	<b>5.9</b>	

**SP-RM-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/Clayey sand	10	1	6.6	8.4	
				2	5.2	6.6	
				3	4.1	5.2	
				4	5.1	6.5	
				5	4.5	5.7	
				6	7.6	9.7	
				7	4.8	6.1	
				8	4.2	5.3	
				9	7.5	9.5	
				10	10.9	13.9	
<b>Average</b>					<b>6.1</b>	<b>7.7</b>	

**SP-RM-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy	20	1	6.2	2.0	
				2	7.3	2.3	
				3	7.5	2.4	
				4	6.8	2.2	
				5	10.1	3.2	
				6	7.8	2.5	
				7	11.0	3.5	
				8	11.0	3.5	
				9	11.0	3.5	
				10	11.0	3.5	
<b>Average</b>					<b>9.0</b>	<b>2.9</b>	

## Paddock Restoration Plots

## A-RS-01

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
11/12/2018	BL, JM	Sandy clay/Clayey sand	10	1	4.0	5.1	Furrow
				2	1.7	2.2	Windrow
				3	5.0	6.4	Paddock
				4	1.5	1.9	Furrow
				5	0.3	0.4	Windrow
				6	11.0	14.0	Paddock
				7	4.2	5.3	Furrow
				8	7.0	8.9	Windrow
				9	11.0	14.0	Paddock
				10	5.9	7.5	Furrow
<b>Average</b>					<b>5.2</b>	<b>6.6</b>	

## L-RS-01

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
10/12/2018	BL, JM	Sandy clay	10	1	11.0	14.0	Furrow
				2	1.0	1.3	Windrow
				3	11.0	14.0	Paddock
				4	5.6	7.1	Windrow
				5	11.0	14.0	Furrow
				6	10.1	12.9	Paddock
				7	11.0	14.0	Furrow
				8	3.8	4.8	Windrow
				9	11.0	14.0	Paddock
				10	11.0	14.0	Furrow
<b>Average</b>					<b>8.7</b>	<b>11.0</b>	

**L-RS-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	2.9	3.7	Furrow
				2	5.5	7.0	Windrow
				3	11.0	14.0	Paddock
				4	2.2	2.8	Furrow
				5	4.0	5.1	Windrow
				6	10.0	12.7	Paddock
				7	4.5	5.7	Furrow
				8	5.6	7.1	Paddock
				9	4.2	5.3	Windrow
				10	3.1	3.9	Furrow
<b>Average</b>					<b>5.3</b>	<b>6.7</b>	

**L-RS-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/Clayey sand	10	1	4.4	5.6	Furrow
				2	1.9	2.4	Windrow
				3	7.9	10.1	Paddock
				4	4.0	5.1	Furrow
				5	1.5	1.9	Windrow
				6	11.0	14.0	Paddock
				7	1.6	2.0	Furrow
				8	1.9	2.4	Windrow
				9	11.0	14.0	Paddock
				10	1.5	1.9	Furrow
<b>Average</b>					<b>4.7</b>	<b>5.9</b>	

**L-RS-04**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	3.6	4.6	Furrow
				2	5.9	7.5	Paddock
				3	1.3	1.7	Windrow
				4	11.0	14.0	Furrow
				5	10.7	13.6	Paddock
				6	1.8	2.3	Windrow
				7	5.9	7.5	Furrow
				8	7.2	9.2	Paddock
				9	2.4	3.1	Windrow
				10	9.0	11.5	Furrow
<b>Average</b>					<b>5.9</b>	<b>7.5</b>	

**L-RS-05**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Clayey	10	1	5.6	7.1	Furrow
				2	7.5	9.5	Windrow
				3	11.0	14.0	Paddock
				4	5.7	7.3	Furrow
				5	1.0	1.3	Windrow
				6	5.6	7.1	Paddock
				7	3.4	4.3	Furrow
				8	0.4	0.5	Windrow
				9	11.0	14.0	Paddock
				10	4.2	5.3	Furrow
<b>Average</b>					<b>5.5</b>	<b>7.1</b>	

**L-RS-06**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
12/12/2018	BL, JM	Sandy clay/clayey sand	10	1	7.2	9.2	Furrow
				2	1.0	1.3	Windrow
				3	6.8	8.7	Paddock
				4	3.5	4.5	Furrow
				5	3.0	3.8	Windrow
				6	9.1	11.6	Paddock
				7	9.3	11.8	Furrow
				8	5.2	6.6	Windrow
				9	6.0	7.6	Paddock
				10	5.4	6.9	Furrow
<b>Average</b>					<b>5.7</b>	<b>7.2</b>	

**L-RS-07**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Clayey	10	1	11.0	14.0	Furrow
				2	2.9	3.7	Windrow
				3	6.2	7.9	Paddock
				4	10.7	13.6	Furrow
				5	1.8	2.3	Windrow
				6	5.2	6.6	Paddock
				7	4.2	5.3	Furrow
				8	4.9	6.2	Paddock
				9	0.9	1.1	Windrow
				10	4.6	5.9	Furrow
<b>Average</b>					<b>5.2</b>	<b>6.7</b>	

**L-RS-08**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Clayey	10	1	2.2	2.8	Furrow
				2	1.0	1.3	Windrow
				3	3.4	4.3	Paddock
				4	3.0	3.8	Furrow
				5	1.1	1.4	Windrow
				6	3.0	3.8	Paddock
				7	2.4	3.1	Furrow
				8	1.2	1.5	Windrow
				9	2.9	3.7	Paddock
				10	2.4	3.1	Furrow
<b>Average</b>					<b>2.3</b>	<b>2.9</b>	

**M-RS-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
12/12/2018	BL, JM	Sandy clay/clayey sand	10	1	5.4	6.9	Windrow
				2	1.7	2.2	Furrow
				3	7.4	9.4	Paddock
				4	2.0	2.5	Windrow
				5	6.4	8.1	Furrow
				6	6.6	8.4	Paddock
				7	1.9	2.4	Windrow
				8	4.6	5.9	Furrow
				9	5.0	6.4	Paddock
				10	7.5	9.5	Furrow
<b>Average</b>					<b>4.9</b>	<b>6.2</b>	

**M-RS-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
13/12/2018	BL, JM	Sandy clay/clayey sand	10	1	3.5	4.5	Furrow
				2	2.2	2.8	Windrow
				3	8.5	10.8	Paddock
				4	3.8	4.8	Furrow
				5	1.7	2.2	Windrow
				6	5.8	7.4	Paddock
				7	5.1	6.5	Furrow
				8	2.1	2.7	Windrow
				9	5.8	7.4	Paddock
				10	11.0	14.0	Furrow
<b>Average</b>					<b>5.0</b>	<b>6.3</b>	

**M-RS-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
13/12/2018	BL, JM	Sandy clay/clayey sand	10	1	9.0	11.5	Paddock
				2	11.0	14.0	Furrow
				3	3.1	3.9	Windrow
				4	9.1	11.6	Paddock
				5	8.4	10.7	Furrow
				6	3.8	4.8	Windrow
				7	6.7	8.5	Paddock
				8	11.0	14.0	Furrow
				9	5.2	6.6	Windrow
				10	11.0	14.0	Furrow
<b>Average</b>					<b>7.8</b>	<b>10.0</b>	



**M-RS-04**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	11.0	14.0	Furrow
				2	0.5	0.6	Windrow
				3	10.1	12.9	Paddock
				4	7.3	9.3	Furrow
				5	0.7	0.9	Windrow
				6	5.5	7.0	Paddock
				7	11.0	14.0	Furrow
				8	0.1	0.1	Windrow
				9	10.1	12.9	Paddock
				10	11.0	14.0	Furrow
<b>Average</b>					<b>6.7</b>	<b>8.6</b>	

**PS-RS-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	8.0	10.2	Furrow
				2	1.0	1.3	Windrow
				3	4.5	5.7	Paddock
				4	3.4	4.3	Furrow
				5	0.9	1.1	Windrow
				6	4.9	6.2	Paddock
				7	5.7	7.3	Furrow
				8	0.5	0.6	Windrow
				9	9.0	11.5	Paddock
				10	5.3	6.7	Furrow
<b>Average</b>					<b>4.3</b>	<b>5.5</b>	

**PS-RS-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	3.6	4.6	Furrow
				2	1.4	1.8	Windrow
				3	6.5	8.3	Paddock
				4	3.7	4.7	Furrow
				5	1.1	1.4	Windrow
				6	7.6	9.7	Paddock
				7	9.0	11.5	Furrow
				8	1.4	1.8	Windrow
				9	9.0	11.5	Paddock
				10	9.7	12.4	Furrow
<b>Average</b>					<b>5.3</b>	<b>6.7</b>	

**PS-RS-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	1.0	1.3	Furrow
				2	0.5	0.6	Windrow
				3	1.3	1.7	Paddock
				4	1.9	2.4	Windrow
				5	2.4	3.1	Furrow
				6	7.6	9.7	Paddock
				7	2.0	2.5	Furrow
				8	0.4	0.5	Windrow
				9	6.8	8.7	Paddock
				10	3.7	4.7	Furrow
<b>Average</b>					<b>2.8</b>	<b>3.5</b>	

**SP-RS-01**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/clayey sand	10	1	2.3	2.9	Furrow
				2	1.7	2.2	Furrow
				3	6.2	7.9	Paddock
				4	4.5	5.7	Paddock
				5	5.0	6.4	Furrow
				6	5.6	7.1	Furrow
				7	8.2	10.4	Paddock
				8	8.3	10.6	Paddock
				9	1.8	2.3	Furrow
				10	2.1	2.7	Furrow
<b>Average</b>					<b>4.6</b>	<b>5.8</b>	

**SP-RS-02**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/clayey sand	10	1	2.8	3.6	Furrow
				2	1.9	2.4	Furrow
				3	4.3	5.5	Paddock
				4	6.6	8.4	Paddock
				5	1.8	2.3	Furrow
				6	2.0	2.5	Furrow
				7	2.9	3.7	Paddock
				8	4.2	5.3	Paddock
				9	4.8	6.1	Furrow
				10	3.6	4.6	Furrow
<b>Average</b>					<b>3.5</b>	<b>4.4</b>	

**SP-RS-03**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
11/12/2018	BL, JM	Sandy	20	1	6.8	2.2	Furrow
				2	3.1	1.0	Windrow
				3	11.0	3.5	Paddock
				4	6.0	1.9	Furrow
				5	5.7	1.8	Windrow
				6	11.0	3.5	Paddock
				7	10.8	3.4	Furrow
				8	7.7	2.5	Windrow
				9	11.0	3.5	Paddock
				10	5.8	1.8	Furrow
<b>Average</b>					<b>7.9</b>	<b>2.5</b>	

**SP-RS-04**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
12/12/2018	BL, JM	Sandy clay/clayey sand	10	1	6.0	7.6	Furrow
				2	3.1	3.9	Windrow
				3	4.9	6.2	Paddock
				4	5.0	6.4	Furrow
				5	3.4	4.3	Windrow
				6	6.0	7.6	Paddock
				7	4.0	5.1	Furrow
				8	3.8	4.8	Windrow
				9	5.1	6.5	Paddock
				10	5.7	7.3	Furrow
<b>Average</b>					<b>4.7</b>	<b>6.0</b>	

## SP-RS-05

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
12/12/2018	BL, JM	Sandy clay/clayey sand	10	1	5.5	7.0	Furrow
				2	2.4	3.1	Windrow
				3	8.8	11.2	Paddock
				4	4.5	5.7	Furrow
				5	3.9	5.0	Windrow
				6	7.0	8.9	Paddock
				7	0.7	0.9	Furrow
				8	1.2	1.5	Windrow
				9	10.3	13.1	Paddock
				10	2.3	2.9	Furrow
<b>Average</b>					<b>4.7</b>	<b>5.9</b>	

## SP-RS-06

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	4.4	5.6	Furrow
				2	0.7	0.9	Windrow
				3	5.3	6.7	Paddock
				4	10.5	13.4	Furrow
				5	0.5	0.6	Windrow
				6	7.8	9.9	Paddock
				7	5.9	7.5	Furrow
				8	1.5	1.9	Windrow
				9	7.1	9.0	Paddock
				10	4.3	5.5	Furrow
<b>Average</b>					<b>4.8</b>	<b>6.1</b>	

## SP-RS-07

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	9.0	11.5	Paddock
				2	2.2	2.8	Windrow
				3	2.9	3.7	Furrow
				4	9.5	12.1	Paddock
				5	1.5	1.9	Windrow
				6	2.6	3.3	Furrow
				7	11.0	14.0	Paddock
				8	0.7	0.9	Windrow
				9	3.8	4.8	Furrow
				10	4.9	6.2	Furrow
<b>Average</b>					<b>4.8</b>	<b>6.1</b>	

## SP-RS-08

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	7.1	9.0	Furrow
				2	0.4	0.5	Windrow
				3	10.6	13.5	Paddock
				4	3.8	4.8	Furrow
				5	0.6	0.8	Windrow
				6	9.0	11.5	Paddock
				7	5.2	6.6	Furrow
				8	11.0	14.0	Paddock
				9	3.8	4.8	Windrow
				10	8.8	11.2	Furrow
<b>Average</b>					<b>6.0</b>	<b>7.7</b>	

## SP-RS-09

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	3.0	3.8	Furrow
				2	10.1	12.9	Paddock
				3	2.5	3.2	Windrow
				4	4.9	6.2	Furrow
				5	8.0	10.2	Paddock
				6	2.5	3.2	Windrow
				7	2.9	3.7	Furrow
				8	9.5	12.1	Paddock
				9	2.1	2.7	Windrow
				10	11.0	14.0	Furrow
<b>Average</b>					<b>5.7</b>	<b>7.2</b>	

## SP-RS-10

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
13/12/2018	BL, JM	Sandy clay/clayey sand	10	1	1.9	2.4	Furrow
				2	2.7	3.4	Windrow
				3	4.3	5.5	Paddock
				4	3.9	5.0	Furrow
				5	3.9	5.0	Windrow
				6	4.1	5.2	Paddock
				7	4.0	5.1	Furrow
				8	1.4	1.8	Windrow
				9	6.2	7.9	Paddock
				10	3.5	4.5	Furrow
<b>Average</b>					<b>3.6</b>	<b>4.6</b>	

## SP-RS-11

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
30/11/2018	JM, EL	Sandy clay/clayey sand	10	1	5.4	6.9	Paddock
				2	11.0	14.0	Paddock
				3	8.1	10.3	Furrow
				4	6.9	8.8	Furrow
				5	9.5	12.1	Paddock
				6	10.6	13.5	Paddock
				7	9.6	12.2	Furrow
				8	11.0	14.0	Furrow
				9	3.1	3.9	Furrow
				10	7.2	9.2	Furrow
<b>Average</b>					<b>8.2</b>	<b>10.5</b>	

## SP-RS-12

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
13/12/2018	BL, JM	Sandy clay/clayey sand	10	1	11.0	14.0	Furrow
				2	3.1	3.9	Windrow
				3	7.0	8.9	Paddock
				4	8.4	10.7	Furrow
				5	3.5	4.5	Windrow
				6	8.5	10.8	Paddock
				7	11.0	14.0	Furrow
				8	3.8	4.8	Windrow
				9	7.2	9.2	Paddock
				10	11.0	14.0	Furrow
<b>Average</b>					<b>7.5</b>	<b>9.5</b>	



**SP-RS-13**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
13/12/2018	BL, JM	Sandy clay/clayey sand	10	1	3.1	3.9	Windrow
				2	5.5	7.0	Furrow
				3	8.3	10.6	Paddock
				4	4.0	5.1	Windrow
				5	5.8	7.4	Furrow
				6	8.0	10.2	Paddock
				7	1.8	2.3	Windrow
				8	4.1	5.2	Furrow
				9	6.2	7.9	Paddock
				10	3.0	3.8	Furrow
<b>Average</b>					<b>5.0</b>	<b>6.3</b>	

**SP-RS-14**

Date	Recorders	Soil type	Tip size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
14/12/2018	DC, MP	Sandy clay/clayey sand	10	1	6.5	8.3	Furrow
				2	0.5	0.6	Windrow
				3	4.0	5.1	Paddock
				4	4.8	6.1	Furrow
				5	2.8	3.6	Windrow
				6	4.8	6.1	Paddock
				7	2.0	2.5	Furrow
				8	1.9	2.4	Windrow
				9	4.7	6.0	Paddock
				10	4.8	6.1	Furrow
<b>Average</b>					<b>3.7</b>	<b>4.7</b>	

## Appendix U: Photo Points Data

Note: All GPS locations are in GDA94, Zone 50

Photo Point	Date	Easting	Northing	Photos		Comments
PP01	10/12/2018	439426	6362930	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Restoration developing. Reasonable cover and density of native species. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	


Photo Point	Date	Easting	Northing	Photos		Comments
PP02	10/12/2018	438430	6363418	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP and DS-PS. Restoration within 10 m of photo point displaying poor native species recruitment, possibly due to lateritic outcropping. Restoration on east side of track displaying reasonable density and cover of native species. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP03	10/12/2018	436768	6363471	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Top seven restoration lines displaying very poor native species recruitment with only the very occasional native species seedling. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP04	11/12/2018	440713	6363299	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP and SG-S,SP. Restoration to northeast developing. Very high weed cover. CL-M polygon to southeast appears to be slightly more sparse in terms of native species recruitment. SG-S,SP polygon to west displaying very poor native species recruitment and high weed cover, possibly due to lateritic outcropping. Generally high weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP05	11/12/2018	440414	6362677	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone CL-M. Restoration developing. No obvious bare areas. Good number of <i>Eucalyptus wandoo</i> saplings. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">NW</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP06	10/12/2018	436805	6362676	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Restoration lines do not appear to have been seeded until approximately 20 m north of photo point. Little native species recruitment from remnant trees. High weed and litter cover around photo point star picket. Restoration north of photo point developing. One large bare area approximately 30 m x 15 m at approximately 40 m north-northeast of photo point. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	



Photo Point	Date	Easting	Northing	Photos		Comments
PP07	10/12/2018	436075	6362740	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone SG-S,SP. Native species recruitment very poor and native species seedlings appear to be very young. Was this polygon seeded much later than the surrounding restoration polygons? Soil quite sandy. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP08	10/12/2018	436084	6363536	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Restoration developing. Moderate density of native species seedlings with some bare areas, particularly southwest of track. Some weeds near boundary of track and remnant vegetation. High weed cover in restoration area</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP09	10/12/2018	436802	6363706	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Restoration developing. Low to moderate density of native species with some small bare areas (up to 5 m x 5 m). High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	






Photo Point	Date	Easting	Northing	Photos		Comments
PP10	10/12/2018	438087	6363068	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Seed mix zone LG-S,SP. Native species recruitment very poor around photo point star picket but reasonable and consistent along restoration lines. Unsure if restoration within approximately 10-30 m of photo point was seeded as no restoration lines are obvious. Some lateritic outcropping. Rock pile approximately 15 m to southeast of photo point. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP11	10/12/2018	435941	6363125	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Gastrolobium thicket. Poor native species recruitment. Recent deaths of native species seedlings extensive through this section of the restoration. Soil quite sandy. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

Photo Point	Date	Easting	Northing	Photos		Comments
PP12	10/12/2018	437178	6363281	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Gastrolobium thicket. Native species recruitment reasonable in most restoration lines but poor in a few. Species include <i>Acacia celastrifolia</i>, <i>Acacia drummondii</i> subsp. <i>candolleana</i>, <i>Acacia nervosa</i>, <i>Acacia pulchella</i> var. <i>glaberrima</i>, <i>Allocasuarina humilis</i>, <i>Banksia grandis</i>, <i>Calothamnus quadrifidus</i>, <i>Corymbia calophylla</i>, <i>Gastrolobium calycinum</i>, <i>Hakea undulata</i>, <i>Hypocalymma angustifolium</i> and <i>Velleia trinervis</i>. High weed cover</p>
		<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 			

Photo Point	Date	Easting	Northing	Photos		Comments
PP13	10/12/2018	438438	6362699	<p style="text-align: center;">N</p> 	<p style="text-align: center;">E</p> 	<p>Gastrolobium thicket. Native species recruitment reasonable in most restoration lines but poor in a few. Species include <i>Acacia celastrifolia</i>, <i>Acacia drummondii</i> subsp. <i>candolleana</i>, <i>Acacia nervosa</i>, <i>Acacia pulchella</i> var. <i>glaberrima</i>, <i>Allocasuarina humilis</i>, <i>Banksia grandis</i>, <i>Calothamnus quadrifidus</i>, <i>Corymbia calophylla</i>, <i>Gastrolobium calycinum</i>, <i>Hakea undulata</i>, <i>Hypocalymma angustifolium</i> and <i>Velleia trinervis</i>. High weed cover</p>
				<p style="text-align: center;">S</p> 	<p style="text-align: center;">W</p> 	

## Appendix V: Walk-Through Transect Results



Note: All GPS locations are in GDA94, Zone 50

Walk Through Transect: T-01

Date: 11/12/2018

Recorder: MS

North star picket easting: WP039 436002

South star picket easting: WP035 435999

North star picket northing: 6363742

South star picket northing: 6362647


North star picket photo: 93






South star picket photo: 82




Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
035	435999	6362647	<i>Ursinia anthemoides</i> , <i>Vulpia muralis/myuros</i>	35 %					
065	435995	6362696	<i>Hypochaeris glabra</i>	80 %					
066	435996	6362746	<i>Hypochaeris glabra</i>	85 %					
067	435996	6362798	<i>Hypochaeris glabra</i>	90 %					


Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
068	435996	6362848	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i> and 2 x <i>Gomphocarpus fruticosus</i>	95 %					
069	436000	6362880						<p>Widespread deaths of native species, no obvious cause (photo 83 to east)</p>  <p>Photo 83</p>	
070	435998	6362899	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	90 %				Widespread deaths of native species, no obvious cause	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
071	435996	6362949	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	85 %				Bare area up to 8 m x 5 m (photo 84 to northwest).	Widespread deaths of native species, no obvious cause. Native species very sparse   Photo 84
073	435996	6362999	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	80 %					Widespread deaths of native species, no obvious cause
075	436000	6363047	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	80 %					Widespread deaths of native species, no obvious cause

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
076	436003	6363053						<p>Bare area up to 80 m x 200 m (photo 86 to north). Bare from this point to track to north.</p>  <p>Photo 86</p>	
077	435998	6363098	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	85 %				<p>Widespread deaths of native species, no obvious cause. Native species very sparse</p>	
078	435998	6363147	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	70 %				<p>Very sandy. Little native species recruitment (photo 87 to northeast)</p>  <p>Photo 87</p>	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
079	435996	6363198	<i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	85 %					Native species recruitment improved to previous few waypoints to south
080	435997	6363246	<i>Orobanche minor,</i> <i>Vulpia muralis/myuros</i>	1 %					Furrows visible but no native species recruitment (photo 88 to north)  Photo 88
081	435997	6363297	<i>Vulpia muralis/myuros</i>	1 %					Within remnant vegetation area
082	435995	6363347	<i>Vulpia muralis/myuros</i>	1 %					Within remnant vegetation area
083	435997	6363396	<i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	1 %					Within remnant vegetation area

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
084	435998	6363446	<i>Vulpia muralis/myuros</i>	70 %					
085	436000	6363453					Bare area up to 25 m x 10 m (photo 90 to east).	 <p>Photo 90</p>	
086	435996	6363497	<i>Hypochaeris glabra, Vulpia muralis/myuros</i>	75 %				<p>Tops of some plants scorched (photo 91 to southwest)</p>  <p>Photo 91</p>	
087	435996	6363546	<i>Hypochaeris glabra, Vulpia muralis/myuros</i>	70 %				Tops of some plants scorched	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
088	436000	6363565	<i>Citrullus amarus,</i> <i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	70 %					Tops of some plants scorched
089	435998	6363596	<i>Avena barbata,</i> <i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	80 %					Tops of some plants scorched (photo 92)  Photo 92
090	435999	6363646	<i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	70 %					Native species recruitment more sparse than previous few points to south
091	435996	6363695	<i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	70 %					Native species recruitment more sparse than previous few points to south
039	436002	6363742	<i>Vulpia muralis/myuros</i>	1 %					Native species recruitment more sparse than previous few points to south



Walk Through Transect: T-02

Date: 11/12/2018

Recorder: KK

North star picket easting: WP010 437181

South star picket easting: WP026 437179

North star picket northing: 6363735

South star picket northing: 6362652

North star picket photo: 1



South star picket photo: 2



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
799	437183	6363686	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> <i>Vulpia muralis/myuros</i>	90 %				Y	Bare and sparse area adjacent to access track
800	437186	6363641	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> <i>Vulpia muralis/myuros</i>	95 %	170	0.5	0.1		Minor runoff from edge of diversion rill
801	437181	6363590	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	95 %					
802	437183	6363541	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> <i>Vulpia muralis/myuros</i>	75 %					Edge of restoration area and small remnant vegetation area

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
803	437181	6363491	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> <i>Vulpia muralis/myuros</i>	75 %				Edge of restoration area and small remnant vegetation area	
804	437183	6363440	<i>Avena barbata</i> , <i>Erodium botrys</i> , <i>Lolium rigidum</i>	85 %			Y	Sparse native species recruitment	
805	437182	6363392	<i>Avena barbata</i> , <i>Erodium botrys</i>	95 %			Y	Sparse native species recruitment	
806	437182	6363341	<i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	97 %			Y	Sparse native species recruitment	
807	437182	6363290	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Erodium botrys</i>	80 %				Gastrolobium thicket with small, young native species seedlings	
808	437184	6363241	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Erodium botrys</i>	80 %				Gastrolobium thicket with small, young native species seedlings	
809	437183	6363192	<i>Avena barbata</i> , <i>Lolium rigidum</i> , <i>Vulpia muralis/myuros</i>	80 %				Gastrolobium thicket with small, young native species seedlings	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
810	437182	6363142	<i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	5 %					Within <i>Eucalyptus wandoo</i> and <i>Eucalyptus marginata</i> remnant vegetation area
811	437182	6363089	<i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	50 %					Within <i>Eucalyptus wandoo</i> and <i>Eucalyptus marginata</i> remnant vegetation area
812	437183	6363041	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	85 %					Within <i>Melaleuca preissiana</i> remnant vegetation area
813	437187	6362991	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	70 %					Within <i>Melaleuca preissiana</i> remnant vegetation area
814	437181	6362943		0 %					Within wet remnant vegetation area
815	437198	6362885		0 %					Within wet remnant vegetation area
816	437184	6362868		0 %					Within wet remnant vegetation area

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
817	437179	6362843	<i>Hypochaeris glabra</i>	2 %					On edge of remnant vegetation area
818	437182	6362792	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	90 %					
819	437184	6362741	<i>Arctotheca calendula</i> , <i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	90 %				Y	Restoration more sparse compared to surrounding restoration
820	437177	6362691	<i>Arctotheca calendula</i> , <i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	95 %				Y	Restoration more sparse compared to surrounding restoration

Walk Through Transect: T-03

Date: 11/12/2018

Recorder: MS

North star picket easting: WP015 437995

South star picket easting: WP025 437980

North star picket northing: 6363732

South star picket northing: 6362660


North star picket photo: 107





South star picket photo: 94





Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
25	437980	6362660	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				Bare area up to 100 m x 30 m	Some deaths of native species and scorching of tops of plants
92	437980	6362712	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	90 %					Some deaths of native species and scorching of tops of plants
93	437981	6362766	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	65 %					
94	437981	6362817	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	65 %					


Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
95	437980	6362864	<i>Avena barbata</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %					
97	437978	6362915	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	90 %			Bare area up to 150 m x 40 m (photo 95 to northwest)	Lateritic outcropping, avoided by seeder as no furrows or native species recruitment obvious?   Photo 95	
98	437982	6362965	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	80 %				Good density of native species	
99	437979	6363015	<i>Hypochaeris glabra</i> , <i>Ptilotus polystachyus</i> , <i>Vulpia muralis/myuros</i>	80 %			Bare area up to 80 m x 15 m		

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
100	437978	6363049						<p>Poor establishment of native species, very lateritic (photo 96 to east, 97 to west)</p>  <p>Photo 96</p>  <p>Photo 97</p>	
101	437979	6363115	<i>Briza maxima</i> , <i>Vulpia muralis/myuros</i>	1 %				<p>Within remnant vegetation area. Granite outcropping</p>	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
102	437980	6363164	<i>Briza maxima</i>	1 %					Within remnant vegetation area. Very thick understorey
103	437980	6363215	<i>Briza maxima</i> , <i>Vulpia muralis/myuros</i>	5 %				Bare area up to 50 m x 40 m	Within remnant vegetation area. Granitic
104	437980	6363264	<i>Briza maxima</i> , <i>Vulpia muralis/myuros</i>	1 %					Within remnant vegetation area. Granitic
105	437979	6363313	<i>Avena barbata</i>	30 %					
106	437980	6363363	<i>Avena barbata</i>	98 %				Bare area up to 80 m x 30 m	Within small remnant vegetation area. No understorey
107	437983	6363412	<i>Avena barbata</i>	95 %					Within small remnant vegetation area. No understorey
108	437980	6363463	<i>Avena barbata</i>	80 %					Within small remnant vegetation area. No understorey. Lateritic outcropping



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
109	437979	6363513	<i>Avena barbata</i>	80 %				Within small remnant vegetation area. No understorey. Lateritic outcropping	
110	437982	6363562	<i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	60 %			Bare area up to 180 m x 150 m	<p>Very little native species recruitment. Some lateritic outcropping (photo 98 to west, 99 to east)</p>  <p>Photo 98</p>  <p>Photo 99</p>	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
111	437981	6363615	<i>Avena barbata</i>	80 %				Lateritic outcropping	
112	437983	6363664	<i>Hypochaeris glabra,</i> <i>Ursinia anthemoides,</i> <i>Vulpia muralis/myuros</i>	60 %			Bare area up to 100 m x 8 m	Very little native species recruitment. Some lateritic outcropping (photo 100 to east)   Photo 100	
113	437987	6363713	<i>Avena barbata,</i> <i>Hypochaeris glabra,</i> <i>Ursinia anthemoides</i>	95 %				Lateritic outcropping	
15	437995	6363732	<i>Avena barbata,</i> <i>Hypochaeris glabra,</i> <i>Ursinia anthemoides</i>	70 %					

Walk Through Transect: T-04

Date: 11/12/2018

Recorder: KK

North star picket easting: WP016 438381

South star picket easting: WP023 438384

North star picket northing: 6363731

South star picket northing: 6362666

North star picket photo: 3



South star picket photo: 4



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
822	438383	6363689	<i>Avena barbata</i> , <i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i>	75 %					
823	438379	6363657	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	85 %			Bare area up to 30 m x 20 m	Lateritic outcropping, possibly avoided by seeder	
824	438385	6363606	<i>Hypochaeris glabra</i>	60 %	40	2	0.8	Bare area up to 40 m x 50 m	Three gullies originating from diversion drain upslope. Area possibly missed by seeder
825	438382	6363548	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	85 %				y	Adjacent to diversion drain and rock piles. Bare areas to the west

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
826	438383	6363497	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				y	Adjacent to diversion drain and rock piles. Bare area to the west
827	438382	6363443	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Lolium rigidum</i>	95 %				y	Edge of restoration area and remnant vegetation area
828	438379	6363396	<i>Avena barbata</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	97 %				y	Edge of restoration area and remnant vegetation area
829	438380	6363348	<i>Arctotheca calendula</i> , <i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	90 %				Bare area up to 25 m x 25 m at 20 m east of point	Edge of restoration area and remnant vegetation area. Lateritic outcropping, possibly avoided by seeder
830	438378	6363297	<i>Avena barbata</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	90 %					
831	438380	6363250	<i>Arctotheca calendula</i> , <i>Avena barbata</i> , <i>Vulpia muralis/myuros</i>	85 %					
832	438382	6363213			50	2	1		Gully originating from diversion drain upslope

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
833	438382	6363200	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	85 %					
834	438381	6363148	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i>	85 %					
835	438383	6363099	<i>Citrullus amarus</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i>	85 %				Some areas of sparse native species recruitment	
836	438382	6363047	<i>Citrullus amarus</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i>	85 %			Bare area up to 30 m x 10 m	Adjacent to access track	
837	438380	6362996	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i>	90 %			Bare area up to 15 m x 15 m	Adjacent to access track and remnant vegetation area	
838	438384	6362950	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Lolium rigidum</i>	75 %				Along access track. High weed cover within adjacent remnant vegetation area	
839	438381	6362899	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Lolium rigidum</i>	65 %				Along access track. High weed cover within adjacent remnant vegetation area	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
840	438379	6362851	<i>Avena barbata</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	55 %				Along access track. High weed cover within adjacent remnant vegetation area	
841	438385	6362795	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Ehrharta calycina</i>	75 %				Along access track. High weed cover within adjacent remnant vegetation area	
842	438379	6362748	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Lolium rigidum</i>	85 %				Gastrolobium thicket with small, young native species seedlings	
843	438380	6362699	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Lolium rigidum</i>	85 %				Gastrolobium thicket with small, young native species seedlings	

Walk Through Transect: T-05

Date: 11/12/2018

Recorder: MS

North star picket easting: WP041 438768

South star picket easting: WP062 438766

North star picket northing: 6363636

South star picket northing: 6362659



North star picket photo: 106



South star picket photo: 102






Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
62	438766	6362659	<i>Briza maxima</i> , <i>Ursinia anthemoides</i>	1 %					
114	438771	6362714	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Vulpia muralis/myuros</i>	80 %				No understorey. Lateritic outcropping	
115	438770	6362763	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	70 %					
116	438771	6362815	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	75 %					

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
117	438771	6362864	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i> , <i>Raphanus raphanistrum</i>	85 %				<p>Bare area up to 20 m x 500 m (photo 80 to south, 81 to north)</p> <p>Area missed by seeder?</p>  <p>Photo 80</p>  <p>Photo 81</p>	
118	438770	6362912	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	90 %					
119	438772	6362963	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	80 %				Native species in restoration quite tall	



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
120	438770	6363012	<i>Citrullus amarus</i> , <i>Dittrichia graveolens</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	80 %					
121	438771	6363063	<i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	75 %					
122	438773	6363113	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				Lateritic outcropping	
123	438773	6363135	<i>Rumex pulcher</i> subsp. <i>pulcher</i>	20 plants					
124	438769	6363166	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Ehrharta calycina</i>	97 %					
125	438770	6363213	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	65 %					
126	438771	6363263	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	75 %					

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
128	438772	6363313	<i>Citrullus amarus,</i> <i>Erodium botrys,</i> <i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	70 %				Restoration more sparse here than to south (photo 103 to northwest)  Photo 103	
129	438771	6363363	<i>Citrullus amarus,</i> <i>Erodium botrys,</i> <i>Hypochaeris glabra,</i> <i>Vulpia muralis/myuros</i>	80 %					
130	438774	6363413	<i>Arctotheca calendula,</i> <i>Hypochaeris glabra,</i> <i>Vellereophyton dealbatum,</i> <i>Vulpia muralis/myuros</i>	85 %					

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
132	438770	6363439						Restoration ends abruptly into large bare area that extends north  Bare area up to 250 m x 30 m (photo 104 to northeast, 105 to northwest)	 <p>Photo 104</p>  <p>Photo 105</p>
133	438772	6363461	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vellereophyton dealbatum</i>	95 %				Bare area up to 250 m x 30 m	Area has been furrowed but does not appear to have been seeded
41	438768	6363636	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	80 %					

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
134	438771	6363593	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	80 %					

Walk Through Transect: T-06

Date: 11/12/2018

Recorder: KK

North star picket easting: WP042 439290

South star picket easting: WP057 439293

North star picket northing: 6363413

South star picket northing: 6362664

North star picket photo: 5



South star picket photo: 7



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
845	439287	6363411	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i>	99 %				Bare area up to 100 m x 30 m	Very poor native species recruitment in restoration lines near star picket
846	439277	6363384	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i>	99 %				Sparse area up to 30 m x 30 m	
847	439286	6363354	<i>Citrullus amarus</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i>	74 %					Restoration dominated by <i>Viminaria juncea</i>
848	439286	6363302	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				Bare area up to 250 m x 100 m	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
849	439287	6363256	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				Bare area up to 250 m x 100 m (photo 6 to south)	
850	439284	6363204	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %				Bare area up to 250 m x 100 m	
851	439286	6363201	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	95 %					Southern extent of bare area
852	439287	6363154	<i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i> , <i>Vulpia muralis/myuros</i>	85 %					
853	439285	6363106	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Lotus subbiflorus</i>	85 %					
854	439286	6363056	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Lotus subbiflorus</i>	85 %					

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
855	439284	6363002	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i>	85 %					Edge of restoration area and remnant vegetation area
856	439286	6362959	<i>Avena barbata</i> , <i>Bromus diandrus</i> , <i>Ehrharta calycina</i> , <i>Vulpia muralis/myuros</i>	30 %					Within remnant vegetation area. Evidence of historic logging
857	439282	6362907	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	30 %					Within remnant vegetation area. Evidence of historic logging
858	439288	6362860	<i>Avena barbata</i> , <i>Hypochaeris glabra</i>	85 %					Within remnant vegetation area. Some areas lacking understorey
859	439285	6362807	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Vulpia muralis/myuros</i>	95 %					Within remnant vegetation area. Some areas lacking understorey
860	439286	6362755	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	97 %					Within remnant vegetation area. Some areas lacking understorey
861	439287	6362730	<i>Avena barbata</i> , <i>Ehrharta calycina</i>	50 %					Within remnant vegetation area. Granitic outcropping

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
862	439285	6362707	<i>Avena barbata</i> , <i>Briza maxima</i> , <i>Ehrharta calycina</i> , <i>Vulpia muralis/myuros</i>	20 %				Within remnant vegetation area. Granitic outcropping	



Walk Through Transect: T-07

Date: 11/12/2018

Recorder: MS

North star picket easting: WP049 439886

South star picket easting: WP056 439887

North star picket northing: 6363250

South star picket northing: 6362682



North star picket photo: 110



South star picket photo: 107



Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
56	439887	6362682	<i>Hypochaeris glabra</i> , <i>Ptilotus polystachyus</i> , <i>Vulpia muralis/myuros</i>	55 %					
135	439887	6362728	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Vulpia muralis/myuros</i>	85 %					
136	439888	6362740						2 x <i>Eucalyptus wandoo</i> seedlings; not listed on the seed mix for this seed mix zone	
137	439886	6362777	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vulpia muralis/myuros</i>	97 %				Recruitment of native species poor compared to restoration lines to south	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
138	439889	6362826	<i>Hypochaeris glabra</i> , <i>Pentameris airoides</i> , <i>Sonchus oleraceus</i>	90 %				<p>Bare area up to 150 m x 85 m (photo 108 to east, 109 to west)</p>  <p>Photo 108</p>  <p>Photo 109</p>	
139	439885	6362876	<i>Hypochaeris glabra</i> , <i>Pentameris airoides</i> , <i>Sonchus oleraceus</i>	85 %				<p>Bare area up to 150 m x 85 m</p> <p>Very sparse recruitment of native species</p>	
140	439891	6362928	<i>Hypochaeris glabra</i> , <i>Pentameris airoides</i> , <i>Sonchus oleraceus</i>	87 %				<p>Bare area up to 10 m x 10 m</p> <p>Very sparse recruitment of native species</p>	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
141	439885	6362976	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Vellereophyton dealbatum</i>	97 %					Very sparse recruitment of native species
142	439887	6363025	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i>	97 %					Recruitment of native species increased compared to restoration lines to south
143	439885	6363075	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i> , <i>Raphanus raphanistrum</i>	95 %					
144	439885	6363124	<i>Citrullus amarus</i> , <i>Hypochaeris glabra</i> , <i>Raphanus raphanistrum</i>	80 %					
145	439886	6363175	<i>Hypochaeris glabra</i> , <i>Orobancha minor</i> , <i>Sonchus oleraceus</i>	80 %					
146	439884	6363224	<i>Hypochaeris glabra</i> , <i>Sonchus oleraceus</i>	70 %					
49	439886	6363250	<i>Hypochaeris glabra</i> , <i>Lotus subbiflorus</i>	85 %					

Walk Through Transect: T-08

Date: 11/12/2018

Recorder: KK

North star picket easting: WP050 440355

South star picket easting: WP055 440356

North star picket northing: 6363547

South star picket northing: 6362685

North star picket photo: 8



South star picket photo: 10




Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
862	440356	6363512	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Raphanus raphanistrum</i>	85 %					
863	440357	6363460	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Raphanus raphanistrum</i>	85 %					
864	440355	6363409	<i>Avena barbata</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i>	98 %				25 m x 25 m pile of rocks, logs and wood	

Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
865	440357	6363363	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Rumex acetosella</i>	95 %				Area of sparse recruitment of native species approximately 200 m to west	
866	440354	6363310	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Rumex acetosella</i>	95 %					
867	440357	6363262	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Rumex acetosella</i>	90 %				Native species recruitment more even compared to previous points to north	
868	440355	6363208	<i>Arctotheca calendula</i> , <i>Raphanus raphanistrum</i> , <i>Solanum nigrum</i> , <i>Vulpia muralis/myuros</i>	97 %				Pile of rocks, logs and wood on lateritic outcropping	
869	440352	6363161	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lythrum hyssopifolia</i> , <i>Vulpia muralis/myuros</i>	95 %				Sparse area up to 30 m x 10 m	
870	440356	6363112	<i>Arctotheca calendula</i> , <i>Erodium botrys</i> , <i>Hypochaeris glabra</i> , <i>Raphanus raphanistrum</i>	95 %					
874	440355	6362911	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Trifolium arvense</i> var. <i>arvense</i>	95 %				Sparse area up to 50 m x 10 m	


Waypoint	Easting	Northing	Weeds		Erosion (m)			Bare Areas	Comments
			Dominant Taxa	Count / Cover	Length	Width	Depth		
875	440355	6362864	<i>Arctotheca calendula</i> , <i>Hypochaeris glabra</i> , <i>Lolium rigidum</i> , <i>Trifolium arvense</i> var. <i>arvense</i>	98 %				Sparse area up to 30 m x 8 m	
876	440355	6362815	<i>Avena barbata</i> , <i>Ehrharta calycina</i> , <i>Vulpia muralis/myuros</i>	97 %					
877	440356	6362764	<i>Arctotheca calendula</i> , <i>Lolium rigidum</i> , <i>Hypochaeris glabra</i>	92 %					
878	440352	6362714	<i>Arctotheca calendula</i> , <i>Lolium rigidum</i> , <i>Hypochaeris glabra</i> , <i>Orobancha minor</i>	88 %					



## Appendix W: General Site Assessment Results


Note: All GPS locations are in GDA94, Zone 50


Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
10/12/2018	3	436802	6363518				Y	Bare area; appears to have not been seeded. Quite lateritic (photo 12)   Photo 12
10/12/2018	4	436084	6363536				Y	Top one to three restoration lines demonstrating poor native species recruitment. Extends from this waypoint to WP005
10/12/2018	5	436390	6363329				Y	Top one to three restoration lines demonstrating poor native species recruitment. Extends from WP005 to this waypoint
10/12/2018	7	436683	6363468				Y	Bare area; appears to have not been seeded. Quite lateritic




Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
10/12/2018	8	436768	6363471				Y	Photo 17 to east-southeast showing slope on other side of hill with poor native species recruitment   <p style="text-align: center;">Photo 17</p>
10/12/2018	11	437698	6363706				Y	Large bare area starting at WP111 to WP114. All restoration lines demonstrating poor native species recruitment. Very lateritic with outcropping


Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
10/12/2018	12	437734	6363707				Y	<p>Large bare area starting at WP111 to WP114. All restoration lines demonstrating poor native species recruitment. Very lateritic with outcropping (photo 22 to northeast, 23 to southeast, 24 to southwest)</p> <div style="text-align: center;">  <p>Photo 22</p>  <p>Photo 23</p> </div>



Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
								 <p style="text-align: center;">Photo 24</p>
10/12/2018	13	437692	6363505				Y	Large bare area starting at WP111 to WP114. All restoration lines demonstrating poor native species recruitment. Very lateritic with outcropping
10/12/2018	14	437955	6363709				Y	Large bare area starting at WP111 to WP114. All restoration lines demonstrating poor native species recruitment. Very lateritic with outcropping

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
10/12/2018	19	438047	6363050					25 x * <i>Gomphocarpus fruticosus</i> . Mostly growing along drainage embankment (photo 33) 
10/12/2018	21	438270	6363259	115	0.2	0.1		Two rills converging and running downslope to drainage embankment
10/12/2018	22	438381	6363215	40	0.4	0.2		One large rill running from drainage embankment to track
10/12/2018	28	437068	6363104					Recently seeded with native species including <i>Gastrolobium calycinum</i> . Extends from this waypoint to WP031. GIS boundary for this <i>Gastrolobium</i> thicket is incorrect?
10/12/2018	31	437084	6363404					Recently seeded with native species including <i>Gastrolobium calycinum</i> . Extends from WP028 to this waypoint. GIS boundary for this <i>Gastrolobium</i> thicket is incorrect?
10/12/2018	32	437054	6363482	250	4	0.7		Gully extending to remnant vegetation area along natural drainage


Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
	33	437070	6363511					contour to WP033 and then as a rill further uphill to track (photo 51 to east-southeast)   Photo 51



Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
10/12/2018	36	435986	6362650					<p>LG-S,SP to west with native species plant establishment progressing okay, while SG-S,SP to east is very poor (photo 52 to northwest and 53 to northeast)</p> <div> </div> <p style="text-align: center;">Photo 52</p> <div> </div> <p style="text-align: center;">Photo 53</p>
10/12/2018	43	439454	6363271	330	0.4	0.6		Gully parallel to track extending from WP046 to WP044 where it fans out as outwash (photo 63 from WP043)
	44	439454	6363294					


Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
	46	439444	6362961					 <p>Photo 63</p>



Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
11/12/2018	51	440610	6363324				Y	<p>Poor restoration. Very lateritic with outcropping (photo 72 to north and 73 to south-southwest)</p>  <p>Photo 72</p>  <p>Photo 73</p>
11/12/2018	52	440715	6362678	300	0.5	0.3		Gully and rills on edge of fence line and track. Transitions to narrow rills






Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
	53	440419	6362676					closer to hill crest. Extends from WP052 to WP053 (photo 78 from 30 m east of WP053)   Photo 78
11/12/2018	59	439129	6363088	10	0.3	0.4		Gully running parallel to track



Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
11/12/2018	61	438757	6362837				Y	Wide bare area extending approximately 500 m x 20 m (photo 80 to south, 81 to north)
								 <p>Photo 80</p>  <p>Photo 81</p>
11/12/2018	63	438749	6362666	120	0.4	0.1		Rill extending parallel to track from WP063 to WP064 down hill
	64	438629	6362661					
11/12/2018	68	435996	6362848					2 x * <i>Gomphocarpus fruticosus</i>

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
11/12/2018	402	436039	6363120					Rainbow bee-eater ( <i>Merops ornatus</i> ) hollow/burrow on edge of track. Bird was observed flying in and out of burrow (photo 15)   Photo 15
11/12/2018	403	436359	6362901					Rainbow bee-eater ( <i>Merops ornatus</i> ) hollow/burrow. Bird was observed flying in and out of burrow
11/12/2018	404	436144	6363058					Rainbow bee-eater ( <i>Merops ornatus</i> ) hollow/burrow. Bird was observed flying in and out of burrow
11/12/2018	405	436018	6363158					Rainbow bee-eater ( <i>Merops ornatus</i> ) hollow/burrow. Bird was observed flying in and out of burrow

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
12/12/2018	310	439447	6363301				Y	Area does not appear to have been seeded (photo 141)   Photo 141
13/12/2018		440589	6363201					Strip of restoration where weed control has removed winter grasses. Summer weed <i>Dysphania pumilio</i> present. Small number of native species present in furrows (photo 26 to southwest)   Photo 26

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
13/12/2018	6	440073	6363085				Y	<p>No establishment of native seed species. Furrows present but not seeded? (Photo 82)</p>  <p>Photo 82</p>
13/12/2018	11	440347	6363344				Y	<p>Lower point in polygon with very poor native species establishment. Quite a large area that extends west of waypoint. High cover of *<i>Hypochaeris glabra</i> (photo 87)</p>  <p>Photo 87</p>

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
14/12/2018	12	439930	6362826				Y	Bare area approximately 100 m x 100 m in middle of LG-S,SP polygon. Furrows present but no native species seedlings (photo 88 to west) <div style="text-align: center;">  <p>Photo 88</p> </div>

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
14/12/2018	61	440098	6362911	130	1.3	0.7		<p>Gully extending through restoration area near track (photo 89). Becomes narrower at middle to only 0.4 m wide but 0.6 m deep (photo 90). Transitions to a rill 0.3 m wide and 0.2 m deep at end</p>  <p>Photo 89</p>  <p>Photo 90</p>
14/12/2018	13	440683	6363299				Y	Eastern boundary of bare area. Furrows present but no native species seedlings
14/12/2018	15	440302	6362806				Y	Furrows present but no native species seedlings. Very rocky

Date	Waypoint	Easting	Northing	Erosion (m)			Bare area?	Comments
				Length	Width	Depth		
14/12/2018	16	440340	6362813				Y	Furrows present but no native species seedlings. Very rocky with lateritic outcropping



**Appendix 4.**

**Hotham Farm Restoration Programme Analogue Plot Monitoring 2019, Woodman Consulting, June 2020**

NBG Department:	Document Title:	Provided to:	Page Number
Sustainability and External Relations	EPBC 2012/6370 Annual Compliance Report June 2020	Department of Department of Agriculture, Water and the Environment	17

# Hotham Farm Restoration Programme

## Analogue Plot Monitoring 2019

NEWMONT GOLDCORP BODDINGTON PTY LTD

JUNE 2020



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**Hotham Farm Restoration Programme – Analogue Plot Monitoring 2019**

Prepared for: Newmont Goldcorp Boddington Pty Ltd  
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**DEFINITIONS**

Term	Definition
BC Act	<i>Biodiversity Conservation Act 2016</i>
BC Regs	<i>Biodiversity Conservation Regulations 2018</i>
BGM	Newmont Goldcorp Boddington mine
BoM	Bureau of Meteorology
CaCl <sub>2</sub>	Calcium chloride
cm	Centimetre
cm <sup>2</sup>	Centimetres squared
DBCA	Department of Biodiversity, Conservation and Attractions
dS	Decisiemens
DTPA	Diethylenetriaminepentaacetic acid
E	East
EC	Electrical conductivity
e.g.	For example
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPBC approval	<i>Environment Protection and Biodiversity Conservation Act 1999</i> approval
etc.	Et cetera
Exc.	Exchangeable
g	Gram
GA	Greening Australia Ltd
GDA	Geocentric Datum of Australia
GPS	Global Positioning System
ha	Hectare
H <sub>2</sub> O	Water
i.e.	That is
KCl	Potassium chloride
kg	Kilogram
km	Kilometre
LMU	Land Management Unit (as per GA 2017 and GA 2018, used to define vegetation in paddock restoration areas at the Project Area)
Ltd	Limited
m	Metre
meq	Milliequivalents
mg	Milligram
mm	Millimetre
Mattiske	Mattiske Consulting Pty Ltd
MS	Ministerial Statement
N	North
NGB	Newmont Goldcorp Boddington Pty Ltd
Pty	Proprietary
S	South
SERA	Society for Ecological Restoration Australasia
VU	Vegetation Unit (as per Mattiske 2013, used to define vegetation in baseline analogue plots and remnant vegetation areas at the Project Area)
W	West
WA Herbarium	Western Australian Herbarium
Woodman Environmental	Woodman Environmental Consulting Pty Ltd
*	Denotes an introduced taxon
~	Approximately
>	Greater than
<	Less than



Term	Definition
≥	Greater than or equal to
%	Percent
°C	Degrees Celsius





## EXECUTIVE SUMMARY

Newmont Goldcorp Boddington Pty Ltd (NGB) operates the Newmont Goldcorp Boddington mine (BGM), located approximately 14 kilometres (km) west of the township of Boddington in the eastern extent of the Swan Region of Western Australia. Expansion of the BGM pit areas was approved in 2014, with environmental conditions presented in Ministerial Statement Number (MS) 971 and *Environment Protection and Biodiversity Conservation Act 1999* approval (EPBC approval) 2012/6370. MS 971 identifies the requirement for NGB to offset the significant residual impact to 1,755 hectares (ha) of native vegetation that includes black-cockatoo foraging and breeding habitat; fragmentation of Woylie and Chuditch habitat; and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission. EPBC approval 2012/6370 describes the requirement to offset the above impact through the acquisition of 470 ha of land and establishment of rehabilitation in a similar condition to the habitat cleared.

NGB contracted Greening Australia Ltd (GA) to undertake restoration activities at the offset area, Hotham Farm ('the Project Area') (Figure 1), over a three-year period ending in 2018. Woodman Environmental Consulting Pty Ltd (Woodman Environmental) were commissioned by NGB to prepare objectives for the restoration project, a set of completion criteria, and to implement a monitoring programme for the restoration at the Project Area. Establishment of the Completion Criteria Monitoring Programme in the restoration area was conducted in 2018, forming part of the baseline restoration monitoring (Year 0). In 2019, Woodman Environmental were commissioned by NGB to complete implementation of the Completion Criteria Monitoring Programme via establishment and monitoring of analogue vegetation plots in order to provide baseline information for reference sites.

A total of 13 vegetation and flora monitoring plots (analogue plots) were established in A, L, M, PS, S/SP vegetation units (VUs, as per Mattiske 2013) in State Forest and Private Property adjacent to the Project Area in 2019. The data collected from the analogue plots were used to present information on analogue environments for each VU with regard to perennial plant density, plant foliage cover, native and introduced species richness, tree density, tree foliage cover, leaf litter cover, soil penetrance and soil chemistry.

A total of 211 vascular flora taxa from 48 families were recorded within analogue vegetation monitoring plots in 2019, including 195 native taxa and one declared pest (*Gomphocarpus fruticosus*).

The following general trends in relation to vegetation and native flora taxa were observed:

- The A VU had the lowest average native species richness (23 taxa per plot) but the highest average native foliage cover (79 %);
- The L VU had the highest average perennial plant density (143 plants/m<sup>2</sup>) and native species richness (57 taxa per plot) but low average native foliage cover (56 %);
- Tree density was highest in the S/SP VU (3492 trees/ha); and
- The M and PS VUs had average vegetation values and fell in between the other VUs for most vegetation parameters.

The following general trends in relation to introduced flora taxa were observed:

- The M VU had the highest average weed live foliage cover (2.7 %), as well as the greatest average introduced species richness (3.7 introduced taxa per plot);
- The PS VU had low average weed live foliage cover (0.2 %) and introduced species richness (1.7 introduced taxa per plot);
- The S/SP VU had very low average weed live foliage cover (0.03 %) but high average introduced species richness (3.0 introduced taxa per plot);
- No introduced taxa were recorded within the A VU; and
- No introduced taxa were recorded within the L VU quadrats, but an average of 2.3 introduced taxa were recorded per plot, indicating that the live weed foliage cover in L VU plots was minimal.

The following general trends in relation to leaf litter were observed:

- The A VU had the lowest average leaf litter cover (4.8 %);
- The PS VU had the highest average leaf litter cover (96.2 %); and
- The L, M and S/SP VUs had similar average leaf litter cover values, ranging from 71.2 % (L VU) to 89.0 % (S/SP VU).

The following general trends in relation to soil penetrance were observed:

- The M VU had the highest average soil penetrance (19.2 kg/cm<sup>2</sup>), reflecting the hard clayey soil of this VU;
- The PS VU had the lowest average soil penetrance (2.5 kg/cm<sup>2</sup>), reflecting the soft sandy soil of this VU; and
- The A, L and S/SP VUs had average soil penetrance values that fell in between those of the M and PS VUs, ranging from 5.3 kg/cm<sup>2</sup> (A VU) to 15.1 kg/cm<sup>2</sup> (S/SP VU).

Data on soil chemistry was collected but has not been analysed for trends at this time.

The plant taxa lists developed from the analogue plot monitoring were used to prepare a seed list of local Jarrah forest species recommended for use for additional seeding or infill planting in the paddock restoration area land management units (LMUs). In addition, a list of taxa recommended for removal from the paddock restoration area has also been presented.

Monitoring of analogue vegetation and flora monitoring plots will provide a reference to assess progression of the Project Area restoration towards that of reference areas in line with the Offset Programme Objectives and Completion Criteria. Comparisons between the Project Area paddock restoration and remnant vegetation areas with analogue sites will be conducted following the next monitoring event and as per the timing required by the Offset Programme Completion Criteria.

## 1. INTRODUCTION

### 1.1 Overview

Newmont Goldcorp Boddington Pty Ltd (NGB) (formerly Newmont Boddington Gold Pty Ltd, NBG) operates the Newmont Goldcorp Boddington mine (BGM), located approximately 14 kilometres (km) west of the township of Boddington in the eastern extent of the Swan Region of Western Australia. Expansion of the BGM pit areas was approved in 2014, with environmental conditions presented in Ministerial Statement (MS) Number 971 and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval (EPBC approval) 2012/6370. Conditions 9.1 to 9.12 of MS 971 identify the requirement for NGB to offset the significant residual impact to 1,755 hectares (ha) of native vegetation that includes black-cockatoo foraging and breeding habitat; fragmentation of Woylie and Chuditch habitat; and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission. Condition 14 of EPBC approval 2012/6370 describes the requirement to offset the above impact through the acquisition of 470 ha of land and establishment of rehabilitation in a similar condition to the habitat cleared.



NGB contracted Greening Australia Ltd (GA) to undertake restoration activities at the offset area, Hotham Farm ('the Project Area') (Figure 1), over a three-year period ending in 2018. This contract was extended for a further 12 months from April 2019 to April 2020. Woodman Environmental Consulting Pty Ltd (Woodman Environmental) were commissioned by NGB to prepare a set of objectives and completion criteria for the restoration project (Woodman Environmental 2018). Woodman Environmental were also commissioned to design and implement a monitoring programme for the restoration at the Project Area as per the completion criteria. This comprised establishment and monitoring of 30 flora and vegetation monitoring plots within the paddock restoration area and 16 plots within the remnant vegetation areas at the Project Area, at which leaf litter cover data, soil data and soil samples were also collected (Woodman Environmental 2019). In 2019, Woodman Environmental were commissioned to complete the implementation of the monitoring programme by way of establishment and monitoring of analogue flora and vegetation plots within State Forest and Private Property adjacent to the Project Area ('the Project'). The vegetation, leaf litter, and soil information collected from the analogue plots will be used to guide the ongoing direction of the restoration programme and inform NGB and stakeholders of the progress of the restoration towards meeting the agreed objectives.

### 1.2 Project Aims

The aim of the Project was to establish and complete the first assessment of analogue flora and vegetation monitoring plots within remnant vegetation in State Forest and Private Property adjacent to the Project Area, including collection of leaf litter cover, soil penetrance data and soil samples for soil chemistry analysis.

This report presents the outcomes of the flora, vegetation, leaf litter and soil monitoring undertaken at analogue monitoring plots in 2019.



<b>Location of the Project Area</b>	Author: Marlee Starcevich	
	WEC Ref: Newmont19-42-01	
 <small>This map should only be used in conjunction with WEC report Newmont19-42-01.</small>	Filename: Newmont19-42-01-f01.mxd	<b>Figure</b>  <b>1</b>
	Scale: 1:30,000 (A4)	
	Projection: GDA 1994 MGA Zone 50	
	Revision: 0 - 15 June 2020	

## 2. OFFSET BACKGROUND

### 2.1 Offset Overview

NGB received approval for the Life of Mine Extension Project in June 2014 under Commonwealth EPBC approval 2012/6370 and Western Australian *Environmental Protection Act 1986* MS 971. Conditions of these approvals related to the clearing of land associated with Waste Rock Dump expansions and construction of a second Residue Disposal Area at BGM. Conditions 9.1 to 9.12 of MS 971 identify the requirement for NGB to offset the significant residual impact to 1,755 ha of native vegetation that includes *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo) and *Calyptorhynchus banksii naso* (Forest Red-tailed Black-Cockatoo) foraging and breeding habitat, and *Calyptorhynchus baudinii* (Baudin's Black-Cockatoo) foraging habitat; fragmentation of *Bettongia penicillata ogilbyi* (Woylie) and *Dasyurus geoffroii* (Chuditch) habitat; and loss of 618 ha of forest with conservation values currently vested in the Conservation Commission.

Condition 14 sections b through e of the EPBC Act approval 2012/6370 describe the requirement to offset the above impacts through acquisition of 470 ha of land and rehabilitation to a condition similar to the cleared habitats as described in a Land Offset Plan, including: placing the land under a conservation covenant; ensuring the land parcels are a minimum of 90 ha in size and are situated within 50 km of the project site (the BGM); and that there are detailed funding arrangements and a schedule for rehabilitation activities. Meeting the requirements of MS 971 will ensure compliance with the requirements of 2012/6370.

A portion of Hotham Farm, located in the Shire of Boddington, approximately 15 km south-west of Boddington and 110 km south-east of Perth, Western Australia (Figure 1), was chosen as a suitable offset location to satisfy the requirements of MS 971. The Project Area encompasses approximately 470 ha, composed of 170 ha of remnant vegetation and 300 ha of grazing and cropping land. The Project Area is bounded on three sides by Jarrah/Marri forest on Crown Land (State Forest) and Private Property. The western and southern boundaries abut Dwellingup State Forest, more than half of the northern border bounds private forest, and the remaining boundary area borders cleared agricultural land and provides site access from the north-east off Pinjarra-Williams Road.

The Offset Strategy requires that a Land Offset Plan be prepared to direct the management of all aspects of agreed offsets for the BGM Mine Expansion including the restoration and management of the Project Area ('the Programme'). The Programme comprises the restoration and management of approximately 300 ha of cleared pastoral land and to improve the ecological condition of 170 ha of remnant vegetation. Sitting within the broader restoration Programme is an initial three-year stage that involves capturing baseline data, planning restoration actions and implementing direct seeding, habitat management, infill planting and other contingency measures. This initial phase, while not having any fauna specific objectives, sets the scene for the broader Programme by seeking to establish vegetation types that will, over time, form the basis for target fauna habitats and will create a foundation for NGB to manage over the long term to ensure Programme objectives are met. Overall, the primary objectives of the Programme, as defined in MS 971 and the Land Offset Plan, are to:

- Provide a foraging resource for black-cockatoos within 10 years of restoration;
- Provide this resource within a short distance of established Jarrah/Marri Forest (i.e. black-cockatoo breeding habitat) and permanent water resources; and
- Provide foraging and refuge habitat and linkage for mammal species such as the Woylie and Brush-tailed Phascogale (*Phascogale tapoatafa*) (NGB 2013).

### 2.1.1 Offset Programme Objectives

In 2018, Woodman Environmental developed a comprehensive list of programme objectives for the Programme (Woodman Environmental 2018). These objectives were formed by the consolidation of the primary objectives as defined in MS 971; inherent objectives required in order for the primary objectives to be met in the long term; aspirational objectives that NGB wished to pursue in order to ensure the long term ecological and conservation values of the Project Area; and the principles of ecological restoration within the National Standards for the Practice of Ecological Restoration in Australia (prepared by the Society for Ecological Restoration Australasia [SERA], 2017).

These final, consolidated objectives are that the Programme:

- fulfils designated land uses including conservation and protection of water quality;
- can be achieved using industry current leading practice;
- returns vegetation groups appropriate to the land capabilities that are self-sustaining in the long term, resilient to natural disturbance events and are broadly representative of reference sites such that the following attributes are achieved:
  - all adjacent threats to the site are being managed or mitigated to an intermediate extent;
  - the substrate of the site is maintaining conditions suitable for ongoing growth and recruitment of characteristic biota;
  - the site supports a substantial diversity of characteristic biota (e.g. ~ 60 % of reference) representing a wide diversity of species groups with no inhibition to ongoing development of biodiversity on the site by undesirable species;
  - all strata are present and spatial patterning is evident with substantial trophic complexity developing, relative to the reference ecosystem;
  - substantial evidence exists of key functions and processes commencing including reproduction, dispersal and recruitment of desirable species; and
  - high level of connectivity with other natural areas has been established, observing control of pest species and undesirable disturbances;
- provides habitat for native fauna species with particular focus on:
  - provision of a foraging resource for black-cockatoos within 10 years of restoration;
  - provision of this resource within a short distance of established Jarrah/Marri Forest (i.e. black-cockatoo breeding and foraging habitat) and permanent water resources; and
  - provision of foraging and refuge habitat and linkage for mammal species such as the Woylie, Chuditch and Brush-tailed Phascogale;

- is based on the findings of relevant research into the establishment of biodiversity, ecosystem function, and sustainability;
- is aligned with NGB's whole-of-lease management approach including initiatives such as support for regional feral animal control, *Phytophthora cinnamomi* dieback management, flora studies and other offset activities;
- takes into account the views of regulatory authorities, neighbours and all other relevant stakeholders;
- results in no unacceptable off-site impacts; and
- results in management requirements (e.g. maintenance of access tracks, fire control) that are not greater than those of surrounding areas of State Forest, or where extra management actions may be required a mechanism has been put in place for addressing these.

### 2.1.2 Completion Criteria and SERA Assessment System

Woodman Environmental developed a set of completion criteria to guide the ongoing direction of the Programme and to demonstrate when objectives have been achieved. In addition, NGB chose to adopt the SERA Ecosystem Recovery Assessment System to inform and direct measurement of restoration progress and success. The Programme Completion Criteria and Metrics to Support the SERA Assessment System are presented in Woodman Environmental (2018; 2019).

### 3. COMPLETION CRITERIA MONITORING BACKGROUND

The Completion Criteria Monitoring conducted at the Project Area in 2018 marked the first year (Year 0) of restoration monitoring. A total of 30 vegetation and flora monitoring plots were established in the paddock restoration area and 16 in the remnant vegetation areas at the Project Area, at which soil penetrance measurements and samples for soil chemistry analysis were also taken. Additional monitoring as part of the Programme included:

- Establishment and assessment of nursery rows at 13 nursery rows transects in the paddock restoration area, containing species identified by GA as recalcitrant or potentially recalcitrant;
- Photo monitoring at 13 permanent photo points (10 of which were previously established by GA and three established by Woodman Environmental in 2018 in *Gastrolobium* thicket areas in the paddock restoration area);
- Monitoring of eight North to South walk-through transects through the paddock restoration area and remnant vegetation areas to identify additional native and introduced taxa not recorded in vegetation plots, introduced species infestations, areas of poor vegetation health, bare areas, damage from feral animals or pests, erosion, and damage to fences; and
- Recording of general site conditions and issues during traverses around the Project Area in vehicle and on foot (Woodman Environmental 2019).

Overall, the 2018 Completion Criteria Monitoring determined that the restoration within the paddock restoration areas was developing, although there were some concerns over the choice of some taxa seeded within the restoration and along the nursery rows, as well as identifying possible contamination of the seed mix with taxa incorrectly identified during seed collection. Comparisons between the remnant vegetation area VUs and the paddock restoration area land management units (LMUs) highlighted a low number of taxa in common as well as some disparity between vegetation parameters including plant density and species richness, although this was noted to likely be influenced by the young restoration age. The paddock restoration area was also incomplete with large areas missed from restoration works and some areas of poor performance requiring attention. The restoration in areas of lateritic outcropping typically performed poorly or were not seeded at all and required management action to ensure that restoration objectives are achieved. Similarly, some blocks of remnant vegetation that were in poor condition required remediation actions. Introduced species cover was consistently high within the paddock restoration area, the Declared Pest *Gomphocarpus fruticosus* was recorded within the paddock restoration area, and kangaroos were observed within the Project Area, all of which required attention in order to minimise threats to the development of the paddock restoration and remnant vegetation areas (Woodman Environmental 2019).

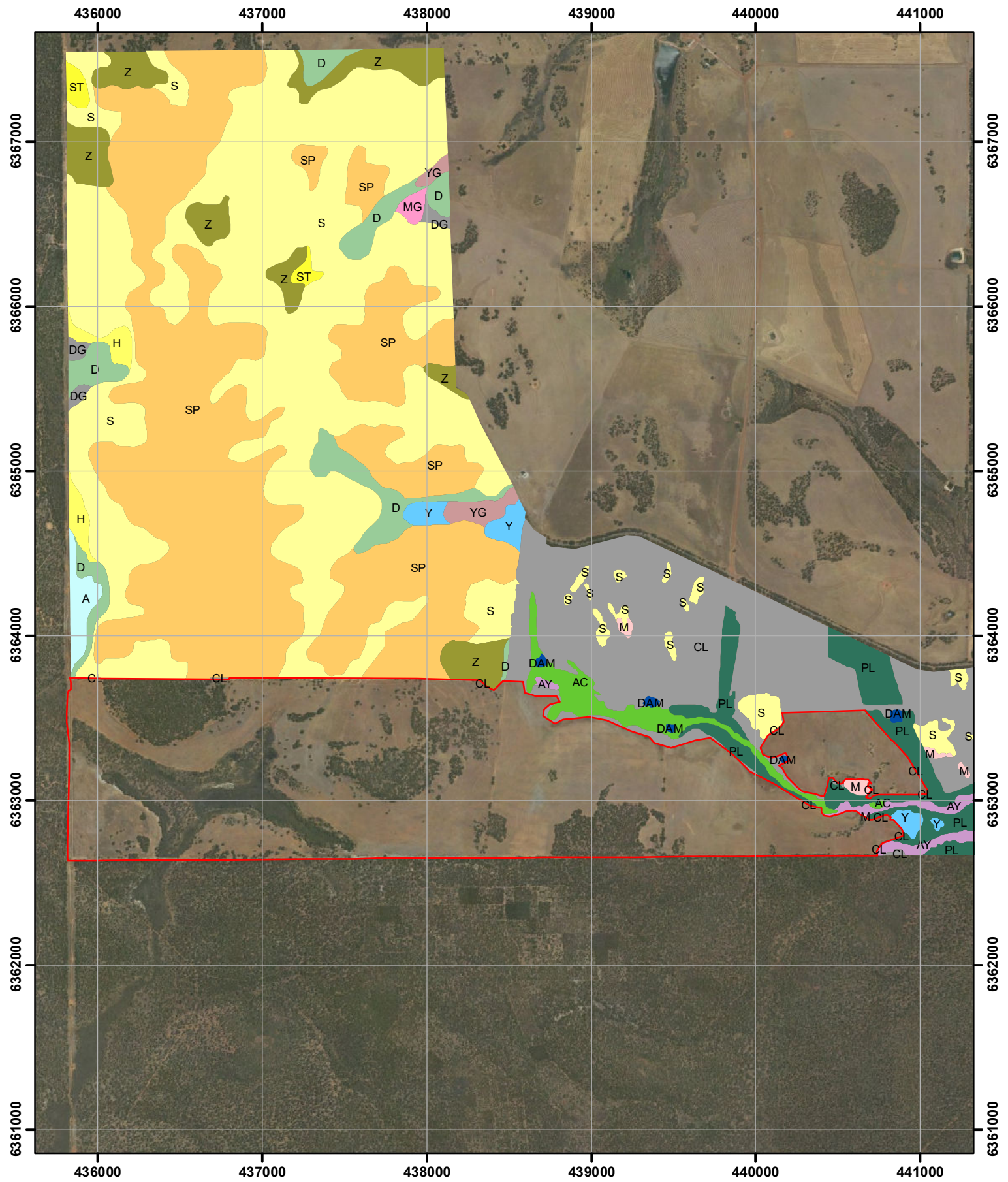




#### 4. VEGETATION BACKGROUND

Vegetation mapping undertaken by Mattiske (2013) defined the vegetation of remnant vegetation within the Project Area as well as intact vegetation abutting the northern edge of the Project Area into vegetation units (VUs) (Figure 2). VUs were distinguished by soil characteristics, topographic position and plant species composition (Mattiske 2013). Of these, six VUs were identified as of interest to the Programme in terms of representing reference ecosystems and against which the restoration of the paddock restoration area and associated progress monitoring will be based and assessed. These are defined in Table 1.

**Table 1: Vegetation Units and Soil Types of Remnant Vegetation Relevant to the Programme (Mattiske 2013)**

VU	Topographic Position	Soil	Vegetation
A	Seasonally wet valley floors	Clay loams	Tall shrubland of <i>Melaleuca lateritia</i> , <i>Hakea varia</i> , <i>Melaleuca viminea</i> and <i>Melaleuca incana</i> subsp. <i>incana</i>
L	Lower slopes	Clay and clay loams	Open woodland of <i>Eucalyptus patens</i> with some <i>Eucalyptus wandoo</i> over <i>Xanthorrhoea preissii</i> , <i>Macrozamia riedlei</i> , <i>Trymalium ledifolium</i> , <i>Acacia saligna</i> and <i>Hakea prostrata</i>
M	Mid to upper slopes and ridges	Clay loams with some gravel	Open woodland of <i>Eucalyptus wandoo</i> over <i>Trymalium ledifolium</i> , <i>Macrozamia riedlei</i> and <i>Hakea lissocarpha</i>
PS	Slopes and ridges	Gravels and sandy gravels	Open forest of <i>Allocasuarina fraseriana</i> , <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Banksia grandis</i> over <i>Adenanthos barbiger</i> and <i>Leucopogon capitellatus</i>
S	Slopes and ridges	Sandy gravels	Open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> with admixtures of <i>Allocasuarina fraseriana</i> , <i>Banksia grandis</i> and <i>Persoonia longifolia</i> over <i>Acacia celastrifolia</i> , <i>Hovea chorizemifolia</i> , <i>Daviesia preissii</i> , <i>Leucopogon capitellatus</i> and <i>Styphelia tenuiflora</i>
SP	Slopes and ridges	Sandy gravels to gravel soils	Open forest of <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Allocasuarina fraseriana</i> with admixtures of <i>Banksia grandis</i> over <i>Lasiopetalum cardiophyllum</i> , <i>Acacia celastrifolia</i> , <i>Styphelia tenuiflora</i> , <i>Daviesia decurrens</i> and <i>Trymalium ledifolium</i>









<p><b>Vegetation Units Adjacent to the Project Area</b> (Mattiske 2013)</p>	<p>Author: Marlee Starcevich</p>		
	<p>WEC Ref: Newmont19-42-01</p>		
 <p><b>WOODMAN</b> ENVIRONMENTAL</p> <p>This map should only be used in conjunction with WEC report Newmont19-42-01.</p>	<p>Filename: Newmont19-42-01-f02-1.mxd</p>		<p><b>Figure</b>  <b>2.1</b></p>
	<p>Scale: 1:30,000 (A4)</p>		
	<p>Projection: GDA 1994 MGA Zone 50</p>		
	<p>Revision: 0 - 15 June 2020</p>		







## Legend

 Project Area Boundary

### Open Woodland

-  AY Open woodland of *Eucalyptus rudis* and *Eucalyptus wandoo* over *Acacia saligna*, *Hakea prostrata* and *Hypocalymma angustifolium* on clay-loams on valley floors
-  AC Open woodland of *Eucalyptus wandoo* and *Eucalyptus rudis* over *Juncus pallidus*, *Astartea scoparia*, *Taxandria linearifolia* and *Lepidosperma tetraquetrum* over herbs on clay loams in seasonally wet valley floors
-  M Open woodland of *Eucalyptus wandoo* over *Trymalium ledifolium*, *Macrozamia riedlei* and *Hakea lissocarpha* on clay loams with some gravel on mid to upper slopes and ridges
-  MG Open woodland of *Eucalyptus wandoo* over *Trymalium ledifolium*, *Macrozamia riedlei*, *Pericalymma ellipticum*, *Hypocalymma angustifolium*, *Grevillea bipinnatifida*, *Allocasuarina humilis* and *Hakea lissocarpha* on clay-loams over shallow granite on mid to upper slopes and ridges
-  Y Open woodland of *Eucalyptus wandoo* over *Gompholobium marginatum*, *Acacia nervosa*, *Babingtonia camphorosmae*, *Hypocalymma angustifolium*, *Macrozamia riedlei*, *Phyllanthus calycinus* and *Gastrolobium calycinum* on clay and clay-loam soils on lower slopes
-  YG Open woodland of *Eucalyptus wandoo* over *Gompholobium marginatum*, *Acacia nervosa*, *Babingtonia camphorosmae*, *Hypocalymma angustifolium*, *Macrozamia riedlei*, *Pericalymma ellipticum*, *Grevillea bipinnatifida*, *Allocasuarina humilis*, *Phyllanthus calycinus* and *Gastrolobium calycinum* on clay and clay-loam soils with localized outcropping on lower slopes



### Open Forest

-  D Open forest of *Corymbia calophylla* and *Eucalyptus marginata* over *Hakea lissocarpha*, *Macrozamia riedlei*, *Acacia alata*, *Babingtonia camphorosmae*, *Hypocalymma angustifolium* and *Phyllanthus calycinus* on clay-loams on lower slopes
-  DG Open forest of *Corymbia calophylla* and *Eucalyptus marginata* over *Hakea lissocarpha*, *Macrozamia riedlei*, *Pericalymma ellipticum*, *Grevillea bipinnatifida*, *Allocasuarina humilis*, *Acacia alata*, *Babingtonia camphorosmae*, *Hypocalymma angustifolium* and *Phyllanthus calycinus* on clay-loams on lower slopes with localized patches of outcropping
-  SP Open forest of *Eucalyptus marginata*, *Corymbia calophylla* and *Allocasuarina fraseriana* with admixtures of *Banksia grandis* over *Lasiopetalum cardiophyllum*, *Acacia celastrifolia*, *Styphelia tenuiflora*, *Daviesia decurrens* and *Trymalium ledifolium* on sandy-gravel to gravel soils on slopes and ridges
-  S Open forest of *Eucalyptus marginata* and *Corymbia calophylla* with admixtures of *Allocasuarina fraseriana*, *Banksia grandis* and *Persoonia longifolia* over *Acacia celastrifolia*, *Hovea chorizemifolia*, *Daviesia preissii*, *Leucopogon capitellatus* and *Styphelia tenuiflora* on sandy-gravels on slopes and ridges
-  ST Open forest of *Eucalyptus marginata* and *Corymbia calophylla* with admixtures of *Allocasuarina fraseriana*, *Persoonia longifolia* and *Banksia grandis* over *Stylidium dichotomum*, *Acacia urophylla*, *Acacia celastrifolia*, *Leucopogon verticillatus*, *Clematis pubescens* and *Leucopogon capitellatus* on sandy-loam gravel soils on slopes and ridges
-  Z Open forest of *Eucalyptus marginata* and *Corymbia calophylla* over *Macrozamia riedlei*, *Xanthorrhoea preissii*, *Hakea lissocarpha* and *Phyllanthus calycinus* on sandy-loam to sandy-loam gravel soils on slopes




### Open Forest to Woodland



-  H Open forest to woodland of *Eucalyptus marginata* and *Corymbia calophylla* over *Petrophile striata*, *Daviesia decurrens*, *Daviesia longifolia* and *Daviesia rhombifolia* on sandy loam to sandy gravels on slopes and ridges

### Tall Shrubland

-  A Tall shrubland of *Melaleuca lateritia*, *Hakea varia*, *Melaleuca viminea* and *Melaleuca incana* subsp. *incana* on clay-loams in seasonally wet valley floors
-  A1 Mixed tall shrubland of *Melaleuca viminea*, *Melaleuca lateritia*, *Taxandria linearifolia*, *Astartea scoparia* over *Baumea juncea* and *Lepidosperma tetraquetrum* with occasional patches of *Banksia littoralis* and *Melaleuca raphiophylla* over low herbs on seasonally water-logged clays and clay loams on valley floors

### Other Areas

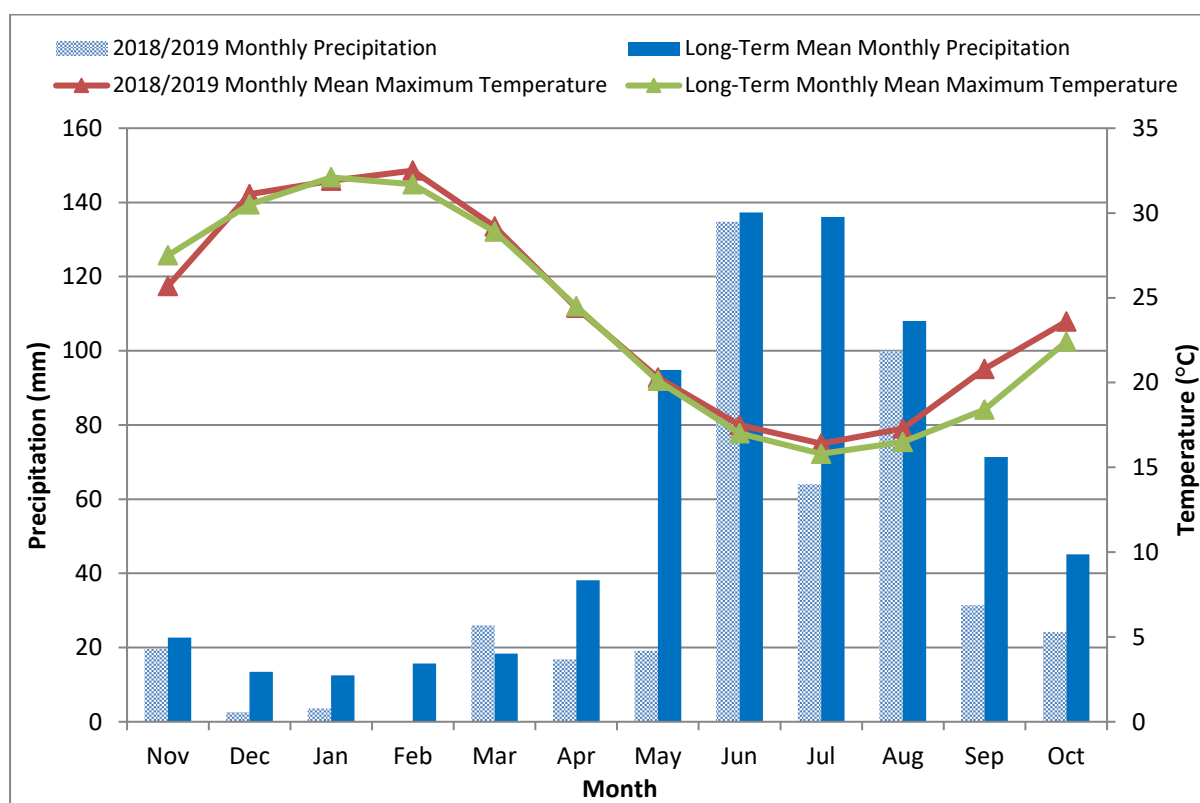
-  PL Plantation
-  CL Cleared or Disturbed
-  DAM Dam, open water

<b>Vegetation Units Adjacent to the Project Area (Mattiske 2013)</b>	Author: Marlee Starcevich	
	WEC Ref: Newmont19-42-01	
 <small>This map should only be used in conjunction with WEC report Newmont19-42-01.</small>	Filename: Newmont19-42-01-f02-2.mxd	<b>Figure 2.2</b>
	Scale: 1:30,000 (A4)	
	Projection: GDA 1994 MGA Zone 50	
	Revision: 0 - 15 June 2020	

## 5. CLIMATE

The Project Area is located in the Swan Region in the Southwest Province of Western Australia. The Swan Region is characterised by a dry Mediterranean climate with mild wet winters and hot dry summers. There are 5 to 6 dry months per year (where evaporation exceeds precipitation), with the region generally receiving between 600 to 1200 millimetres (mm) of precipitation annually (Beard 1990).

Figure 4 displays monthly precipitation totals and average maximum temperature for the 12 months preceding the analogue plot monitoring (November 2018 to October 2019), as well as long-term average monthly maximum temperature (1998 to 2019) and average monthly precipitation (1897 to 2019) recorded for Wandering (temperature) and Marradong (precipitation), the nearest meteorological stations to the Project Area with long-term data (BoM 2020).



**Figure 3: Average Daily Maximum Temperature and Total Precipitation for November 2018 to October 2019, and Long-term Monthly Mean Maximum Temperature and Precipitation for Wandering (Temperature) and Marradong (Precipitation) (BoM 2020)**

According to the long-term data, monthly maximum temperatures at Wandering peak in January and February (32.1 °C and 31.7 °C, respectively). Long-term mean monthly precipitation at Marradong peaks from late autumn to early spring (May to September), with the highest precipitation on average being received in June (137.3 mm). This period is considered to be the most relevant in terms of promoting plant growth in the Southwest region.

Precipitation received at Marradong from May to September 2019 was below the long-term mean (349.4 mm compared to the long-term mean of 547.6 mm). In fact, with the exception of March 2019, all months received less precipitation than the long-term mean monthly average. Average monthly maximum temperatures recorded for 2018/2019 were relatively consistent with the long-term monthly means, with the average temperature of May to September 2019 being only 0.9 °C above the long-term mean for this period.



## 6. METHODS

### 6.1 Personnel and Licensing

Table 6 lists the personnel involved in fieldwork and plant identifications for the Project. All personnel undertaking the field survey have prior experience in conducting rehabilitation monitoring and vegetation surveys in the Southwest. All plant material was collected under the relevant *Flora Taking (Biological Assessment) Licence* (under Regulation 62 of the *Biodiversity Conservation Regulations 2018* [BC Regs]) and *Authorisation to Take or Disturb Threatened Species* (pursuant to Section 40 of the *Biodiversity Conservation Act 2016* [BC Act]) as outlined in Table 6. Personnel involved in plant identifications have had extensive experience in plant identifications for flora of the Southwest.

**Table 2: Personnel and Licensing Information**

Personnel	Role	Licence / Authorisation Number
David Coultas	Plant identifications	-
Emalyn Loudon	Field survey (monitoring)	-
Greg Woodman	Field survey (reconnaissance)	FB62000053 (BC Regs Section 62) TFL 19-1819 (BC Act Section 40)
Kelli McCreery	Plant identifications	-
Leah Firth	Field survey (monitoring)	FB62000055 (BC Regs Section 62)
Marlee Starcevich	Project Manager; Field survey (reconnaissance and monitoring); Plant identifications	FB62000056 (BC Regs Section 62) TFL 26-1819 (BC Act Section 40)

### 6.2 Plant Collection and Identification

Specimens of any unknown or difficult to identify taxa were collected and pressed for later identification at the Western Australian Herbarium (WA Herbarium). External experts were consulted for any specimens considered to be difficult to identify or of taxonomic interest. Specimens that could not be confidently identified were submitted to the WA Herbarium identification service.

Taxon nomenclature follows *FloraBase* (WA Herbarium 1998-) with all names checked against the current Department of Biodiversity Conservation and Attractions (DBCA) *Max* database to ensure their validity. The conservation status of each taxon was checked against *FloraBase*, which provides the most up-to-date information regarding the conservation status of flora taxa in Western Australia.

Specimens of interest, including significant flora taxa, range extensions of taxa and potential new taxa, will be sent to the WA Herbarium for consideration for vouchering as soon as practicable. This process is done via donation and the WA Herbarium may not voucher all specimens in accordance with its own requirements. Specimen vouchering will be supported by completed Threatened and Priority Flora Report Forms submitted to DBCA (Species and Communities Branch) in the case of listed significant flora (i.e. Threatened and Priority flora taxa).

## 6.3 Monitoring Methods

Field work for analogue plot monitoring at the Project Area was undertaken over the following periods:

- 5<sup>th</sup> – 6<sup>th</sup> September 2019 (reconnaissance);
- 4<sup>th</sup> – 8<sup>th</sup> November 2019 (plot establishment and monitoring); and
- 25<sup>th</sup> – 29<sup>th</sup> December 2019 (plot establishment and monitoring).

The method for assessing vegetation and flora analogue monitoring plots was conducted as outlined in Woodman Environmental 2018 and detailed as below. Field data (vegetation, flora, leaf litter and soil) was collected to provide information on key aspects of reference sites (including plant cover and density, species richness, vegetation structure, litter cover, soil penetrance and soil chemistry).

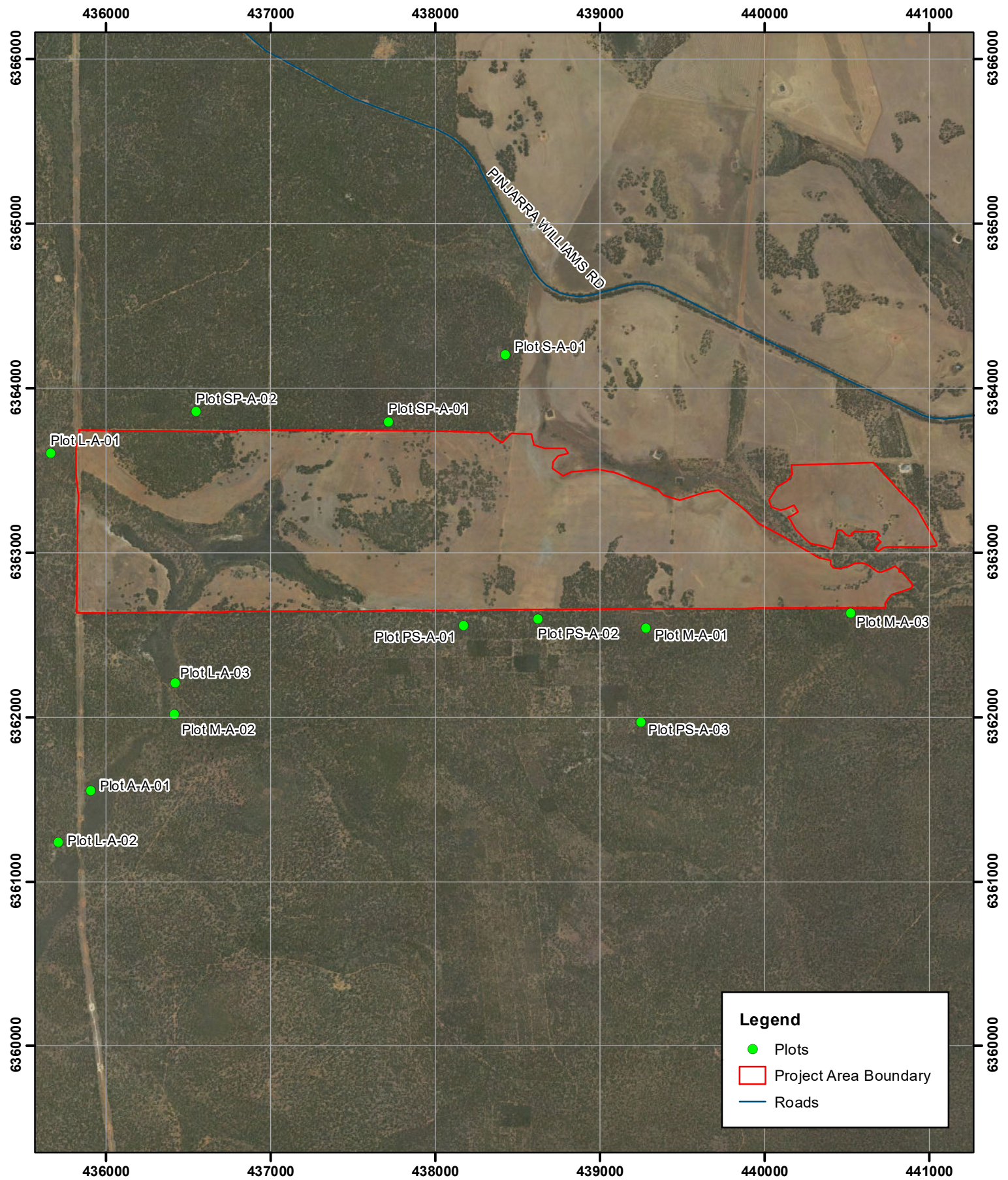
### 6.3.1 Flora, Vegetation and Leaf Litter



Interpretation of ortho-rectified aerial photography and vegetation mapping boundaries as defined by Mattiske (2013) was conducted prior to the field survey to determine proposed plot locations. These locations were confirmed during the reconnaissance survey by comparison of the vegetation, plant species composition, soil and topographic position in the field with the VU descriptions as per Mattiske (2013) and other resources relevant to the vegetation of the Jarrah Forest. A photograph, Global Positioning System (GPS) coordinates (Geocentric Datum of Australia 1994 [GDA94], Zone 50) and notes were taken at each final plot location, which were also marked with flagging tape.

A total of 13 vegetation and flora analogue monitoring plots were established in State Forest and private property adjacent to the Project Area at the finalised plot locations. Sampling density was as outlined below:

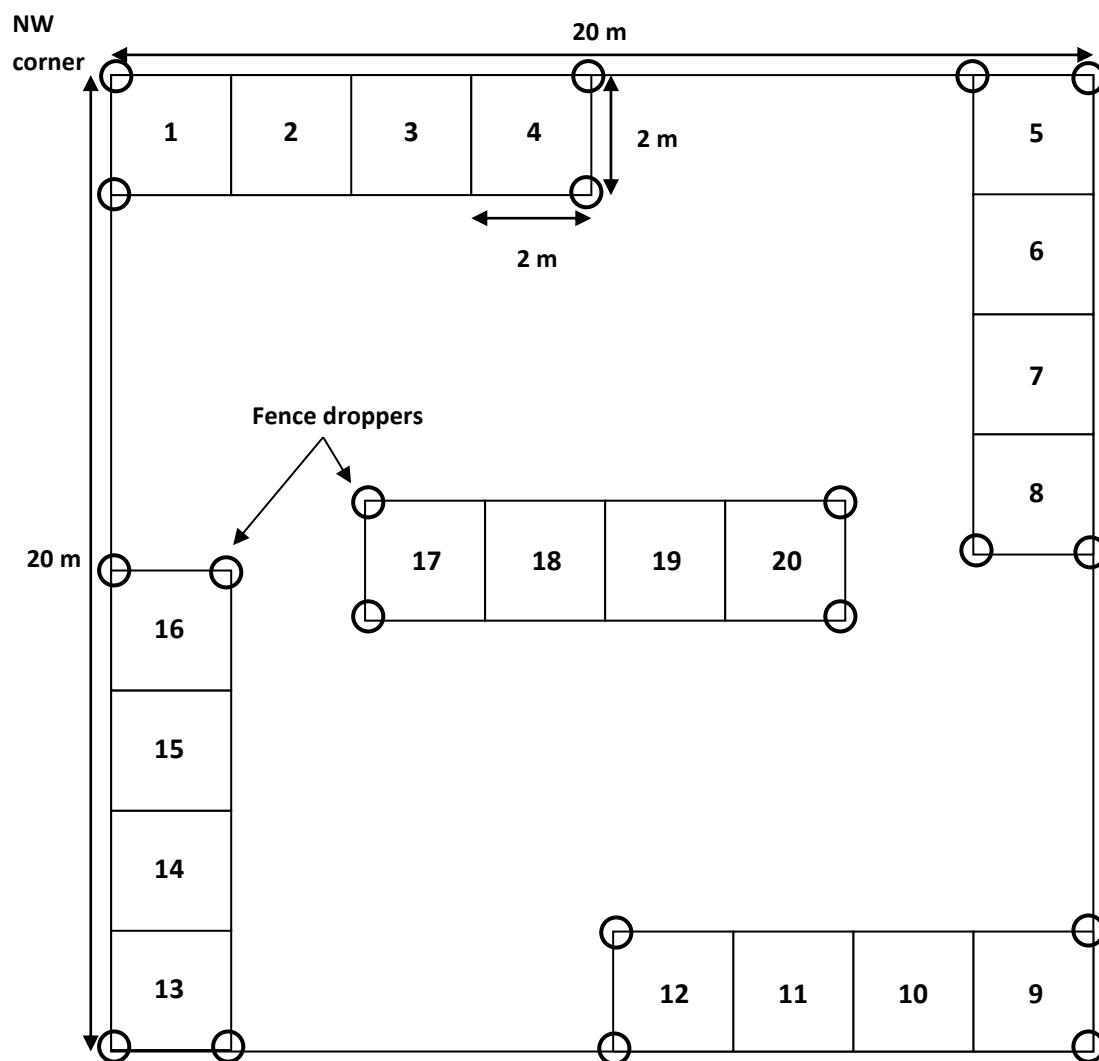
- A – one plot (see Section 6.4 for reasoning for establishing only one analogue plot in this VU);
- L – three plots;
- M – three plots;
- PS – three plots; and
- S/SP – three plots (see Section 6.4 for reasoning for combining the S and SP analogue plots into one unit).

Plot locations are presented in Figure 4 and Appendix A. The design of the plots was a modified Bright design as presented in Figure 5. All plots were established on a North-South-East-West (N-S-E-W) orientation. The plots measured 20 metres (m) x 20 m and were marked with fence droppers. Within each plot a total of 20 quadrats (measuring 2 m x 2 m) were marked using fence droppers. A photograph to the south-east and GPS coordinates (GDA94, Zone 50) were taken at the north-west corner and a metal tag with a unique identifier number was affixed to the north-west corner fence dropper.



<b>Location of Analogue Monitoring Plots</b>	Author: Marlee Starcevich	
	WEC Ref: Newmont19-42-01	
 <small>This map should only be used in conjunction with WEC report Newmont19-42-01.</small>	Filename: Newmont19-42-01-f04.mxd	<b>Figure</b>  <b>4</b>
	Scale: 1:30,000 (A4)	
	Projection: GDA 1994 MGA Zone 50	
	Revision: 0 - 15 June 2020	





**Figure 5: Plot Design Utilised for the Assessment of Flora and Vegetation**

Within each 20 m x 20 m flora and vegetation plot the following information was recorded:

- Counts (alive and dead), foliage cover (alive and dead) (as a percentage of the plot, %) and average height (m) of each tree taxon (separated into three height classes for each taxon: < 0.5 m, 0.5 m – 1.3 m, and > 1.3 m);
- The overall cover of native live foliage (%) and leaf litter (%);
- Additional species not recorded within the 2 x 2 m quadrats; and
- Comments about the general condition of the plot, including qualitative notes on cover, diversity, density, substrate, etc.

Within each 2 m x 2 m quadrat the following information was recorded:

- Counts (alive and dead), foliage cover (alive and dead) (as a percentage of each quadrat, %) and average height (m) of each perennial plant species (native and introduced) rooted in the quadrat. Where plants were rooted outside the quadrat but had foliage overhanging the quadrat they were given a count of '0';

- Foliage cover (alive and dead) (%) and average height (m) of each annual plant species (native and introduced) rooted in the quadrat; and
- The overall cover of native live foliage (%) and leaf litter (%).

### 6.3.2 Soil

The following soil parameters were assessed in 2019 as part of the Project as outlined in Sections 6.3.2.1 and 6.3.2.2:

- Soil chemistry monitoring; and
- Soil penetrance monitoring.

#### 6.3.2.1 Soil Chemistry

Three approximately 300 gram (g) soil samples were taken via 10 subsamples from the top 5 centimetres (cm) of the soil profile at three locations adjacent to each analogue vegetation and flora monitoring plot. A total of 39 soil samples were taken in 2019. Soil samples were assessed at CSBP Analytical Laboratories as per the 'Comprehensive Analysis Package' which gives information on the following:

- Colour;
- Gravel (%);
- Texture;
- Ammonium Nitrogen (milligram per kilogram [mg/kg]);
- Nitrate Nitrogen (mg/kg);
- Phosphorus (Colwell) (mg/kg);
- Potassium (Colwell) (mg/kg);
- Sulphur (potassium chloride-40 [KCl-40]) (mg/kg);
- Organic Carbon (Walkley-Black) (%);
- Electrical Conductivity (decisiemens per metre [dS/m]);
- pH (calcium chloride [CaCl<sub>2</sub>]);
- pH (water [H<sub>2</sub>O]);
- Trace Elements (diethylenetriaminepentaacetic acid [DTPA]) (Copper, Iron, Manganese and Zinc) (mg/kg);
- Exchangeable Cations (Exc.) (Aluminium, Calcium, Magnesium, Potassium and Sodium) (milliequivalents per 100 grams [meq/100 g]); and
- Boron (hot CaCl<sub>2</sub>) (mg/kg).

#### 6.3.2.2 Soil Penetrance

Soil penetrance measurements were collected using a Geotester PP-200 Pocket Penetrometer. Measurements were taken from 10 random locations adjacent to each analogue vegetation and flora monitoring plot. Any leaf litter on the soil surface was removed prior to taking penetrance measurements and areas of rock outcropping were avoided. Soil penetrance in plots with clayey, sandy clay or clayey sand soil was measured using a 5 mm or 10 mm diameter tip while the penetrance in plots with sandy soils was measured using a 15 mm or 20 mm diameter tip (to keep measurements within the range of the penetrometer). The penetrometer was gently pushed into the soil until the tip of the device had penetrated

the soil surface to a depth of 6 mm (indicated by an engraved line or narrowing of the tip), after which the force (kg) was recorded and the penetrometer reset. Force measurements were then converted to kilograms per square cm (kg/cm<sup>2</sup>).

### 6.3.3 Data Management and Calculations

#### 6.3.3.1 Data Management

All data collected from the analogue vegetation and flora plot monitoring was entered and checked for accuracy in VegMonitor, a bespoke database created for the storage, collation and manipulation of survey data by Woodman Environmental. Within the dataset, entities were assigned a '?' in front of a genus or species name when this was the most likely taxonomic identity, i.e. the individual was most likely the taxonomic identity but there was insufficient material to accurately confirm the identification. Entities that could confidently be assigned a genus but could not be identified to species level were assigned identifications of 'Genus sp.' or 'Genus ?species'.

All soil data was entered into and analysed within Microsoft Excel.

#### 6.3.3.2 Data Analysis

Data analysis for the analogue vegetation and flora plots specifically addressed five main parameters: perennial plant density, foliage cover, native species richness, trees and leaf litter cover. The following assessments and calculations were performed to ascertain the results presented in Section 7. The data collected from these assessments and calculations can be used to review the Project Area restoration progress against the completion criteria and SERA assessment system (Section 2.1.2).

##### Perennial Plant Density

Perennial plant density performance was calculated as the mean number of perennial plants of all quadrats in all analogue vegetation and flora plots within a VU.

##### Foliage Cover

Native foliage cover performance was calculated as the mean native perennial foliage cover of all quadrats in all analogue vegetation and flora plots within a VU. Weed foliage cover performance was calculated as the mean total weed foliage cover of all quadrats in all analogue vegetation and flora plots within a VU.

##### Species Richness

Native species richness performance was calculated as the mean number of all native taxa (perennial and annual) recorded in all analogue vegetation and flora plots (as recorded from quadrats) within a VU. Introduced species richness performance was calculated as the mean number of all introduced taxa (perennial and annual) recorded in all analogue vegetation and flora plots (as recorded from quadrats) within a VU.

##### Trees

Tree performance was addressed via tree density and tree foliage cover parameters:

- Tree density was reviewed for all VUs for the purposes of assisting with addressing Black-Cockatoo habitat and to provide an overview of tree presence. The tree density performance was calculated by averaging the total number of trees (seedlings, saplings and mature trees) recorded in all analogue vegetation and flora plots within a VU and was subsequently converted to the number of trees per hectare; and
- Tree foliage cover performance was calculated by averaging the total foliage cover of trees (seedlings, saplings and mature trees) recorded in all analogue vegetation and flora plots within a VU.

### **Leaf Litter Cover**

Leaf litter cover performance was calculated as the mean leaf litter cover of all quadrats in all analogue vegetation and flora plots within a VU.

## **6.4 Deviations from the Scope of Works**

Due to time limitations, only one analogue vegetation and flora plot was established in the A VU. This VU was of the lowest priority as the only occurrence of the VU within the Project Area is within a large wetland. This wetland is in near Pristine condition, is represented by three established plots, and currently has no proposed restoration activities. Additional analogue plots within A vegetation will be established if restoration is proposed for this VU.

Two analogue vegetation and flora plots were established in the SP VU and one in the similar S VU. During the reconnaissance survey it was decided that one SP analogue plot would be placed within S vegetation to better reflect the vegetation of the restoration within the Project Area. Therefore, this report refers to these VUs as one entity; i.e. S/SP.

## 7. RESULTS

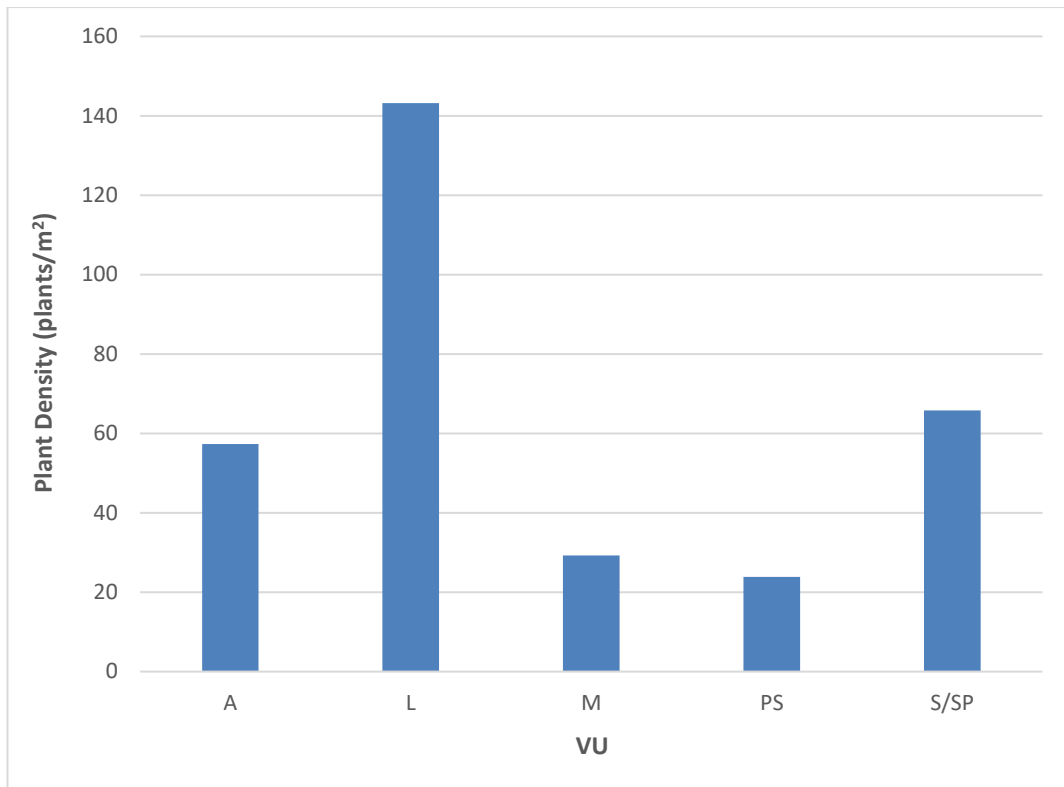
### 7.1 Flora and Vegetation

A total of 211 vascular flora taxa from 48 families were recorded within analogue vegetation and flora monitoring plots in 2019, including 195 native taxa. The full plant taxa list from the analogue vegetation plot monitoring assessment is presented in Appendix B and the plot by species matrix is presented in Appendix C.

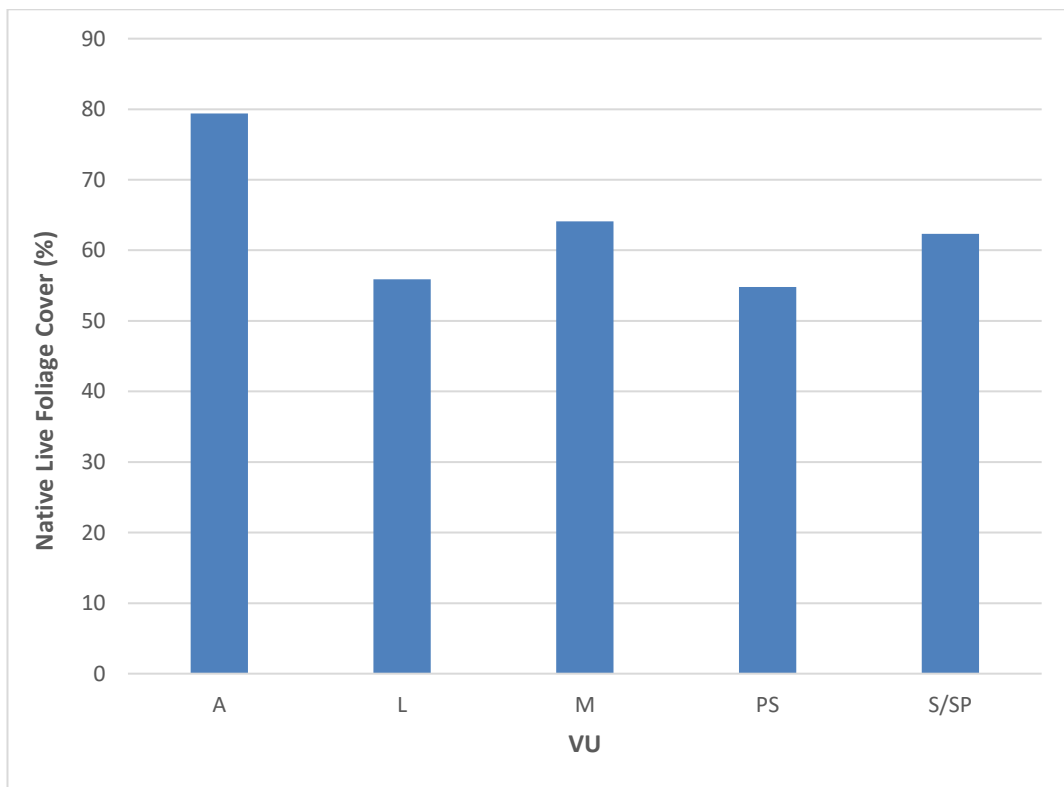
Figure 6 to Figure 9 and Appendix D summarises the perennial plant density, native live foliage cover, native species richness, tree density and tree height classes (Appendix D only) recorded within analogue vegetation and flora plots and quadrats in 2019. Appendix E presents a breakdown of the native perennial plant taxa recorded within VUs in analogue vegetation and flora plots and their live foliage cover, relative live foliage cover, frequency and relative frequency as recorded within quadrats in each VU.

The following general trends in relation to vegetation and native flora taxa were observed:

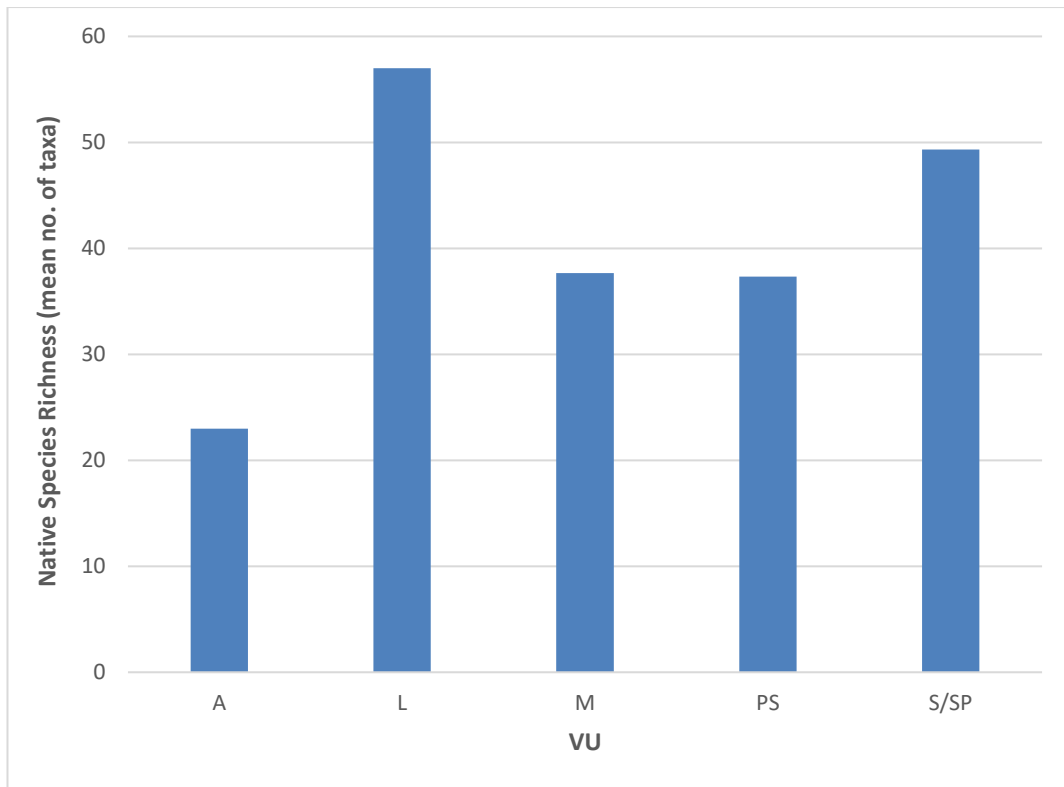
- The A VU had the lowest average native species richness (23 taxa per plot; Figure 8) but the highest average native foliage cover (79 %; Figure 7);
- The L VU had the highest average perennial plant density (143 plants/m<sup>2</sup>; Figure 6) and native species richness (57 taxa per plot; Figure 8) but low average native foliage cover (56 %; Figure 7);
- Tree density was highest in the S/SP VU (3492 trees/ha; Figure 9); and
- The M and PS VUs had average vegetation values and fell in between the other VUs for most vegetation parameters.



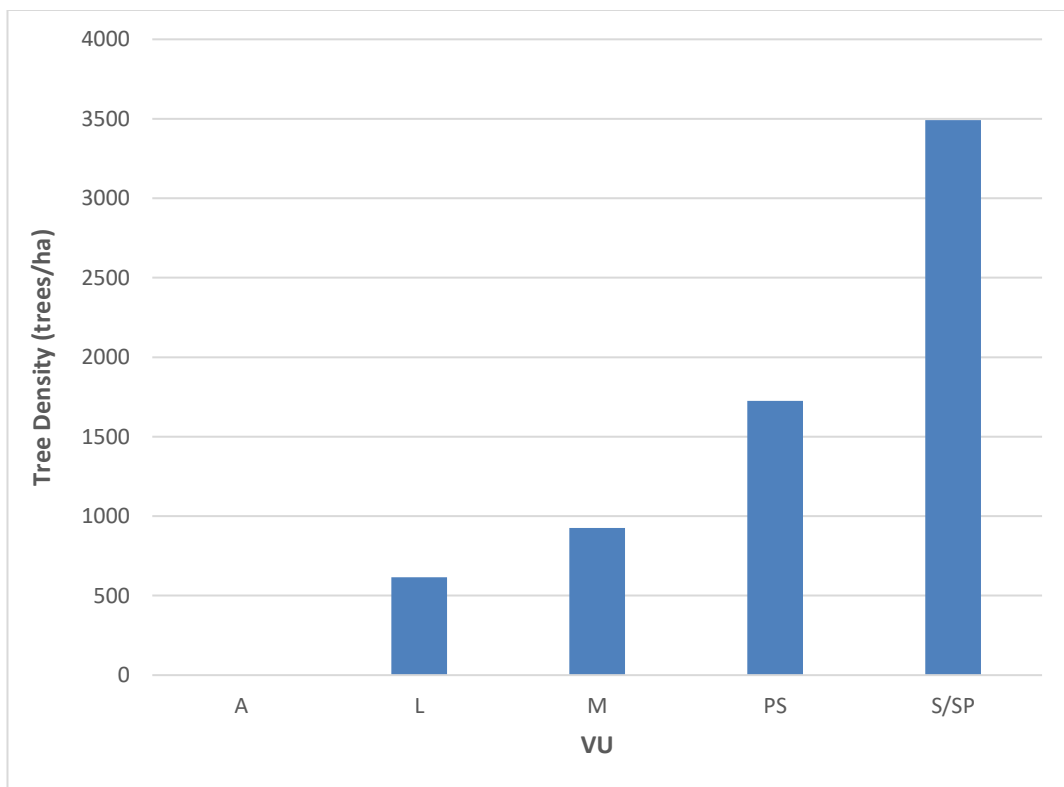
**Figure 6: Average Perennial Plant Density within VUs as Recorded in Analogue Vegetation and Flora Quadrats**



**Figure 7: Average Native Live Foliage Cover within VUs as Recorded in Analogue Vegetation and Flora Quadrats**



**Figure 8: Average Native Species Richness within VUs as Recorded in Analogue Vegetation and Flora Plots**



**Figure 9: Average Tree Density within VUs as Recorded in Analogue Vegetation and Flora Plots**

### 7.1.1 Introduced Flora Taxa

A total of 16 introduced flora taxa from five families were recorded within analogue vegetation and flora monitoring plots in 2019, including the Declared Pest species \**Gomphocarpus fruticosus*. No Weeds of National Significance were recorded. The full plant taxa list from the analogue vegetation plot monitoring assessment, including introduced taxa, is presented in Appendix B and the plot by species matrix is presented in Appendix C.

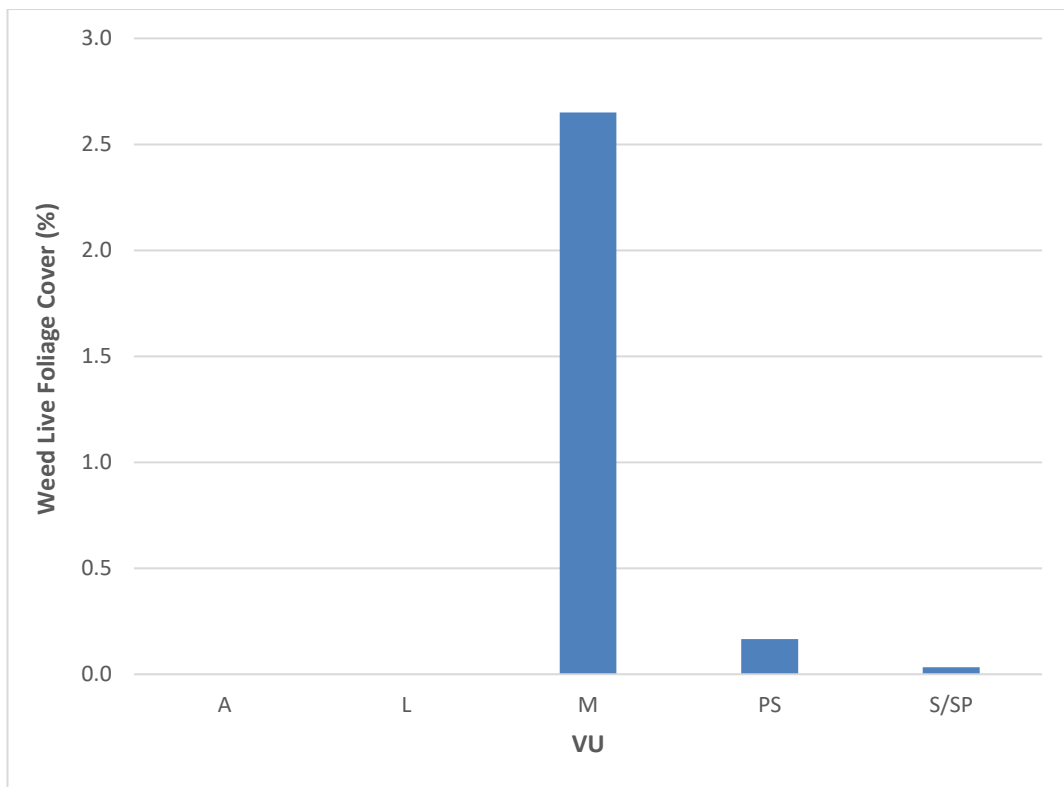
Figure 10 summarises the weed live foliage cover and Figure 11 summarises introduced species richness recorded within analogue vegetation and flora plots and quadrats in 2019. The raw data is presented in Appendix D.

The following general trends in relation to introduced flora taxa were observed:

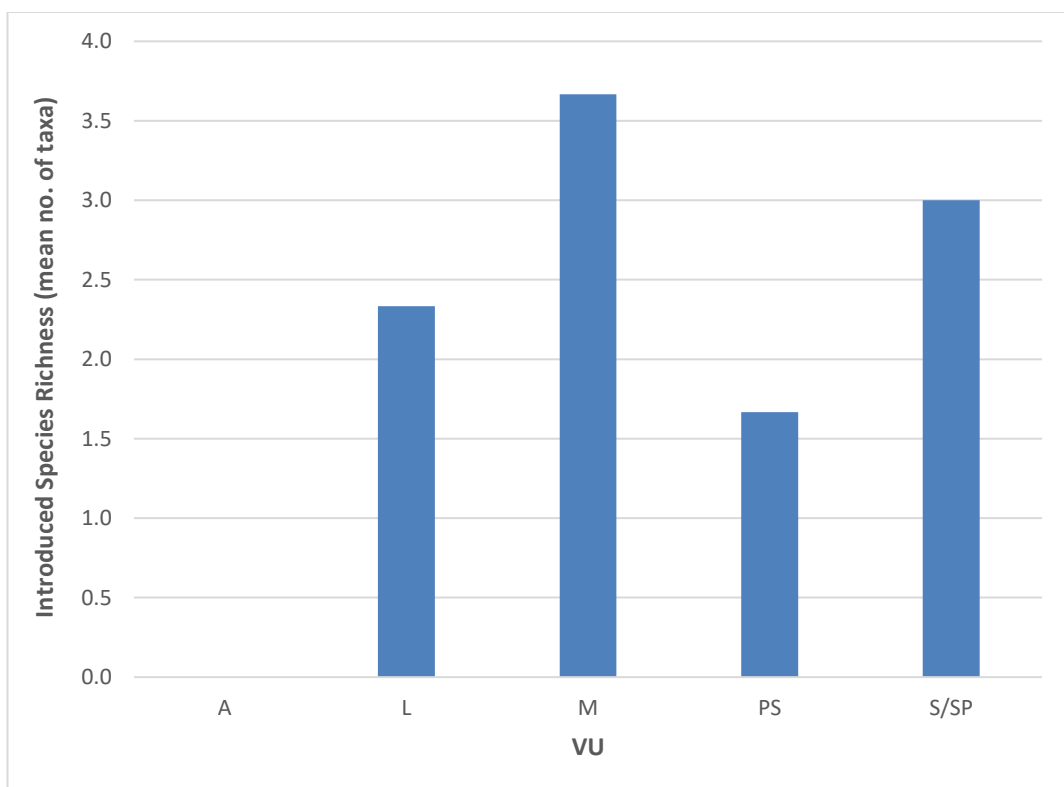
- The M VU had the highest average weed live foliage cover (2.7 %; Figure 10), as well as the greatest average introduced species richness (3.7 introduced taxa per plot; Figure 11);
- The PS VU had low average weed live foliage cover (0.2 %; Figure 10) and introduced species richness (1.7 introduced taxa per plot; Figure 11);
- The S/SP VU had very low average weed live foliage cover (0.03 %; Figure 10) but high average introduced species richness (3.0 introduced taxa per plot; Figure 11); and
- No introduced taxa were recorded within the A VU (Figure 10, Figure 11).

Note that the L VU had 0 % weed live foliage cover (Figure 10) but an average of 2.3 introduced taxa per plot (Figure 11). This is due to the weed foliage cover data in Figure 10 being extracted from the 2 m x 2 m quadrat data, while the introduced species richness data is extracted from the 20 m x 20 m plot data. Therefore, the introduced species recorded in the L VU plots were present within the 20 m x 20 m plots but were not sampled by any of the 2 m x 2 m quadrats, indicating that the overall weed live foliage cover of this VU was minimal.





**Figure 10: Average Weed Live Foliage Cover within VUs as Recorded in Analogue Vegetation and Flora Quadrats**



**Figure 11: Average Introduced Species Richness within VUs as Recorded in Analogue Vegetation and Flora Plots**

Table 3 summarises the introduced flora taxa recorded within analogue vegetation and flora plots in 2019 including the significance of each taxon in terms of their ecological impact and invasiveness ratings under the DBCA Invasive Plant Prioritisation Process for the Southwest Region (DBCA 2019).

**Table 3: Summary of Introduced Flora Taxa Recorded within Analogue Vegetation and Flora Plots**

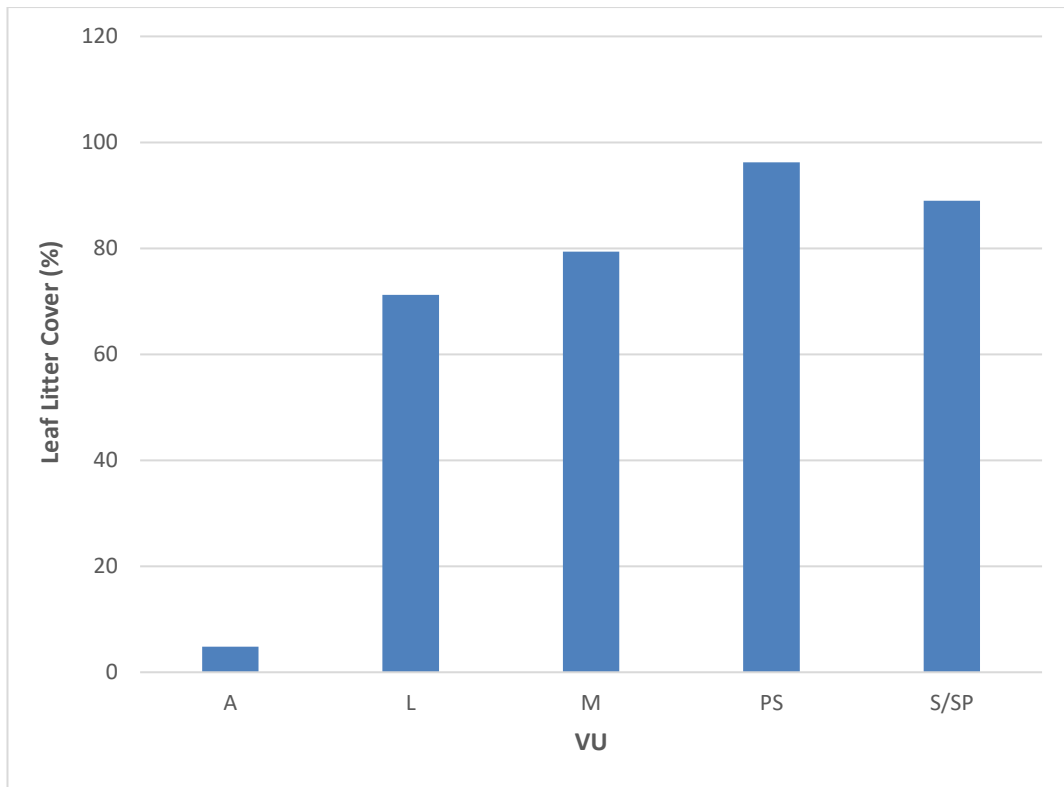
Taxon	Common Name	Present in VUs	Ecological Impact (DBCA 2019)	Invasiveness (DBCA 2019)	Comment
<i>Aira cupaniana</i>	Hairgrass, Silvery Hairgrass	M, PS	Unknown	Rapid	
<i>Brachypodium distachyon</i>	False Brome	M	Unknown	Unknown	
<i>Briza maxima</i>	Blowfly Grass	M, S/SP	Unknown	Rapid	
<i>Briza minor</i>	Shivery Grass	L, S/SP	Unknown	Rapid	
<i>Gomphocarpus fruticosus</i>	Swan Plant, Narrowleaf Cottonbush	M	Unknown	Rapid	Declared Pest
<i>Hypochaeris glabra</i>	Flatweed, Smooth Catsear	L, S/SP	Medium	Rapid	
<i>Hypochaeris radicata</i>	Flatweed	M	Medium	Rapid	
<i>Lolium rigidum</i>	Ryegrass	S/SP	Medium	Rapid	
<i>Lotus angustissimus</i>	Slender Birdsfoot Trefoil, Narrowleaf Trefoil	M	Unknown	Rapid	
<i>Lysimachia arvensis</i>	Scarlet Pimpernel, Blue Pimpernel	M	Unknown	Rapid	
<i>Pentameris airoides</i>	False Hairgrass	L, S/SP	Unknown	Unknown	
<i>Rostraria cristata</i>	Annual Cat's Tail	M	Unknown	Unknown	
<i>Sonchus oleraceus</i>	Common Sowthistle	M	Medium	Rapid	
<i>Trifolium campestre</i>	Hop Clover	M	Unknown	Unknown	
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Ursinia	PS	Unknown	Rapid	
<i>Vulpia muralis/myuros</i>	Rat's Tail Fescue	L, PS, S/SP	Unknown	Rapid	

## 7.2 Leaf Litter

Figure 12 and Appendix D summarises the average leaf litter cover of analogue vegetation and flora plots in 2019.

The following general trends in relation to leaf litter were observed:

- The A VU had the lowest average leaf litter cover (4.8 %) (Figure 12);
- The PS VU had the highest average leaf litter cover (96.2 %) (Figure 12); and
- The L, M and S/SP VUs had similar average leaf litter cover values, ranging from 71.2 % (L VU) to 89.0 % (S/SP VU) (Figure 12).



**Figure 12: Average Leaf Litter Cover within VUs as Recorded in Analogue Vegetation and Flora Quadrats**

## 7.3 Soil

### 7.3.1 Soil Chemistry

Appendix F presents the raw data from the soil chemistry analysis at the analogue plot locations. The results are summarised in Table 14. Note that to allow calculations to be made, results such as '< 1' have been treated as '1' and '< 2' as 2, etc.

The soil chemistry data has not been analysed for trends at this time.

**Table 4: Summary of Soil Chemistry Results from Analogue VUs**

VU	Ammonium Nitrogen (mg/kg)	Boron (mg/kg)	Conductivity (dS/m)	Copper (mg/kg)	Exc. Aluminium (meq/100 g)	Exc. Calcium (meq/100 g)	Exc. Magnesium (meq/100 g)	Exc. Potassium (meq/100 g)	Exc. Sodium (meq/100 g)	Iron (mg/kg)	Manganese (mg/kg)	Nitrate Nitrogen (mg/kg)	Organic Carbon (%)	pH (CaCl <sub>2</sub> )	pH (H <sub>2</sub> O)	Phosphorus (mg/kg)	Potassium (mg/kg)	Sulfur (mg/kg)	Zinc (mg/kg)
A	3.00	1.88	1.69	0.29	0.03	6.14	8.63	0.22	8.21	99.80	25.97	17.67	4.19	5.57	6.13	2.33	98.00	69.80	0.46
L	10.56	0.60	0.05	0.27	0.23	5.29	1.80	0.37	0.24	33.61	38.80	11.00	3.75	5.07	6.13	3.22	161.44	5.61	0.22
M	7.78	1.07	0.07	0.95	0.10	10.82	2.48	0.52	0.31	32.78	27.88	1.00	4.19	5.24	6.30	8.11	234.33	4.88	0.34
PS	5.11	0.29	0.03	0.13	0.47	3.27	0.79	0.09	0.10	30.17	6.97	1.00	3.06	4.64	5.86	3.11	43.22	3.10	0.09
S/SP	23.08	0.75	0.06	0.14	0.30	6.69	1.91	0.25	0.16	60.30	17.80	9.08	4.44	4.93	6.10	5.33	118.00	6.38	0.19

### 7.3.2 Soil Penetration

Appendix G presents the raw data from the soil penetration monitoring at the analogue plot locations. The results are summarised in Table 5.

The following general trends in relation to soil penetration were observed:

- The M VU had the highest average soil penetration (19.2 kg/cm<sup>2</sup>), reflecting the hard clayey soil characteristic of this VU (Table 5);
- The PS VU had the lowest average soil penetration (2.5 kg/cm<sup>2</sup>), reflecting the soft sandy soil characteristic of this VU (Table 5); and
- The A, L and S/SP VUs had average soil penetration values that fell in between those of the M and PS VUs, ranging from 5.3 kg/cm<sup>2</sup> (A VU) to 15.1 kg/cm<sup>2</sup> (S/SP VU) (Table 5).

**Table 5: Summary of Soil Penetration Results within Analogue VUs**

VU	Average Force (kg/cm <sup>2</sup> )
A	5.3
L	6.1
M	19.2
PS	2.5
S/SP	15.1
<b>Average</b>	<b>9.6</b>

## 8. DISCUSSION

Monitoring of analogue vegetation and flora monitoring plots provides a reference to assess progression of the Project Area restoration towards that of reference areas in line with the Offset Programme Objectives and Completion Criteria. Comparisons between the Project Area paddock restoration and remnant vegetation areas with analogue sites will be conducted following the next monitoring event and as per the timing outlined in Woodman Environmental (2018; 2019).

### 8.1.1 Flora and Vegetation

The 2018 completion criteria monitoring identified numerous issues in terms of species composition in the paddock restoration area at the Project Area (Woodman Environmental 2019); therefore, the results from the analogue plot monitoring can be used to direct the remediation efforts required to bring the restoration in line with the Offset Programme Objectives and Completion Criteria. The plant taxa lists developed from the analogue plot monitoring have been used to prepare a seed list of local Jarrah forest species recommended for use for additional seeding or infill planting in the paddock restoration area LMUs. This list is presented in Appendix H and has been compiled utilising the data presented in Appendix E. Note that taxa have been split into those that are High Priority for addition (dominant taxa having  $\geq 50\%$  relative live foliage cover or relative frequency values in the 2 m x 2 m analogue quadrats in a VU) and those that are Aspirational (taxa having 25% – 49% relative live foliage cover or relative frequency values as recorded in the 2 m x 2 m analogue quadrats in a VU).

In addition, the 2018 completion criteria monitoring recommended a program of plant removal in the paddock restoration area for all taxa not local to the Boddington area (Woodman Environmental 2019). It was recommended that this be conducted as soon as practicable prior to these species reaching reproductive maturity and setting seed. A list of taxa recommended for removal from the paddock restoration area is presented in Appendix I and has been prepared using the taxa list generated from the 2019 analogue vegetation and flora plot monitoring, known taxon distributions as per *NatureMap* (DBCA 2007-), the VU vegetation descriptions prepared by Mattiske (2013), and knowledge of the role of taxa in ecosystems and their potential to dominate disturbed environments.

### 8.1.2 Soil

Soil penetrance values generally reflected the characteristics of the different soils of the VUs assessed during the analogue monitoring programme. High soil penetrance values recorded in the M and S/SP VUs are explained by the high clay content of the soils that characterise these ecosystems, and low soil penetrance values in the PS VU by the sandy soils.

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## **Appendix A: Analogue Vegetation and Flora Monitoring Plot Locations**

Note: All GPS locations are in GDA94, Zone 50

Plot Number	Easting (m E)	Northing (m N)	VU
A-A-01	435906	6361553	A
L-A-01	435662	6363605	L
L-A-02	435712	6361242	L
L-A-03	436420	6362208	L
M-A-01	439282	6362544	M
M-A-02	436415	6362022	M
M-A-03	440522	6362637	M
PS-A-01	438175	6362559	PS
PS-A-02	438623	6362602	PS
PS-A-03	439249	6361972	PS
S-A-01	438428	6364203	S/SP
SP-A-01	437713	6363798	S/SP
SP-A-02	436550	6363858	S/SP

## **Appendix B: Plant Taxa Recorded in Analogue Vegetation and Flora Monitoring Plots**

Note: '\*' indicates introduced taxa

### No family name

Monocot sp.

### Amaranthaceae

*Ptilotus drummondii* var. *drummondii*

*Ptilotus manglesii*

### Apiaceae

*Daucus glochidiatus*

*Pentapeltis peltigera*

*Xanthosia atkinsoniana*

*Xanthosia singuliflora*

### Apocynaceae

\**Gomphocarpus fruticosus*

### Araliaceae

*Trachymene pilosa*

### Asparagaceae

*Laxmannia squarrosa*

*Lomandra brittanii*

*Lomandra ?brittanii*

*Lomandra caespitosa*

*Lomandra caespitosa/odora*

*Lomandra hermaphrodita*

*Lomandra micrantha* subsp. *micrantha*

*Lomandra nigricans*

*Lomandra odora*

*Lomandra ?odora*

*Lomandra preissii*

*Lomandra ?preissii*

*Lomandra sericea*

*Lomandra sonderi*

*Lomandra spartea*

?*Sowerbaea laxiflora*

*Thysanotus ?arbuscula*

*Thysanotus manglesianus/patersonii*

*Thysanotus tenellus*

### Asteraceae

*Hyalosperma cotula*

*Hyalosperma simplex* subsp. *simplex*

\**Hypochaeris glabra*

**Asteraceae cont.**

\**Hypochaeris radicata*  
*Lagenophora huegelii*  
*Millotia myosotidifolia*  
*Podolepis gracilis*  
*Podotheca angustifolia*  
*Pterochaeta paniculata*  
*Rhodanthe citrina*  
\**Sonchus oleraceus*  
*Trichocline spathulata*  
\**Ursinia anthemoides* subsp. *anthemoides*

**Boryaceae**

*Borya laciniata*

**Campanulaceae**

*Isotoma hypocrateriformis*  
*Lobelia anceps*

**Casuarinaceae**

*Allocasuarina fraseriana*

**Celastraceae**

*Stackhousia pubescens*  
*Stackhousia scoparia*  
*Tripterococcus brunonis*

**Centrolepidaceae**

*Centrolepis aristata*

**Cyperaceae**

Cyperaceae sp.  
*Baumea juncea*  
*Chorizandra enodis*  
*Cyathochaeta avenacea*  
*Lepidosperma leptostachyum*  
*Lepidosperma pubisquameum*  
*Lepidosperma ?pubisquameum*  
*Schoenus clandestinus*  
*Schoenus discifer*  
*Schoenus nanus*  
*Schoenus ?subbarbatus*  
*Tetraria octandra*  
*Tetraria* sp. Jarrah Forest (R. Davis 7391)

**Dilleniaceae**

*Hibbertia amplexicaulis*  
*Hibbertia commutata*  
*Hibbertia diamesogenos*  
*Hibbertia pilosa*  
*Hibbertia polystachya*

**Droseraceae**

*Drosera gigantea*  
*Drosera menziesii*  
*Drosera scorpioides*  
*Drosera stolonifera*

**Elaeocarpaceae**

*Tetratheca hirsuta* subsp. *viminea*  
*Tetratheca* ?*hirsuta*  
*Tetratheca* ?*virgata*

**Ericaceae**

*Astroloma ciliatum*  
*Astroloma* ?*ciliatum*  
*Leucopogon nutans*

**Euphorbiaceae**

*Monotaxis grandiflora* var. *grandiflora*

**Fabaceae**

*Acacia applanata*  
*Acacia preissiana*  
*Acacia pulchella*  
*Acacia varia* var. *varia*  
*Bossiaea ornata*  
*Daviesia* sp.  
*Eutaxia virgata*  
*Gastrolobium* ?*calycinum*  
*Gompholobium marginatum*  
*Gompholobium polymorphum*  
*Gompholobium* ?*polymorphum*  
*Gompholobium preissii*  
*Hovea chorizemifolia*  
*Hovea trisperma*  
*Isotropis cuneifolia* subsp. *cuneifolia*  
*Kennedia prostrata*  
\**Lotus angustissimus*  
*Sphaerolobium drummondii*  
*Sphaerolobium linophyllum*  
\**Trifolium campestre*

**Gentianaceae**

*Schenkia australis*

**Goodeniaceae**

*Dampiera alata*  
*Dampiera linearis*  
*Goodenia coerulea*  
*Goodenia micrantha*  
*Goodenia pulchella*  
*Lechenaultia biloba*  
*Scaevola calliptera*

**Haemodoraceae**

*Conostylis aculeata* subsp. *aculeata*  
*Conostylis pusilla*  
*Conostylis ?setigera* subsp. *setigera*  
*Conostylis* sp.  
*Haemodorum ?laxum*  
*Haemodorum* sp.

**Haloragaceae**

*Glischrocaryon aureum*  
*?Gonocarpus* sp.

**Hemerocallidaceae**

*Agrostocrinum hirsutum*  
*Caesia micrantha*  
*?Caesia* sp.  
*Dianella revoluta* var. *divaricata*  
*Tricoryne elatior*  
*Tricoryne humilis*

**Iridaceae**

*Patersonia occidentalis*  
*Patersonia pygmaea*

**Juncaginaceae**

*Cycnogeton lineare*

**Lauraceae**

*Cassytha glabella* forma *glabella*  
*Cassytha racemosa* forma *racemosa*

**Lentibulariaceae**

*Utricularia multifida*  
*Utricularia violacea*

**Linaceae**

*Linum marginale*  
? *Linum marginale*

**Loganiaceae**

*Phyllangium divergens*

**Malvaceae**

*Lasiopetalum floribundum*

**Myrtaceae**

*Astartea scoparia*  
*Babingtonia camphorosmae*  
*Corymbia calophylla*  
*Eucalyptus marginata*  
*Eucalyptus patens*  
*Eucalyptus wandoo*  
*Hypocalymma angustifolium*  
*Melaleuca raphiophylla*  
*Melaleuca viminea* subsp. *viminea*

**Orchidaceae**

*Caladenia flava*  
*Caladenia* sp.  
*Pterostylis recurva*  
*Pterostylis* sp.  
*Thelymitra graminea*  
*Thelymitra* sp.

**Oxalidaceae**

*Oxalis exilis*

**Phyllanthaceae**

*Phyllanthus calycinus*  
*Poranthera microphylla*

**Pittosporaceae**

*Billardiera fusiformis*  
? *Billardiera variifolia*

**Poaceae**

Poaceae sp.  
\* *Aira cupaniana*  
*Amphipogon amphipogonoides*  
*Austrostipa mollis*  
\* *Brachypodium distachyon*  
\* *Briza maxima*



**Poaceae cont.**

\**Briza minor*  
*Dichelachne crinita*  
\**Lolium rigidum*  
*Neurachne alopecuroidea*  
\**Pentameris airoides*  
\**Rostraria cristata*  
*Rytidosperma occidentale*  
*Rytidosperma setaceum*  
*Tetrarrhena laevis*  
\**Vulpia muralis/myuros*

**Polygalaceae**

*Comesperma calymega*  
*Comesperma virgatum*

**Primulaceae**

\**Lysimachia arvensis*  
*Samolus junceus*

**Proteaceae**

*Banksia dallanneyi* subsp. *dallanneyi*  
*Banksia grandis*  
*Grevillea bipinnatifida*  
*Hakea lissocarpha*  
*Hakea prostrata*  
*Hakea varia*  
*Persoonia angustiflora*  
*Persoonia longifolia*  
*Synaphea decorticans*

**Ranunculaceae**

*Clematis pubescens*

**Restionaceae**

*Desmocladius asper*  
*Desmocladius fasciculatus*  
*Hypolaena exsulca*  
*Lepidobolus preissianus*  
*Leptocarpus kraussii*  
*Lepyrodia glauca*

**Rhamnaceae**

*Cryptandra arbutiflora* var. *arbutiflora*  
*Trymalium ledifolium* var. *rosmarinifolium*  
*Trymalium odoratissimum* subsp. *trifidum*

**Rubiaceae**

*Opercularia apiciflora*  
*Opercularia echinocephala*  
*Opercularia* sp.

**Rutaceae**

*Boronia crenulata* subsp. *viminea*  
*Boronia spathulata*

**Stylidiaceae**

*Levenhookia pusilla*  
*Levenhookia stipitata*  
*Stylidium androsaceum*  
*Stylidium caricifolium*  
*Stylidium carnosum*  
*Stylidium ciliatum*  
*Stylidium dichotomum*  
*Stylidium pubigerum*  
*Stylidium uniflorum* subsp. *uniflorum*

**Thymelaeaceae**

*Pimelea ?ciliata* subsp. *ciliata*  
*Pimelea imbricata* var. *piligera*

**Xanthorrhoeaceae**

*Chamaescilla corymbosa* var. *corymbosa*  
*Xanthorrhoea gracilis*  
*Xanthorrhoea preissii*

**Zamiaceae**

*Macrozamia riedlei*

## Appendix C: Analogue Plots by Species Matrix

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Acacia applanata</i>											X		
<i>Acacia preissiana</i>				X							X		X
<i>Acacia pulchella</i>			X		X		X				X		
<i>Acacia varia</i> var. <i>varia</i>								X	X	X			
<i>Agrostocrinum hirsutum</i>												X	
* <i>Aira cupaniana</i>						X	X	X	X	X			
<i>Allocasuarina fraseriana</i>								X	X	X	X	X	X
<i>Amphipogon amphipogonoides</i>								X		X			
<i>Astartea scoparia</i>	X												
<i>Astroloma ciliatum</i>		X	X	X		X							
<i>Astroloma ?ciliatum</i>					X	X	X						
<i>Austrostipa mollis</i>		X	X	X			X	X	X			X	X
<i>Babingtonia camphorosmae</i>			X	X		X							
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i>		X	X	X		X	X	X	X	X	X	X	X
<i>Banksia grandis</i>								X		X	X	X	X
<i>Baumea juncea</i>	X												
<i>Billardiera fusiformis</i>							X						
? <i>Billardiera variifolia</i>								X				X	X
<i>Boronia crenulata</i> subsp. <i>viminea</i>		X											
<i>Boronia spathulata</i>				X							X		
<i>Borya laciniata</i>		X	X	X		X							
<i>Bossiaea ornata</i>					X			X	X	X	X	X	

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>*Brachypodium distachyon</i>							X						
<i>*Briza maxima</i>							X				X		
<i>*Briza minor</i>			X								X		
<i>Caesia micrantha</i>											X		
? <i>Caesia</i> sp.	X												
<i>Caladenia flava</i>												X	
<i>Caladenia</i> sp.		X	X			X							
<i>Cassytha glabella</i> forma <i>glabella</i>		X											
<i>Cassytha racemosa</i> forma <i>racemosa</i>	X												
<i>Centrolepis aristata</i>			X										
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>		X									X		X
<i>Chorizandra enodis</i>	X												
<i>Clematis pubescens</i>					X							X	X
<i>Comesperma calymega</i>			X	X			X	X		X	X		X
<i>Comesperma virgatum</i>	X							X	X	X			
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>			X			X							
<i>Conostylis pusilla</i>		X	X	X		X		X		X	X		X
<i>Conostylis ?setigera</i> subsp. <i>setigera</i>					X			X	X	X			
<i>Conostylis</i> sp.								X	X	X			
<i>Corymbia calophylla</i>					X		X				X	X	X
<i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>				X									
<i>Cyathochaeta avenacea</i>	X												

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Cycnogeton lineare</i>	X												
Cyperaceae sp.					X								
<i>Dampiera alata</i>											X		
<i>Dampiera linearis</i>	X	X		X							X	X	
<i>Daucus glochidiatus</i>					X	X	X						
<i>Daviesia</i> sp.												X	
<i>Desmocladius asper</i>			X										
<i>Desmocladius fasciculatus</i>			X	X		X		X	X	X			
<i>Dianella revoluta</i> var. <i>divaricata</i>							X						
<i>Dichelachne crinita</i>											X		X
<i>Drosera gigantea</i>			X										
<i>Drosera menziesii</i>			X								X		
<i>Drosera scorpioides</i>								X			X	X	
<i>Drosera stolonifera</i>												X	
<i>Eucalyptus marginata</i>							X	X	X	X	X	X	X
<i>Eucalyptus patens</i>		X	X	X		X							
<i>Eucalyptus wandoo</i>		X	X	X	X	X	X						
<i>Eutaxia virgata</i>	X												
<i>Gastrolobium</i> ? <i>calycinum</i>											X		
<i>Glischrocaryon aureum</i>			X	X									
* <i>Gomphocarpus fruticosus</i>							X						
<i>Gompholobium marginatum</i>		X	X	X	X	X	X	X	X	X	X	X	

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Gompholobium polymorphum</i>		X									X		
<i>Gompholobium ?polymorphum</i>											X		
<i>Gompholobium preissii</i>									X				
? <i>Gonocarpus</i> sp.					X								
<i>Goodenia coerulea</i>						X							
<i>Goodenia micrantha</i>			X										
<i>Goodenia pulchella</i>	X												
<i>Grevillea bipinnatifida</i>						X							
<i>Haemodorum ?laxum</i>						X							
<i>Haemodorum</i> sp.		X									X		
<i>Hakea lissocarpha</i>		X	X	X	X	X	X				X		
<i>Hakea prostrata</i>		X	X	X		X							
<i>Hakea varia</i>		X											
<i>Hibbertia amplexicaulis</i>								X	X	X	X	X	X
<i>Hibbertia commutata</i>		X	X	X		X					X	X	X
<i>Hibbertia diamesogenos</i>			X	X		X							
<i>Hibbertia pilosa</i>				X	X	X	X	X	X	X	X	X	X
<i>Hibbertia polystachya</i>		X		X									
<i>Hovea chorizemifolia</i>							X	X	X	X	X		X
<i>Hovea trisperma</i>									X	X	X		X
<i>Hyalosperma cotula</i>		X	X	X									X
<i>Hyalosperma simplex</i> subsp. <i>simplex</i>							X						

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Hypocalymma angustifolium</i>		X	X	X		X							
* <i>Hypochaeris glabra</i>		X	X	X							X	X	X
* <i>Hypochaeris radicata</i>							X						
<i>Hypolaena exsulca</i>			X						X				
<i>Isotoma hypocrateriformis</i>				X	X	X							
<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			X										
<i>Kennedia prostrata</i>							X	X	X		X		
<i>Lagenophora huegelii</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Lasiopetalum floribundum</i>													X
<i>Laxmannia squarrosa</i>			X										
<i>Lechenaultia biloba</i>		X	X	X		X			X	X	X	X	X
<i>Lepidobolus preissianus</i>				X									
<i>Lepidosperma leptostachyum</i>					X	X							
<i>Lepidosperma pubisquameum</i>		X	X	X	X			X	X	X		X	X
<i>Lepidosperma ?pubisquameum</i>	X				X		X						
<i>Leptocarpus kraussii</i>	X												
<i>Lepyrodia glauca</i>	X												
<i>Leucopogon nutans</i>		X	X	X		X		X	X	X	X		X
<i>Levenhookia pusilla</i>		X	X	X							X	X	X
<i>Levenhookia stipitata</i>			X	X						X			
<i>Linum marginale</i>					X								
? <i>Linum marginale</i>									X				



Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Lobelia anceps</i>	X												
* <i>Lolium rigidum</i>											X		
<i>Lomandra brittanii</i>		X		X	X	X	X					X	X
<i>Lomandra ?brittanii</i>						X	X		X	X			
<i>Lomandra caespitosa</i>				X		X					X	X	X
<i>Lomandra caespitosa/odora</i>								X	X	X			
<i>Lomandra hermaphrodita</i>		X	X	X							X	X	X
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>												X	
<i>Lomandra nigricans</i>					X		X						
<i>Lomandra odora</i>								X					
<i>Lomandra ?odora</i>		X	X	X		X							X
<i>Lomandra preissii</i>				X									
<i>Lomandra ?preissii</i>					X								
<i>Lomandra sericea</i>		X		X								X	X
<i>Lomandra sonderi</i>		X						X	X	X	X	X	X
<i>Lomandra spartea</i>			X								X	X	X
* <i>Lotus angustissimus</i>							X						
* <i>Lysimachia arvensis</i>							X						
<i>Macrozamia riedlei</i>					X	X	X				X	X	X
<i>Melaleuca raphiophylla</i>	X												
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	X												
<i>Millotia myosotidifolia</i>													X

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
Monocot sp. 1	X												
Monocot sp. 2	X												
<i>Monotaxis grandiflora</i> var. <i>grandiflora</i>						X		X		X			
<i>Neurachne alopecuroidea</i>		X	X	X	X	X							X
<i>Opercularia apiciflora</i>		X		X							X		
<i>Opercularia echinocephala</i>											X	X	X
<i>Opercularia</i> sp.									X	X			
<i>Oxalis exilis</i>					X		X						
<i>Patersonia occidentalis</i>			X	X									
<i>Patersonia pygmaea</i>		X				X							
* <i>Pentameris airoides</i>			X	X							X		X
<i>Pentapeltis peltigera</i>				X			X	X	X		X	X	
<i>Persoonia angustiflora</i>				X									
<i>Persoonia longifolia</i>								X		X		X	
<i>Phyllangium divergens</i>				X									
<i>Phyllanthus calycinus</i>			X		X		X	X			X	X	X
<i>Pimelea ?ciliata</i> subsp. <i>ciliata</i>				X					X	X			
<i>Pimelea imbricata</i> var. <i>piligera</i>							X						
Poaceae sp.									X				
<i>Podolepis gracilis</i>			X	X			X	X		X	X		
<i>Podotheca angustifolia</i>			X										
<i>Poranthera microphylla</i>				X									

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Pterochaeta paniculata</i>		X											
<i>Pterostylis recurva</i>		X											
<i>Pterostylis</i> sp.								X					
<i>Ptilotus drummondii</i> var. <i>drummondii</i>												X	
<i>Ptilotus manglesii</i>						X							
<i>Rhodanthe citrina</i>										X			
* <i>Rostraria cristata</i>							X						
<i>Rytidosperma occidentale</i>									X				
<i>Rytidosperma setaceum</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Samolus junceus</i>	X												
<i>Scaevola calliptera</i>		X		X	X	X		X	X		X	X	
<i>Schenkia australis</i>							X						
<i>Schoenus clandestinus</i>		X			X	X							
<i>Schoenus discifer</i>	X												
<i>Schoenus nanus</i>		X	X	X									
<i>Schoenus</i> ? <i>subbarbatus</i>		X											
* <i>Sonchus oleraceus</i>							X						
? <i>Sowerbaea laxiflora</i>								X	X				
<i>Sphaerolobium drummondii</i>	X												
<i>Sphaerolobium linophyllum</i>			X										
<i>Stackhousia pubescens</i>													X
<i>Stackhousia scoparia</i>						X				X			

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Stylidium androsaceum</i>													X
<i>Stylidium caricifolium</i>					X								
<i>Stylidium carnosum</i>		X				X							
<i>Stylidium ciliatum</i>										X	X	X	X
<i>Stylidium dichotomum</i>							X						
<i>Stylidium pubigerum</i>		X		X									
<i>Stylidium uniflorum</i> subsp. <i>uniflorum</i>		X	X	X									
<i>Synaphea decorticans</i>		X											
<i>Tetraria octandra</i>		X	X	X	X	X		X	X	X	X	X	
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)		X	X	X		X	X	X	X	X	X	X	X
<i>Tetrarrhena laevis</i>					X	X	X				X	X	X
<i>Tetrateca hirsuta</i> subsp. <i>viminea</i>		X											
<i>Tetrateca</i> ? <i>hirsuta</i>					X								
<i>Tetrateca</i> ? <i>virgata</i>		X											
<i>Thelymitra graminea</i>												X	
<i>Thelymitra</i> sp.												X	
<i>Thysanotus</i> ? <i>arbuscula</i>		X	X	X									
<i>Thysanotus manglesianus/patersonii</i>			X										
<i>Thysanotus tenellus</i>		X	X	X				X		X	X	X	X
<i>Trachymene pilosa</i>		X	X	X					X	X	X		X
<i>Trichocline spathulata</i>					X			X	X		X	X	X
<i>Tricoryne elatior</i>		X			X				X	X		X	

Taxon	Vegetation Unit and Plot												
	A	L			M			PS			S/SP		
	A-A-01	L-A-01	L-A-02	L-A-03	M-A-01	M-A-02	M-A-03	PS-A-01	PS-A-02	PS-A-03	S-A-01	SP-A-01	SP-A-02
<i>Tricoryne humilis</i>		X	X	X		X							
* <i>Trifolium campestre</i>							X						
<i>Tripterococcus brunonis</i>			X	X									
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>			X		X		X			X	X	X	X
<i>Trymalium odoratissimum</i> subsp. <i>trifidum</i>							X						
* <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>									X				
<i>Utricularia multifida</i>	X												
<i>Utricularia violacea</i>	X												
* <i>Vulpia muralis/myuros</i>			X					X			X		
<i>Xanthorrhoea gracilis</i>		X	X	X		X		X			X		X
<i>Xanthorrhoea preissii</i>		X	X	X	X	X	X						
<i>Xanthosia atkinsoniana</i>													X
<i>Xanthosia singuliflora</i>										X			

## **Appendix D: Analogue Vegetation and Flora Monitoring Plots Summaries**

**Perennial Plant Density**

VU	Plot	Plant Density (plants/m <sup>2</sup> )	Standard Deviation	Mean Plant Density (plants/m <sup>2</sup> )	Mean Standard Deviation
A	A-A-01	57	12	57	12
L	L-A-01	143	35	143	64
	L-A-02	104	64		
	L-A-03	183	92		
M	M-A-01	11	7	29	10
	M-A-02	56	15		
	M-A-03	21	7		
PS	PS-A-01	36	31	24	15
	PS-A-02	20	8		
	PS-A-03	16	8		
S/SP	S-A-01	91	28	66	24
	SP-A-01	49	21		
	SP-A-02	58	24		

**Native Live Foliage Cover**

VU	Plot	Native Live Foliage Cover (%)	Standard Deviation	Mean Native Live Foliage Cover (%)	Mean Standard Deviation
A	A-A-01	79	12	79	12
L	L-A-01	69	25	56	28
	L-A-02	52	33		
	L-A-03	47	27		
M	M-A-01	79	8	64	14
	M-A-02	48	15		
	M-A-03	66	20		
PS	PS-A-01	54	21	55	19
	PS-A-02	63	11		
	PS-A-03	48	26		
S/SP	S-A-01	66	19	62	24
	SP-A-01	57	31		
	SP-A-02	64	22		

**Weed Live Foliage Cover**

VU	Plot	Weed Live Foliage Cover (%)	Standard Deviation	Mean Weed Live Foliage Cover (%)	Mean Standard Deviation
A	A-A-01	0	0	0	0
L	L-A-01	0	0	0	0
	L-A-02	0	0		
	L-A-03	0	0		
M	M-A-01	0	0	2.7	6.3
	M-A-02	0	0		
	M-A-03	8.0	18.9		
PS	PS-A-01	0.5	2.2	0.2	0.7
	PS-A-02	0	0		
	PS-A-03	0	0		
S/SP	S-A-01	0.1	0.3	< 0.1	0.1
	SP-A-01	0	0		
	SP-A-02	0	0		

**Native Species Richness**

VU	Plot	Native Species Richness	Mean Native Species Richness
A	A-A-01	23	23
L	L-A-01	56	57
	L-A-02	55	
	L-A-03	60	
M	M-A-01	34	38
	M-A-02	46	
	M-A-03	33	
PS	PS-A-01	37	37
	PS-A-02	37	
	PS-A-03	38	
S/SP	S-A-01	55	49
	SP-A-01	46	
	SP-A-02	47	



**Introduced Species Richness**

VU	Plot	Introduced Species Richness	Mean Introduced Species Richness
A	A-A-01	0	0
L	L-A-01	1	2.3
	L-A-02	4	
	L-A-03	2	
M	M-A-01	0	3.7
	M-A-02	1	
	M-A-03	10	
PS	PS-A-01	2	1.7
	PS-A-02	2	
	PS-A-03	1	
S/SP	S-A-01	6	3.0
	SP-A-01	1	
	SP-A-02	2	

**Tree Density**

VU	Plot	Tree Density (trees/m <sup>2</sup> )	Tree Density (trees/ha)	Mean Tree Density (trees/m <sup>2</sup> )	Mean Tree Density (trees/ha)
A	A-A-01	0	0	0	0
L	L-A-01	44	1100	25	617
	L-A-02	9	225		
	L-A-03	21	525		
M	M-A-01	28	700	37	925
	M-A-02	41	1025		
	M-A-03	42	1050		
PS	PS-A-01	95	2375	69	1725
	PS-A-02	65	1625		
	PS-A-03	47	1175		
S/SP	S-A-01	187	4675	140	3492
	SP-A-01	158	3950		
	SP-A-02	74	1850		

## Tree Height Class: &lt; 0.5 m

VU	Plot	Number of Trees							Tree Species Richness	
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus wandoo</i>	<i>Persoonia longifolia</i>	Per Plot	Per VU
A	A-A-01								0	0
L	L-A-01								0	0
	L-A-02								0	
	L-A-03								0	
M	M-A-01						4		1	1.0
	M-A-02								0	
	M-A-03				9		16		2	
PS	PS-A-01	1			51				2	2.3
	PS-A-02	2			11				2	
	PS-A-03		21		3			1	3	
S/SP	S-A-01		23	88	18				3	3.7
	SP-A-01	3	20	4	68				4	
	SP-A-02	1	12	2	22				4	

## Tree Height Class: 0.5 m – 1.3 m

VU	Plot	Number of Trees							Tree Species Richness	
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus wandoo</i>	<i>Persoonia longifolia</i>	Per Plot	Per VU
A	A-A-01								0	0
L	L-A-01						4		1	0.7
	L-A-02								0	
	L-A-03					3			1	
M	M-A-01						9		1	1.0
	M-A-02						9		1	
	M-A-03				1				1	
PS	PS-A-01				1				1	2.3
	PS-A-02	1			2			8	3	
	PS-A-03		1		2			1	3	
S/SP	S-A-01			23	1				1	3
	SP-A-01		3	2	1				1	4
	SP-A-02		5		2					2

## Tree Height Class: &gt; 1.3 m

VU	Plot	Number of Trees							Tree Species Richness	
		<i>Allocasuarina fraseriana</i>	<i>Banksia grandis</i>	<i>Corymbia calophylla</i>	<i>Eucalyptus marginata</i>	<i>Eucalyptus patens</i>	<i>Eucalyptus wandoo</i>	<i>Persoonia longifolia</i>	Per Plot	Per VU
A	A-A-01								0	0
L	L-A-01					9	31		2	2.3
	L-A-02					6	3		2	
	L-A-03		1			17	0		3	
M	M-A-01						15		1	1.7
	M-A-02					11	21		2	
	M-A-03				9		7		2	
PS	PS-A-01	27			15				2	2.7
	PS-A-02	20			21				2	
	PS-A-03	5	8		4			1	4	
S/SP	S-A-01	1	7	11	13			1	5	4.3
	SP-A-01	5	39	0	12				4	
	SP-A-02	5	14	0	11				4	

**Leaf Litter Cover**

VU	Plot	Leaf Litter Cover (%)	Standard Deviation	Mean Leaf Litter Cover (%)	Mean Standard Deviation
A	A-A-01	4.8	3.4	4.8	3.4
L	L-A-01	88.8	17.0	71.2	27.6
	L-A-02	59.1	35.4		
	L-A-03	65.8	30.3		
M	M-A-01	77.7	16.3	79.4	14.6
	M-A-02	77.5	13.3		
	M-A-03	83.0	14.1		
PS	PS-A-01	96.8	2.9	96.2	5.6
	PS-A-02	97.0	5.2		
	PS-A-03	94.9	8.7		
S/SP	S-A-01	86.8	14.4	89.0	11.0
	SP-A-01	96.2	5.0		
	SP-A-02	84.0	13.6		

## **Appendix E: Native Perennial Plant Live Foliage Cover and Frequency in Analogue VUs**

## Note:

- The live foliage cover value is calculated as the sum of live foliage cover of each taxon as recorded in all 2 m x 2 m quadrats in a VU;
- The relative live foliage cover value is calculated as the live foliage cover of a given taxon over the total live foliage cover of all taxa within a VU;
- The frequency value is calculated as the number of 2 m x 2 m quadrats in a VU within which each taxon was recorded;
- The relative frequency value is calculated as the frequency of a given taxon over the total number of quadrats monitored in a VU (quadrat count indicated below each table);
- Taxa are sorted by live foliage cover from greatest to smallest;
- Taxa with  $\geq 25\%$  relative live foliage cover and/or relative frequency are shaded in green; and
- Taxa with incomplete identifications have been amalgamated with the complete form where possible, e.g. *Lomandra odora* has been amalgamated with *Lomandra ?odora*.

## A VU

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Astartea scoparia</i>	17.4	1.0	9	45.0
<i>Baumea juncea</i>	793.0	44.8	18	90.0
? <i>Caesia</i> sp.	0.5	< 0.1	5	25.0
<i>Cassytha racemosa</i> forma <i>racemosa</i>	51.3	2.9	4	20.0
<i>Chorizandra enodis</i>	101.5	5.7	9	45.0
<i>Cyathochaeta avenacea</i>	75.0	4.2	3	15.0
<i>Dampiera linearis</i>	0.3	< 0.1	2	10.0
<i>Eutaxia virgata</i>	0.1	< 0.1	1	5.0
<i>Lepidosperma ?pubisquameum</i>	0.4	< 0.1	3	15.0
<i>Leptocarpus kraussii</i>	27.1	1.5	4	20.0
<i>Lepyrodia glauca</i>	17.1	1.0	14	70.0
<i>Lobelia anceps</i>	0.7	< 0.1	5	25.0
<i>Melaleuca raphiophylla</i>	2.0	0.1	1	5.0
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	682.5	38.6	20	100.0
Monocot sp.	0.1	< 0.1	1	5.0
<i>Samolus junceus</i>	0.1	< 0.1	1	5.0
<i>Schoenus discifer</i>	0.1	< 0.1	1	5.0
<i>Sphaerolobium drummondii</i>	0.1	< 0.1	1	5.0

\* Quadrat count = 20.

## LVU

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Acacia preissiana</i>	0.8	< 0.1	3	5.0
<i>Astroloma ciliatum</i>	3.3	0.1	8	13.3
<i>Austrostipa mollis</i>	5.3	0.1	23	38.3
<i>Babingtonia camphorosmae</i>	68.3	1.5	21	35.0
<i>Banksia dallaneyi</i> subsp. <i>dallaneyi</i> var. <i>dallaneyi</i>	121.1	2.6	44	73.3
<i>Boronia crenulata</i> subsp. <i>viminea</i>	0.3	< 0.1	1	1.7
<i>Boronia spathulata</i>	9.3	0.2	16	26.7
<i>Borya laciniata</i>	2.7	0.1	8	13.3
<i>Caladenia</i> sp.	0.3	< 0.1	3	5.0
<i>Cassytha glabella</i> forma <i>glabella</i>	0.4	< 0.1	4	6.7
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	0.1	< 0.1	1	1.7
<i>Comesperma calymega</i>	0.3	< 0.1	3	5.0
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	3.5	0.1	9	15.0
<i>Conostylis pusilla</i>	133.7	2.8	37	61.7
<i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>	1.2	< 0.1	3	5.0
<i>Dampiera linearis</i>	0.9	< 0.1	8	13.3
<i>Desmocladius asper</i>	2.3	< 0.1	13	21.7
<i>Desmocladius fasciculatus</i>	2.3	< 0.1	19	31.7
<i>Drosera gigantea</i>	0.3	< 0.1	1	1.7
<i>Drosera menziesii</i>	0.9	< 0.1	8	13.3
<i>Eucalyptus patens</i>	1891.0	41.8	33	55.0
<i>Eucalyptus wandoo</i>	683.0	15.1	18	30.0
<i>Glischrocaryon aureum</i>	1.2	< 0.1	5	8.3
<i>Gompholobium marginatum</i>	5.0	0.1	31	51.7
<i>Gompholobium polymorphum</i>	1.4	< 0.1	6	10.0
<i>Haemodorum</i> sp.	0.1	< 0.1	1	1.7
<i>Hakea lissocarpha</i>	7.5	0.2	34	56.7
<i>Hakea prostrata</i>	285.5	6.1	20	33.3
<i>Hakea varia</i>	1.0	< 0.1	1	1.7
<i>Hibbertia commutata</i>	23.3	0.5	36	60.0
<i>Hibbertia diamesogenos</i>	12.4	0.3	33	55.0
<i>Hibbertia pilosa</i>	15.8	0.3	16	26.7
<i>Hibbertia polystachya</i>	23.1	0.5	35	58.3
<i>Hypocalymma angustifolium</i>	6.3	0.1	24	40.0
<i>Hypolaena exsulca</i>	1.5	< 0.1	6	10.0
<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	0.2	< 0.1	1	1.7
<i>Lagenophora huegelii</i>	2.9	0.1	14	23.3
<i>Laxmannia squarrosa</i>	0.3	< 0.1	2	3.3
<i>Lechenaultia biloba</i>	2.0	< 0.1	18	30.0
<i>Lepidobolus preissianus</i>	1.3	< 0.1	2	3.3
<i>Lepidosperma pubisquameum</i>	15.4	0.3	40	66.7
<i>Leucopogon nutans</i>	38.1	0.8	9	15.0
<i>Lomandra brittanii</i>	0.6	< 0.1	2	3.3
<i>Lomandra caespitosa</i>	2.0	< 0.1	5	8.3
<i>Lomandra hermaphrodita</i>	12.1	0.3	29	48.3



Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Lomandra ?odora</i>	11.5	0.2	32	53.3
<i>Lomandra preissii</i>	0.7	< 0.1	7	11.7
<i>Lomandra sericea</i>	4.7	0.1	18	30.0
<i>Lomandra sonderi</i>	0.2	< 0.1	2	3.3
<i>Lomandra spartea</i>	4.4	0.1	10	16.7
<i>Neurachne alopecuroidea</i>	35.2	0.7	47	78.3
<i>Opercularia apiciflora</i>	0.4	< 0.1	4	6.7
<i>Patersonia occidentalis</i>	39.4	0.8	22	36.7
<i>Patersonia pygmaea</i>	5.2	0.1	17	28.3
<i>Pentapeltis peltigera</i>	1.4	< 0.1	6	10.0
<i>Persoonia angustiflora</i>	0.4	< 0.1	2	3.3
<i>Phyllanthus calycinus</i>	1.7	< 0.1	3	5.0
<i>Pimelea ?ciliata</i> subsp. <i>ciliata</i>	0.1	< 0.1	1	1.7
<i>Pterostylis recurva</i>	0.1	< 0.1	1	1.7
<i>Rytidosperma setaceum</i>	1.6	< 0.1	8	13.3
<i>Scaevola calliptera</i>	0.3	< 0.1	3	5.0
<i>Schoenus clandestinus</i>	3.8	0.1	12	20.0
<i>Schoenus ?subbarbatus</i>	0.3	< 0.1	1	1.7
<i>Sphaerolobium linophyllum</i>	0.4	< 0.1	3	5.0
<i>Stylidium carnosum</i>	0.9	< 0.1	4	6.7
<i>Stylidium pubigerum</i>	3.0	0.1	8	13.3
<i>Stylidium uniflorum</i> subsp. <i>uniflorum</i>	1.5	< 0.1	3	5.0
<i>Synaphea decorticans</i>	2.0	< 0.1	7	11.7
<i>Tetraria octandra</i>	20.3	0.4	46	76.7
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)	42.6	0.9	38	63.3
<i>Tetradlea hirsuta</i> subsp. <i>viminea</i>	1.5	< 0.1	11	18.3
<i>Tetradlea ?virgata</i>	1.0	< 0.1	8	13.3
<i>Thysanotus ?arbuscula</i>	1.5	< 0.1	14	23.3
<i>Thysanotus manglesianus/patersonii</i>	0.1	< 0.1	1	1.7
<i>Thysanotus tenellus</i>	0.6	< 0.1	4	6.7
<i>Tricoryne elatior</i>	0.2	< 0.1	2	3.3
<i>Tricoryne humilis</i>	7.5	0.2	34	56.7
<i>Tripterococcus brunonis</i>	0.2	< 0.1	2	3.3
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	1.5	< 0.1	5	8.3
<i>Xanthorrhoea gracilis</i>	48.0	1.0	12	20.0
<i>Xanthorrhoea preissii</i>	887.4	18.8	35	58.3

\* Quadrat count = 60.

## M VU

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Acacia pulchella</i>	18.3	0.4	10	16.7
<i>Astroloma ciliatum</i>	1.7	< 0.1	6	10.0
<i>Austrostipa mollis</i>	0.2	< 0.1	2	3.3
<i>Babingtonia camphorosmae</i>	91.9	1.9	19	31.7
<i>Banksia dallaneyi</i> subsp. <i>dallaneyi</i> var. <i>dallaneyi</i>	3.2	0.1	8	13.3
<i>Billardiera fusiformis</i>	0.4	< 0.1	1	1.7
<i>Borya laciniata</i>	0.3	< 0.1	2	3.3
<i>Bossiaea ornata</i>	0.4	< 0.1	3	5.0
<i>Caladenia</i> sp.	0.1	< 0.1	1	1.7
<i>Clematis pubescens</i>	0.2	< 0.1	1	1.7
<i>Comesperma calymega</i>	0.1	< 0.1	1	1.7
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	2.2	< 0.1	2	3.3
<i>Conostylis pusilla</i>	2.9	0.1	14	23.3
<i>Conostylis ?setigera</i> subsp. <i>setigera</i>	0.1	< 0.1	1	1.7
<i>Corymbia calophylla</i>	45.0	1.0	2	3.3
Cyperaceae sp.	0.2	< 0.1	2	3.3
<i>Desmodcladus fasciculatus</i>	1.7	< 0.1	17	28.3
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.1	< 0.1	1	1.7
<i>Eucalyptus marginata</i>	267.1	5.9	12	20.0
<i>Eucalyptus patens</i>	105.0	2.3	6	10.0
<i>Eucalyptus wandoo</i>	2752.0	61.1	57	95.0
<i>Gompholobium marginatum</i>	2.0	< 0.1	20	33.3
<i>Goodenia coerulea</i>	0.1	< 0.1	1	1.7
<i>Grevillea bipinnatifida</i>	1.3	< 0.1	3	5.0
<i>Haemodorum ?laxum</i>	0.7	< 0.1	7	11.7
<i>Hakea lissocarpha</i>	18.0	0.4	25	41.7
<i>Hakea prostrata</i>	0.1	< 0.1	1	1.7
<i>Hibbertia commutata</i>	0.2	< 0.1	1	1.7
<i>Hibbertia diamesogenos</i>	1.1	< 0.1	9	15.0
<i>Hibbertia pilosa</i>	4.6	0.1	25	41.7
<i>Hovea chorizemifolia</i>	0.1	< 0.1	1	1.7
<i>Hypocalymma angustifolium</i>	1.2	< 0.1	6	10.0
<i>Kennedia prostrata</i>	1.4	< 0.1	12	20.0
<i>Lagenophora huegelii</i>	2.6	0.1	20	33.3
<i>Lechenaultia biloba</i>	0.2	< 0.1	2	3.3
<i>Lepidosperma leptostachyum</i>	0.7	< 0.1	7	11.7
<i>Lepidosperma pubisquameum</i>	2.3	< 0.1	22	36.7
<i>Leucopogon nutans</i>	0.2	< 0.1	2	3.3
<i>Linum marginale</i>	0.2	< 0.1	2	3.3
<i>Lomandra brittanii</i>	1.5	< 0.1	14	23.3
<i>Lomandra caespitosa</i>	0.1	< 0.1	1	1.7
<i>Lomandra nigricans</i>	1.5	< 0.1	15	25.0
<i>Lomandra ?odora</i>	0.5	< 0.1	1	1.7
<i>Lomandra ?preissii</i>	0.6	< 0.1	6	10.0
<i>Macrozamia riedlei</i>	81.2	1.7	21	35.0
<i>Monotaxis grandiflora</i> var. <i>grandiflora</i>	0.2	< 0.1	2	3.3

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Neurachne alopecuroidea</i>	2.3	< 0.1	21	35.0
<i>Oxalis exilis</i>	0.7	< 0.1	7	11.7
<i>Patersonia pygmaea</i>	0.1	< 0.1	1	1.7
<i>Pentapeltis peltigera</i>	0.1	< 0.1	1	1.7
<i>Phyllanthus calycinus</i>	7.6	0.2	24	40.0
<i>Rytidosperma setaceum</i>	1.3	< 0.1	13	21.7
<i>Scaevola calliptera</i>	0.4	< 0.1	4	6.7
<i>Schoenus clandestinus</i>	1.2	< 0.1	12	20.0
<i>Stackhousia scoparia</i>	0.6	< 0.1	6	10.0
<i>Stylidium caricifolium</i>	0.8	< 0.1	7	11.7
<i>Stylidium carnosum</i>	0.6	< 0.1	6	10.0
<i>Tetraria octandra</i>	3.1	0.1	22	36.7
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)	1.3	< 0.1	13	21.7
<i>Tetrarrhena laevis</i>	1.5	< 0.1	13	21.7
<i>Tetradlea ?hirsuta</i>	0.1	< 0.1	1	1.7
<i>Trichocline spathulata</i>	0.1	< 0.1	1	1.7
<i>Tricoryne elatior</i>	0.2	< 0.1	2	3.3
<i>Tricoryne humilis</i>	0.3	< 0.1	2	3.3
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	0.7	< 0.1	7	11.7
<i>Trymalium odoratissimum</i> subsp. <i>trifidum</i>	195.0	4.1	13	21.7
<i>Xanthorrhoea gracilis</i>	4.2	0.1	6	10.0
<i>Xanthorrhoea preissii</i>	868.2	18.4	45	75.0

\* Quadrat count = 60.

## PS VU

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Acacia varia</i> var. <i>varia</i>	1.0	< 0.1	9	15.0
<i>Allocasuarina fraseriana</i>	1826.2	52.0	46	76.7
<i>Amphipogon amphipogonoides</i>	0.8	< 0.1	8	13.3
<i>Austrostipa mollis</i>	0.3	< 0.1	3	5.0
<i>Banksia dallaneyi</i> subsp. <i>dallaneyi</i> var. <i>dallaneyi</i>	3.8	0.1	12	20.0
<i>Banksia grandis</i>	203.6	5.8	13	21.7
? <i>Billardiera variifolia</i>	0.8	< 0.1	8	13.3
<i>Bossiaea ornata</i>	2.4	0.1	17	28.3
<i>Comesperma calymega</i>	0.4	< 0.1	4	6.7
<i>Comesperma virgatum</i>	0.1	< 0.1	1	1.7
<i>Conostylis pusilla</i>	1.7	< 0.1	10	16.7
<i>Conostylis</i> ? <i>setigera</i> subsp. <i>setigera</i>	0.8	< 0.1	8	13.3
<i>Conostylis</i> sp.	2.9	0.1	29	48.3
<i>Desmodcladus fasciculatus</i>	1.8	< 0.1	18	30.0
<i>Drosera scorpioides</i>	0.5	< 0.1	5	8.3
<i>Eucalyptus marginata</i>	1266.6	37.0	42	70.0
<i>Gompholobium marginatum</i>	0.3	< 0.1	3	5.0
<i>Gompholobium preissii</i>	0.2	< 0.1	2	3.3
<i>Hibbertia amplexicaulis</i>	2.0	0.1	18	30.0
<i>Hibbertia pilosa</i>	2.6	0.1	17	28.3
<i>Hovea chorizemifolia</i>	0.3	< 0.1	3	5.0
<i>Hovea trisperma</i>	0.2	< 0.1	2	3.3
<i>Hypolaena exsulca</i>	0.3	< 0.1	3	5.0
<i>Kennedia prostrata</i>	0.2	< 0.1	2	3.3
<i>Lagenophora huegelii</i>	1.4	< 0.1	14	23.3
<i>Lechenaultia biloba</i>	0.5	< 0.1	5	8.3
<i>Lepidosperma pubisquameum</i>	1.8	< 0.1	14	23.3
<i>Leucopogon nutans</i>	4.1	0.1	6	10.0
? <i>Linum marginale</i>	0.2	< 0.1	2	3.3
<i>Lomandra</i> ? <i>britannii</i>	0.7	< 0.1	7	11.7
<i>Lomandra caespitosa/odora</i>	2.6	0.1	26	43.3
<i>Lomandra sonderi</i>	4.1	0.1	12	20.0
<i>Monotaxis grandiflora</i> var. <i>grandiflora</i>	1.6	< 0.1	16	26.7
<i>Opercularia</i> sp.	0.5	< 0.1	5	8.3
<i>Pentapeltis peltigera</i>	0.3	< 0.1	3	5.0
<i>Persoonia longifolia</i>	51.0	1.5	3	5.0
<i>Phyllanthus calycinus</i>	0.6	< 0.1	2	3.3
<i>Pimelea</i> ? <i>ciliata</i> subsp. <i>ciliata</i>	0.5	< 0.1	4	6.7
Poaceae sp.	0.2	< 0.1	2	3.3
<i>Rytidosperma occidentale</i>	0.5	< 0.1	5	8.3
<i>Rytidosperma setaceum</i>	0.7	< 0.1	7	11.7
<i>Scaevola calliptera</i>	0.2	< 0.1	2	3.3
<i>Stylidium ciliatum</i>	0.4	< 0.1	3	5.0
? <i>Sowerbaea laxiflora</i>	0.2	< 0.1	2	3.3
<i>Tetraria octandra</i>	3.0	0.1	29	48.3
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)	3.5	0.1	25	41.7
<i>Thysanotus tenellus</i>	0.2	< 0.1	2	3.3

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Trichocline spathulata</i>	1.1	< 0.1	11	18.3
<i>Tricoryne elatior</i>	0.6	< 0.1	6	10.0
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	3.5	0.1	15	25.0
<i>Xanthorrhoea gracilis</i>	15.9	0.4	10	16.7
<i>Xanthosia singuliflora</i>	0.2	< 0.1	2	3.3

\* Quadrat count = 60.

## S/SP VU

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Acacia applanata</i>	0.1	< 0.1	1	1.7
<i>Acacia preissiana</i>	0.5	< 0.1	2	3.3
<i>Acacia pulchella</i>	0.2	< 0.1	1	1.7
<i>Agrostocrinum hirsutum</i>	0.1	< 0.1	1	1.7
<i>Allocasuarina fraseriana</i>	561.5	11.3	18	30.0
<i>Austrostipa mollis</i>	2.6	0.1	13	21.7
<i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>	18.6	0.4	17	28.3
<i>Banksia grandis</i>	635.8	12.7	25	41.7
? <i>Billardiera variifolia</i>	0.8	< 0.1	5	8.3
<i>Boronia spathulata</i>	0.6	< 0.1	2	3.3
<i>Bossiaea ornata</i>	13.8	0.3	33	55.0
<i>Caesia micrantha</i>	0.4	< 0.1	3	5.0
<i>Caladenia flava</i>	0.1	< 0.1	1	1.7
<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	0.3	< 0.1	3	5.0
<i>Clematis pubescens</i>	27.1	0.5	9	15.0
<i>Comesperma calymega</i>	0.8	< 0.1	7	11.7
<i>Conostylis pusilla</i>	0.7	< 0.1	3	5.0
<i>Corymbia calophylla</i>	611.7	12.3	30	50.0
<i>Dampiera alata</i>	0.1	< 0.1	1	1.7
<i>Dampiera linearis</i>	1.2	< 0.1	6	10.0
<i>Daviesia</i> sp.	0.2	< 0.1	2	3.3
<i>Dichelachne crinita</i>	0.9	< 0.1	8	13.3
<i>Drosera menziesii</i>	0.1	< 0.1	1	1.7
<i>Drosera scorpioides</i>	0.7	< 0.1	5	8.3
<i>Drosera stolonifera</i>	0.1	< 0.1	1	1.7
<i>Eucalyptus marginata</i>	2508.5	50.3	52	86.7
<i>Gastrolobium ?calycinum</i>	1.3	< 0.1	4	6.7
<i>Gompholobium marginatum</i>	2.2	< 0.1	11	18.3
<i>Gompholobium polymorphum</i>	2.4	< 0.1	10	16.7
<i>Hakea lissocarpha</i>	4.9	0.1	6	10.0
<i>Hibbertia amplexicaulis</i>	11.0	0.2	28	46.7
<i>Hibbertia commutata</i>	3.6	0.1	4	6.7
<i>Hibbertia pilosa</i>	12.2	0.2	33	55.0
<i>Hovea chorizemifolia</i>	0.7	< 0.1	5	8.3
<i>Hovea trisperma</i>	1.4	< 0.1	3	5.0
<i>Kennedia prostrata</i>	0.1	< 0.1	1	1.7
<i>Lagenophora huegelii</i>	6.5	0.1	22	36.7
<i>Lasiopetalum floribundum</i>	1.0	< 0.1	2	3.3
<i>Lechenaultia biloba</i>	2.1	< 0.1	17	28.3
<i>Lepidosperma pubisquameum</i>	4.5	0.1	17	28.3
<i>Leucopogon nutans</i>	8.9	0.2	9	15.0
<i>Lomandra brittanii</i>	5.2	0.1	16	26.7
<i>Lomandra caespitosa</i>	22.1	0.4	20	33.3
<i>Lomandra hermaphrodita</i>	7.8	0.2	39	65.0
<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	0.3	< 0.1	2	3.3
<i>Lomandra ?odora</i>	0.4	< 0.1	3	5.0
<i>Lomandra sericea</i>	0.6	< 0.1	4	6.7

Taxon	Live Foliage Cover (%)	Relative Live Foliage Cover (%)	Frequency	Relative Frequency (%)
<i>Lomandra sonderi</i>	33.3	0.7	7	11.7
<i>Lomandra sparteae</i>	24.3	0.5	38	63.3
<i>Macrozamia riedlei</i>	38.7	0.8	12	20.0
<i>Neurachne alopecuroidea</i>	0.3	< 0.1	3	5.0
<i>Opercularia apiciflora</i>	0.5	< 0.1	1	1.7
<i>Opercularia echinocephala</i>	1.9	< 0.1	11	18.3
<i>Pentapeltis peltigera</i>	7.4	0.1	26	43.3
<i>Persoonia longifolia</i>	1.0	< 0.1	1	1.7
<i>Phyllanthus calycinus</i>	139.4	2.8	48	80.0
<i>Ptilotus drummondii</i> var. <i>drummondii</i>	1.7	< 0.1	5	8.3
<i>Rytidosperma setaceum</i>	2.3	< 0.1	10	16.7
<i>Scaevola calliptera</i>	7.8	0.2	20	33.3
<i>Stackhousia pubescens</i>	0.2	< 0.1	1	1.7
<i>Stylidium ciliatum</i>	1.7	< 0.1	14	23.3
<i>Tetraria octandra</i>	11.8	0.2	29	48.3
<i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)	62.0	1.2	59	98.3
<i>Tetrarrhena laevis</i>	0.9	< 0.1	6	10.0
<i>Thelymitra graminea</i>	0.2	< 0.1	2	3.3
<i>Thelymitra</i> sp.	0.1	< 0.1	1	1.7
<i>Thysanotus tenellus</i>	2.0	< 0.1	19	31.7
<i>Trichocline spathulata</i>	3.4	0.1	11	18.3
<i>Tricoryne elatior</i>	0.7	< 0.1	2	3.3
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	21.6	0.4	32	53.3
<i>Xanthorrhoea gracilis</i>	137.3	2.8	21	35.0
<i>Xanthosia atkinsoniana</i>	0.1	< 0.1	1	1.7

\* Quadrat count = 60.

## Appendix F: Analogue Plot Soil Chemistry Raw Data



# Analysis Results

CSBP Soil and Plant Laboratory



64982  
Woodman Environmental Consulting

Lab No		BCS20007	BCS20008	BCS20009	BCS20010	BCS20011	BCS20012	BCS20013	BCS20014
Name		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8
Code		A-A-01 Rep01	A-A-01 Rep01	A-A-01 Rep01	L-A-01 Rep01	L-A-01 Rep02	L-A-01 Rep03	L-A-02 Rep01	L-A-02 Rep02
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRYW	DKBR	GRBR	BR	BR	BR	GRBR	GRBR
Gravel	%	0	0	0	5	5	5	5	5
Texture		3.0	2.0	3.0	1.5	1.5	2.0	1.5	1.5
Ammonium Nitrogen	mg/kg	3	4	2	17	26	8	5	3
Nitrate Nitrogen	mg/kg	4	30	19	5	3	27	< 1	< 1
Phosphorus Colwell	mg/kg	2	3	2	3	4	2	2	3
Potassium Colwell	mg/kg	74	110	110	155	234	225	30	41
Sulfur	mg/kg	73.7	53.9	81.8	5.5	5.0	3.6	1.8	2.6
Organic Carbon	%	2.75	5.05	4.77	4.52	3.81	4.90	1.86	1.95
Conductivity	dS/m	1.121	1.367	2.590	0.054	0.052	0.093	0.019	0.020
pH Level (CaCl2)		5.6	5.7	5.4	4.9	4.9	5.0	4.8	5.0
pH Level (H2O)		6.2	6.3	5.9	6.1	6.0	6.0	5.9	6.2
DTPA Copper	mg/kg	0.24	0.31	0.32	0.47	0.30	0.41	0.09	0.08
DTPA Iron	mg/kg	44.80	162.30	92.30	51.10	56.30	59.40	20.20	12.50
DTPA Manganese	mg/kg	3.13	67.17	7.62	125.69	47.63	91.86	17.01	12.74
DTPA Zinc	mg/kg	0.54	0.57	0.28	0.46	0.43	0.42	0.24	0.07
Exc. Aluminium	meq/100g	0.040	0.020	0.020	0.170	0.210	0.090	0.220	0.230
Exc. Calcium	meq/100g	3.64	8.77	6.00	6.40	7.85	10.42	1.26	1.03
Exc. Magnesium	meq/100g	6.17	10.57	9.14	2.46	2.66	4.98	0.33	0.30
Exc. Potassium	meq/100g	0.17	0.26	0.24	0.38	0.50	0.49	0.06	0.08

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	BCS20007	BCS20008	BCS20009	BCS20010	BCS20011	BCS20012	BCS20013	BCS20014
Exc. Sodium	meq/100g	6.48	7.33	10.81	0.22	0.23	0.29	0.04	0.06
Boron Hot CaCl2	mg/kg	1.44	2.11	2.10	0.68	1.02	1.13	0.26	0.27

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		BCS20015	BCS20016	BCS20017	BCS20018	BCS20019	BCS20020	BCS20021	BCS20022
Name		Sample 9	Sample 10	Sample 11	Sample 12	Sample 13	Sample 14	Sample 15	Sample 16
Code		L-A-02 Rep03	L-A-03 Rep01	L-A-03 Rep02	L-A-03 Rep03	M-A-01 Rep01	M-A-01 Rep02	M-A-01 Rep03	M-A-02 Rep01
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		DKGR	DKBR	BR	BR	BR	BR	DKBR	GR
Gravel	%	5	5	5	5	5-10	5-10	10-15	5
Texture		1.5	1.5	2.0	2.0	2.0	1.5	1.5	2.0
Ammonium Nitrogen	mg/kg	8	14	11	3	2	32	6	7
Nitrate Nitrogen	mg/kg	< 1	19	21	21	< 1	1	1	< 1
Phosphorus Colwell	mg/kg	7	4	2	2	5	9	12	< 2
Potassium Colwell	mg/kg	138	212	225	193	150	452	236	40
Sulfur	mg/kg	13.5	8.8	5.7	4.0	3.4	12.2	8.9	2.7
Organic Carbon	%	4.32	4.76	3.04	4.58	4.39	4.87	4.86	3.83
Conductivity	dS/m	0.081	0.044	0.061	0.057	0.048	0.179	0.120	0.034
pH Level (CaCl2)		4.8	5.4	5.5	5.3	5.3	5.4	5.3	4.8
pH Level (H2O)		5.8	6.4	6.5	6.3	6.4	6.3	6.3	5.9
DTPA Copper	mg/kg	0.14	0.29	0.33	0.29	2.59	2.59	1.81	0.19
DTPA Iron	mg/kg	32.00	27.10	22.80	21.10	20.00	37.80	53.70	16.30
DTPA Manganese	mg/kg	27.42	10.18	7.25	9.43	16.32	25.96	26.78	62.11
DTPA Zinc	mg/kg	0.11	0.04	0.10	0.12	0.27	0.38	0.62	0.32
Exc. Aluminium	meq/100g	0.770	0.170	0.060	0.130	0.100	0.260	0.080	0.080
Exc. Calcium	meq/100g	3.42	5.96	4.56	6.69	7.52	13.81	18.57	3.05
Exc. Magnesium	meq/100g	0.90	1.27	1.67	1.65	1.60	3.22	4.17	0.65
Exc. Potassium	meq/100g	0.31	0.50	0.56	0.45	0.33	1.08	0.50	0.08

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	BCS20015	BCS20016	BCS20017	BCS20018	BCS20019	BCS20020	BCS20021	BCS20022
Exc. Sodium	meq/100g	0.51	0.37	0.24	0.17	0.25	0.63	0.61	0.08
Boron Hot CaCl <sub>2</sub>	mg/kg	0.59	0.35	0.57	0.50	0.73	1.40	1.88	0.36

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		BCS20023	BCS20024	BCS20025	BCS20026	BCS20027	BCS20028	BCS20029	BCS20030
Name		Sample 17	Sample 18	Sample 19	Sample 20	Sample 21	Sample 22	Sample 23	Sample 24
Code		M-A-02 Rep02	M-A-02 Rep03	M-A-03 Rep01	M-A-03 Rep02	M-A-03 Rep03	PS-A-01 Rep01	PS-A-01 Rep02	PS-A-01 Rep03
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		GRBR	GR	BR	BR	BR	GRBR	GRBR	BRGR
Gravel	%	5	5	5	5	5	0	5	0
Texture		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	3	3	5	8	4	6	3	14
Nitrate Nitrogen	mg/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Phosphorus Colwell	mg/kg	2	< 2	23	11	7	2	4	3
Potassium Colwell	mg/kg	61	62	452	287	369	34	59	34
Sulfur	mg/kg	2.3	3.3	3.2	4.7	3.2	2.6	2.8	6.1
Organic Carbon	%	2.36	2.92	4.90	5.08	4.53	2.33	3.67	2.02
Conductivity	dS/m	0.039	0.045	0.062	0.067	0.052	0.025	0.025	0.063
pH Level (CaCl2)		4.9	5.0	5.5	5.3	5.7	4.9	4.4	4.8
pH Level (H2O)		6.0	6.1	6.5	6.4	6.8	6.1	5.7	5.7
DTPA Copper	mg/kg	0.11	0.15	0.32	0.40	0.36	0.19	0.15	0.10
DTPA Iron	mg/kg	24.00	30.50	41.40	44.50	26.80	25.40	30.50	30.60
DTPA Manganese	mg/kg	35.01	41.75	12.26	22.80	7.94	8.20	7.91	9.24
DTPA Zinc	mg/kg	0.32	0.13	0.50	0.31	0.19	0.13	0.10	0.04
Exc. Aluminium	meq/100g	0.110	0.070	0.070	0.070	0.030	0.180	0.510	0.560
Exc. Calcium	meq/100g	2.15	3.19	16.47	19.94	12.64	2.99	2.80	1.30
Exc. Magnesium	meq/100g	0.64	0.72	4.47	4.10	2.72	0.73	0.86	0.40
Exc. Potassium	meq/100g	0.11	0.13	0.95	0.65	0.82	0.07	0.13	0.07

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	BCS20023	BCS20024	BCS20025	BCS20026	BCS20027	BCS20028	BCS20029	BCS20030
Exc. Sodium	meq/100g	0.09	0.09	0.39	0.37	0.27	0.07	0.10	0.13
Boron Hot CaCl2	mg/kg	0.47	0.35	1.86	1.34	1.28	0.34	0.34	0.18

# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		BCS20031	BCS20032	BCS20033	BCS20034	BCS20035	BCS20037	BCS20038	BCS20039
Name		Sample 25	Sample 26	Sample 27	Sample 28	Sample 29	Sample 30	Sample 31	Sample 32
Code		PS-A-02 Rep01	PS-A-02 Rep02	PS-A-02 Rep03	PS-A-03 Rep01	PS-A-03 Rep02	PS-A-03 Rep03	S-A-01 Rep01	S-A-01 Rep02
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRGR	BRGR	BRGR	DKGR	DKGR	DKGR	DKBR	BRGR
Gravel	%	0	0	0	5	5	5-10	5	5
Texture		1.5	1.5	1.5	1.5	1.5	1.5	2.0	1.5
Ammonium Nitrogen	mg/kg	3	2	2	12	3	1	3	52
Nitrate Nitrogen	mg/kg	< 1	< 1	< 1	< 1	< 1	< 1	42	3
Phosphorus Colwell	mg/kg	2	3	2	5	3	4	5	8
Potassium Colwell	mg/kg	28	29	23	69	53	60	196	137
Sulfur	mg/kg	2.7	1.7	1.6	5.0	2.7	2.7	3.7	7.2
Organic Carbon	%	2.23	2.65	1.41	4.71	4.73	3.77	4.68	4.73
Conductivity	dS/m	0.029	0.022	0.021	0.053	0.037	0.029	0.088	0.051
pH Level (CaCl2)		4.6	4.6	5.1	3.6	5.1	4.7	5.0	4.3
pH Level (H2O)		5.8	6.0	6.2	4.8	6.3	6.1	6.1	5.6
DTPA Copper	mg/kg	0.13	0.10	0.11	0.16	0.09	0.16	0.12	0.17
DTPA Iron	mg/kg	26.20	28.50	14.30	63.70	28.60	23.70	31.70	82.60
DTPA Manganese	mg/kg	8.62	10.83	4.15	4.40	4.25	5.15	6.33	42.31
DTPA Zinc	mg/kg	0.09	0.05	0.06	0.09	0.12	0.12	0.16	0.38
Exc. Aluminium	meq/100g	0.210	0.250	0.090	1.980	0.090	0.360	0.220	0.820
Exc. Calcium	meq/100g	1.87	2.56	1.57	3.22	10.52	2.61	6.57	6.61
Exc. Magnesium	meq/100g	0.62	0.67	0.44	0.78	1.92	0.67	2.02	2.04
Exc. Potassium	meq/100g	0.05	0.06	0.03	0.14	0.11	0.14	0.42	0.29

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	BCS20031	BCS20032	BCS20033	BCS20034	BCS20035	BCS20037	BCS20038	BCS20039
Exc. Sodium	meq/100g	0.05	0.05	0.03	0.23	0.11	0.11	0.14	0.18
Boron Hot CaCl <sub>2</sub>	mg/kg	0.28	0.21	0.19	0.44	0.36	0.25	0.59	1.02



# Analysis Results

CSBP Soil and Plant Laboratory



Lab No		BCS20040	BCS20041	BCS20042	BCS20043	BCS20044	BCS20045	BCS20046
Name		Sample 33	Sample 34	Sample 35	Sample 36	Sample 37	Sample 38	Sample 39
Code		S-A-01 Rep03	SP-A-01 Rep01	SP-A-01 Rep02	SP-A-01 Rep03	SP-A-02 Rep01	SP-A-02 Rep02	SP-A-02 Rep03
Customer		Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting	Woodman Environmental Consulting
Depth		0-10	0-10	0-10	0-10	0-10	0-10	0-10
Colour		BRGR	GRBR	BRBK	BRGR	BR	BR	BR
Gravel	%	5	5	5	5	15-20	70-75	15-20
Texture		1.5	1.5	1.5	1.5	1.5	1.5	1.5
Ammonium Nitrogen	mg/kg	49	8	21	8	7	13	12
Nitrate Nitrogen	mg/kg	< 1	< 1	2	3	6	2	3
Phosphorus Colwell	mg/kg	6	4	4	4	6	4	4
Potassium Colwell	mg/kg	138	77	99	147	68	43	40
Sulfur	mg/kg	8.1	7.1	11.4	4.8	5.2	4.9	5.1
Organic Carbon	%	4.62	3.94	5.17	4.26	4.29	3.88	3.73
Conductivity	dS/m	0.076	0.038	0.090	0.046	0.043	0.045	0.041
pH Level (CaCl2)		4.8	5.1	4.5	5.3	5.2	5.3	5.5
pH Level (H2O)		6.0	6.2	5.7	6.5	6.4	6.4	6.6
DTPA Copper	mg/kg	0.16	0.10	0.15	0.07	0.14	0.19	0.16
DTPA Iron	mg/kg	77.90	78.40	85.30	38.90	45.80	55.40	35.40
DTPA Manganese	mg/kg	28.09	6.59	23.99	6.84	9.32	6.44	6.94
DTPA Zinc	mg/kg	0.20	0.08	0.25	0.11	0.15	0.06	0.12
Exc. Aluminium	meq/100g	0.250	0.120	0.610	0.100	0.070	0.040	0.040
Exc. Calcium	meq/100g	7.84	3.17	6.35	5.64	9.43	7.01	6.58
Exc. Magnesium	meq/100g	2.42	1.17	2.57	1.74	2.00	1.19	1.24
Exc. Potassium	meq/100g	0.30	0.13	0.22	0.27	0.14	0.09	0.10

CSBP Lab. Extract Value.

# Analysis Results

CSBP Soil and Plant Laboratory



	Lab No	BCS20040	BCS20041	BCS20042	BCS20043	BCS20044	BCS20045	BCS20046
Exc. Sodium	meq/100g	0.20	0.12	0.30	0.14	0.14	0.11	0.08
Boron Hot CaCl2	mg/kg	0.90	0.54	0.89	0.84	0.57	0.64	0.48

## Appendix G: Analogue Plot Soil Penetrance Raw Data

Note: The 'tip size' is the diameter of the tip of the soil penetrometer. The force in kg/cm<sup>2</sup> is calculated from the force in kg and the area of the tip in cm.

**A-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
29/11/2019	LF, EL	Clayey	15	1	8.0	4.5	
				2	10.1	5.7	
				3	10.7	6.1	
				4	10.9	6.2	
				5	10.8	6.1	
				6	10.5	5.9	
				7	7.6	4.3	
				8	8.9	5.0	
				9	7.1	4.0	
				10	9.6	5.4	
<b>Average</b>					<b>9.4</b>	<b>5.3</b>	

**L-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
6/11/2019	MS, LF	Clayey	10	1	6.0	7.6	
				2	6.3	8.0	
				3	7.9	10.1	
				4	8.3	10.6	
				5	6.9	8.8	
				6	8.0	10.2	
				7	5.9	7.5	
				8	6.5	8.3	
				9	4.8	6.1	
				10	5.5	7.0	
<b>Average</b>					<b>6.6</b>	<b>8.4</b>	

**L-A-02**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
7/11/2019	MS, LF	Sandy	15	1	5.4	3.1	Tried 20 mm tip but could not penetrate soil, switched to smaller tip
				2	6.2	3.5	
				3	2.7	1.5	
				4	3.7	2.1	
				5	3.5	2.0	
				6	3.9	2.2	
				7	6.3	3.6	
				8	4.5	2.5	
				9	4.7	2.7	
				10	7.1	4.0	
<b>Average</b>					<b>4.8</b>	<b>2.7</b>	

**L-A-03**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
7/11/2019	MS, LF	Clayey	10	1	6.7	8.5	
				2	7.8	9.9	
				3	4.6	5.9	
				4	4.9	6.2	
				5	4.4	5.6	
				6	5.2	6.6	
				7	5.6	7.1	
				8	8.1	10.3	
				9	3.2	4.1	
				10	5.1	6.5	
<b>Average</b>					<b>5.6</b>	<b>7.1</b>	

**M-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
27/11/2019	LF, EL	Clayey	10	1	9.5	12.1	
				2	11.0	14.0	
				3	6.8	8.7	
				4	8.1	10.3	
				5	5.3	6.7	
				6	6.9	8.8	
				7	5.8	7.4	
				8	9.2	11.7	
				9	6.8	8.7	
				10	9.4	12.0	
<b>Average</b>					<b>7.9</b>	<b>10.0</b>	

**M-A-02**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
28/11/2019	LF, EL	Clayey	5	1	10.2	51.9	
				2	10.6	54.0	
				3	10.9	55.5	
				4	4.5	22.9	
				5	5.2	26.5	
				6	4.3	21.9	
				7	10.2	51.9	
				8	8.5	43.3	
				9	8.4	42.8	
				10	10.5	53.5	
<b>Average</b>					<b>8.3</b>	<b>42.4</b>	

**M-A-03**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
28/11/2019	LF, EL	Clayey	15	1	5.9	3.3	
				2	7.8	4.4	
				3	9.9	5.6	
				4	9.3	5.3	
				5	8.1	4.6	
				6	10.2	5.8	
				7	8.8	5.0	
				8	10.8	6.1	
				9	10.6	6.0	
				10	8.0	4.5	
<b>Average</b>					<b>8.9</b>	<b>5.1</b>	

**PS-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
25/11/2019	LF, EL	Sandy	20	1	7.8	2.5	
				2	8.0	2.5	
				3	7.0	2.2	
				4	8.9	2.8	
				5	10.5	3.3	
				6	7.2	2.3	
				7	6.5	2.1	
				8	1.8	0.6	
				9	5.4	1.7	
				10	6.0	1.9	
<b>Average</b>					<b>6.9</b>	<b>2.2</b>	

**PS-A-02**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
27/11/2019	LF, EL	Sandy	20	1	7.8	2.5	
				2	5.3	1.7	
				3	8.0	2.5	
				4	6.1	1.9	
				5	6.7	2.1	
				6	6.2	2.0	
				7	9.4	3.0	
				8	7.1	2.3	
				9	9.1	2.9	
				10	8.2	2.6	
<b>Average</b>					<b>7.4</b>	<b>2.4</b>	



**PS-A-03**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
26/11/2019	LF, EL	Sandy	20	1	9.4	3.0	
				2	9.2	2.9	
				3	7.5	2.4	
				4	9.8	3.1	
				5	9.4	3.0	
				6	10.0	3.2	
				7	9.0	2.9	
				8	9.8	3.1	
				9	10.8	3.4	
				10	11.0	3.5	
<b>Average</b>					<b>9.6</b>	<b>3.1</b>	

**S-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
4/11/2019	MS, LF	Sandy clay/Clayey sand	5	1	8.2	41.8	Tried 10 mm tip but could not penetrate soil, switched to smaller tip
				2	8.1	41.3	
				3	7.3	37.2	
				4	7.6	38.7	
				5	5.0	25.5	
				6	2.5	12.7	
				7	3.2	16.3	
				8	3.6	18.3	
				9	2.0	10.2	
				10	4.0	20.4	
<b>Average</b>					<b>5.2</b>	<b>26.2</b>	

**SP-A-01**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
5/11/2019	MS, LF	Sandy clay/Clayey sand	20	1	8.0	2.5	
				2	8.9	2.8	
				3	8.4	2.7	
				4	7.7	2.5	
				5	7.2	2.3	
				6	7.7	2.5	
				7	7.1	2.3	
				8	3.7	1.2	
				9	5.8	1.8	
				10	5.7	1.8	
<b>Average</b>					<b>7.0</b>	<b>2.2</b>	

**SP-A-02**

Date	Recorders	Soil Type	Tip Size (mm)	Replicate	Force (kg)	Force (kg/cm <sup>2</sup> )	Comment
5/11/2019	MS, LF	Sandy clay/Clayey sand	10	1	4.2	5.3	
				2	4.8	6.1	
				3	5.4	6.9	
				4	5.8	7.4	
				5	3.8	4.8	
				6	5.0	6.4	
				7	4.6	5.9	
				8	3.2	4.1	
				9	4.2	5.3	
				10	2.6	3.3	
<b>Average</b>					<b>4.4</b>	<b>5.6</b>	

**Appendix H: Native Perennial Taxa Recommended for Addition to the Paddock Restoration Area at the Project Area**

## Note:

- High Priority Taxa are dominant taxa with  $\geq 50\%$  relative live foliage cover or relative frequency values as recorded in the 2 m x 2 m analogue quadrats in a VU;
- Aspirational Taxa are those with 25 % – 49 % relative live foliage cover or relative frequency values as recorded in the 2 m x 2 m analogue quadrats in a VU; and
- Taxa with highly incomplete identifications are not presented in this table, e.g. ?*Caesia* sp.

LMU/VU	Taxa Recommended for Addition	
	High Priority	Aspirational
A	<ul style="list-style-type: none"> <li>• <i>Baumea juncea</i>;</li> <li>• <i>Lepyrodia glauca</i>;</li> <li>• <i>Melaleuca viminea</i> subsp. <i>viminea</i>;</li> <li>and</li> <li>• <i>Lobelia anceps</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Astartea scoparia</i>; and</li> <li>• <i>Chorizandra enodis</i>.</li> </ul>
L	<ul style="list-style-type: none"> <li>• <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>;</li> <li>• <i>Conostylis pusilla</i>;</li> <li>• <i>Eucalyptus patens</i>;</li> <li>• <i>Gompholobium marginatum</i>;</li> <li>• <i>Hibbertia commutata</i>;</li> <li>• <i>Hibbertia diamesogenos</i>;</li> <li>• <i>Hibbertia polystachya</i>;</li> <li>• <i>Lepidosperma pubisquameum</i>;</li> <li>• <i>Lomandra ?odora</i>;</li> <li>• <i>Neurachne alopecuroidea</i>;</li> <li>• <i>Tetraria octandra</i>;</li> <li>• <i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391); and</li> <li>• <i>Tricoryne humilis</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Austrostipa mollis</i>;</li> <li>• <i>Babingtonia camphorosmae</i>;</li> <li>• <i>Boronia spathulata</i>;</li> <li>• <i>Desmocladius fasciculatus</i>;</li> <li>• <i>Eucalyptus wandoo</i>;</li> <li>• <i>Hakea prostrata</i>;</li> <li>• <i>Hibbertia pilosa</i>;</li> <li>• <i>Hypocalymma angustifolium</i>;</li> <li>• <i>Lechenaultia biloba</i>;</li> <li>• <i>Lomandra hermaphrodita</i>;</li> <li>• <i>Lomandra sericea</i>;</li> <li>• <i>Patersonia occidentalis</i>; and</li> <li>• <i>Patersonia pygmaea</i>.</li> </ul>
M	<ul style="list-style-type: none"> <li>• <i>Eucalyptus wandoo</i>; and</li> <li>• <i>Xanthorrhoea preissii</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Babingtonia camphorosmae</i>;</li> <li>• <i>Desmocladius fasciculatus</i>;</li> <li>• <i>Gompholobium marginatum</i>;</li> <li>• <i>Hakea lissocarpha</i>;</li> <li>• <i>Hibbertia pilosa</i>;</li> <li>• <i>Lagenophora huegelii</i>;</li> <li>• <i>Lepidosperma pubisquameum</i>;</li> <li>• <i>Lomandra nigricans</i>;</li> <li>• <i>Macrozamia riedlei</i>;</li> <li>• <i>Neurachne alopecuroidea</i>;</li> <li>• <i>Phyllanthus calycinus</i>; and</li> <li>• <i>Tetraria octandra</i>.</li> </ul>
PS	<ul style="list-style-type: none"> <li>• <i>Allocasuarina fraseriana</i>; and</li> <li>• <i>Eucalyptus marginata</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bossiaea ornata</i>;</li> <li>• <i>Desmocladius fasciculatus</i>;</li> <li>• <i>Hibbertia amplexicaulis</i>;</li> <li>• <i>Hibbertia pilosa</i>;</li> <li>• <i>Lomandra caespitosa/odora</i>;</li> <li>• <i>Monotaxis grandiflora</i> var. <i>grandiflora</i>;</li> <li>• <i>Tetraria octandra</i>;</li> <li>• <i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391); and</li> <li>• <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>.</li> </ul>

LMU/VU	Taxa Recommended for Addition	
	High Priority	Aspirational
SP	<ul style="list-style-type: none"> <li>• <i>Bossiaea ornata</i>;</li> <li>• <i>Corymbia calophylla</i>;</li> <li>• <i>Eucalyptus marginata</i>;</li> <li>• <i>Hibbertia pilosa</i>;</li> <li>• <i>Lomandra hermaphrodita</i>;</li> <li>• <i>Lomandra sparteae</i>;</li> <li>• <i>Phyllanthus calycinus</i>;</li> <li>• <i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391); and</li> <li>• <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Allocasuarina fraseriana</i>;</li> <li>• <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>;</li> <li>• <i>Banksia grandis</i>;</li> <li>• <i>Hibbertia amplexicaulis</i>;</li> <li>• <i>Lagenophora huegelii</i>;</li> <li>• <i>Lechenaultia biloba</i>;</li> <li>• <i>Lepidosperma pubisquameum</i>;</li> <li>• <i>Lomandra brittanii</i>;</li> <li>• <i>Lomandra caespitosa</i>;</li> <li>• <i>Pentapeltis peltigera</i>;</li> <li>• <i>Scaevola calliptera</i>;</li> <li>• <i>Tetraria octandra</i>;</li> <li>• <i>Thysanotus tenellus</i>; and</li> <li>• <i>Xanthorrhoea gracilis</i>.</li> </ul>

**Appendix I: Management Actions Recommended for Native Perennial Taxa  
Recorded in the Paddock Restoration Area at the Project Area**

Taxon in Paddock Restoration Area (Woodman Environmental 2019)	Recorded in Analogue Plots?	Local to Boddington Area? (DBCA 2007-)	Recommended Action
<i>Acacia alata</i>	N	N	Remove
<i>Acacia celastrifolia</i>	N	Y	None required at this stage; local taxon recorded in S/SP VU by Matiske (2013) but will require monitoring to ensure it does not become dominant
<i>Acacia dentifera</i>	N	Y	Consider thinning if dominating the restoration
<i>Acacia drummondii</i> subsp. <i>elegans</i>	N	N	Remove
<i>Acacia drummondii</i> subsp. <i>candolleana</i>	N	Y	Consider thinning if dominating the restoration
<i>Acacia drummondii</i> subsp. <i>drummondii</i>	N	Y	Consider thinning if dominating the restoration
<i>Acacia extensa</i>	N	Y	Consider thinning if dominating the restoration
<i>Acacia microbotrya</i>	N	N	Remove
<i>Acacia nervosa</i>	N	Y	Not normally a competitive species and provides a role as a Nitrogen fixer. No action required unless dominating the restoration
<i>Acacia pulchella</i> var. <i>glaberrima</i>	Y	Y	Consider thinning in areas where dominating the restoration
<i>Acacia saligna</i>	N	Y	Consider thinning; local taxon recorded in L VU by Matiske (2013) but is a disturbance opportunist
<i>Acacia urophylla</i>	N	Y	Consider thinning if dominating the restoration
<i>Allocasuarina fraseriana</i>	Y	Y	Consider thinning in areas where dominating the restoration
<i>Allocasuarina huegeliana</i>	N	Y	Remove; taxon typically associated with granite, not suited to the Project Area
<i>Allocasuarina humilis</i>	N	Y	Consider thinning if dominating the restoration
<i>Anigozanthos manglesii</i>	N	Y	Consider thinning if dominating the restoration
<i>Aotus procumbens</i>	N	N	Remove
<i>Astartea scoparia</i>	Y	Y	None required
<i>Austrostipa variabilis</i>	N	Y	Consider thinning if dominating the restoration
<i>Banksia grandis</i>	Y	Y	None required
<i>Banksia littoralis</i>	N	Y	None required; local taxon recorded in A/A1 VU by Matiske (2013) but not recorded in analogues as only one A analogue plot monitored
<i>Banksia sessilis</i>	N	Y	Consider thinning if dominating the restoration
<i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i>	N	Y	Consider thinning if dominating the restoration

Taxon in Paddock Restoration Area (Woodman Environmental 2019)	Recorded in Analogue Plots?	Local to Boddington Area? (DBC 2007-)	Recommended Action
<i>Banksia squarrosa</i> subsp. <i>squarrosa</i>	N	Y	None required; grows on shallow soil over laterite, may tolerate the highly lateritic areas at the Project Area
<i>Baumea acuta</i>	N	N	Remove
<i>Billardiera heterophylla</i>	N	N	Remove
<i>Bossiaea eriocarpa</i>	N	Y	Consider thinning if dominating the restoration
<i>Bossiaea ornata</i>	Y	Y	None required
<i>Bossiaea pulchella</i>	N	N	Remove
<i>Calothamnus sanguineus</i>	N	Y	Consider thinning if dominating the restoration
<i>Comesperma calymega</i>	Y	Y	None required
<i>Conostylis aculeata</i>	Y	Y	None required
<i>Conostylis setigera</i> subsp. <i>setigera</i>	Y	Y	None required
<i>Corymbia calophylla</i>	Y	Y	None required
<i>Daviesia cordata</i>	N	Y	Consider thinning if dominating the restoration
<i>Daviesia decurrens</i>	N	Y	None required; local taxon recorded in SP VU by Matisse (2013)
<i>Daviesia rhombifolia</i>	N	Y	Consider thinning if dominating the restoration
<i>Eragrostis brownii</i>	N	N	Remove
<i>Erodium cygnorum</i>	N	Y	Consider thinning if dominating the restoration
<i>Eucalyptus marginata</i>	Y	Y	None required
<i>Eucalyptus patens</i>	Y	Y	None required
<i>Eucalyptus rudis</i>	N	Y	None required; local taxon recorded in A VU by Matisse (2013) but not recorded in analogues as only one A analogue plot monitored
<i>Eucalyptus wandoo</i>	Y	Y	None required
<i>Gastrolobium bilobum</i>	N	Y	Consider thinning if dominating the restoration
<i>Gastrolobium calycinum</i>	Y	Y	None required
<i>Gastrolobium spinosum</i>	N	Y	Consider thinning if dominating the restoration
<i>Gompholobium marginatum</i>	Y	Y	None required
<i>Gompholobium preissii</i>	Y	Y	None required
<i>Gonocarpus cordiger</i>	N	Y	Consider thinning if dominating the restoration
<i>Grevillea monticola</i>	N	Y	Consider thinning if dominating the restoration
<i>Hakea amplexicaulis</i>	N	N	Consider thinning if dominating the restoration
<i>Hakea cyclocarpa</i>	N	N	Consider thinning if dominating the restoration
<i>Hakea incrassata</i>	N	Y	Consider thinning if dominating the restoration
<i>Hakea lissocarpha</i>	Y	Y	None required
<i>Hakea prostrata</i>	Y	Y	None required



Taxon in Paddock Restoration Area (Woodman Environmental 2019)	Recorded in Analogue Plots?	Local to Boddington Area? (DBCAs 2007-)	Recommended Action
<i>Hakea undulata</i>	N	Y	Consider thinning if dominating the restoration
<i>Hakea varia</i>	Y	Y	None required
<i>Hibbertia amplexicaulis</i>	Y	Y	None required
<i>Hovea trisperma</i>	Y	Y	None required
<i>Hypericum gramineum</i>	N	N	Remove
<i>Hypocalymma angustifolium</i>	Y	Y	None required
<i>Isopogon dubius</i>	N	Y	Consider thinning if dominating the restoration
<i>Jacksonia alata</i>	N	Y	Consider thinning if dominating the restoration
<i>Juncus pallidus</i>	N	Y	Consider thinning if dominating the restoration
<i>Kennedia coccinea</i>	N	Y	Consider thinning if dominating the restoration
<i>Kennedia prostrata</i>	Y	Y	None required
<i>Kunzea glabrescens</i>	N	Y	Consider thinning if dominating the restoration
<i>Kunzea recurva</i>	N	Y	Consider thinning if dominating the restoration
<i>Lechenaultia biloba</i>	Y	Y	None required
<i>Lepidosperma ?apricola</i>	N	Y	Consider thinning if dominating the restoration
<i>Lepidosperma ?squamatum</i>	N	Y	Consider thinning if dominating the restoration
<i>Lepidosperma tenue</i>	N	Y	Consider thinning if dominating the restoration
<i>Lobelia anceps</i>	Y	Y	None required
<i>Lomandra ?micrantha</i> subsp. <i>micrantha</i>	Y	Y	None required
<i>Melaleuca incana</i> subsp. <i>incana</i>	N	Y	None required; local taxon recorded in A VU by Matiske (2013) but not recorded in analogues as only one A analogue plot monitored
<i>Melaleuca lateritia</i>	N	Y	None required; local taxon recorded in A VU by Matiske (2013) but not recorded in analogues as only one A analogue plot monitored
<i>Melaleuca parviceps</i>	N	N	Remove
<i>Melaleuca radula</i>	N	N	Remove
<i>Melaleuca viminea</i>	Y	Y	None required
<i>Paraserianthes lophantha</i>	N	Y	Consider thinning if dominating the restoration
<i>Patersonia occidentalis</i>	Y	Y	None required
<i>Petrophile heterophylla</i>	N	Y	Consider thinning if dominating the restoration
<i>Phyllanthus calycinus</i>	Y	Y	None required
<i>Pimelea preissii</i>	N	Y	Consider thinning if dominating the restoration
<i>Ptilotus polystachyus</i>	N	Y	Remove; considered a weed in the South West
<i>Senecio quadridentatus</i>	N	Y	Consider thinning if dominating the restoration

Taxon in Paddock Restoration Area (Woodman Environmental 2019)	Recorded in Analogue Plots?	Local to Boddington Area? (DBCA 2007-)	Recommended Action
<i>Sphaerolobium medium</i>	N	Y	Consider thinning if dominating the restoration
<i>Stylidium affine</i>	N	Y	Consider thinning if dominating the restoration
<i>Tetraria capillaris</i>	N	Y	Consider thinning if dominating the restoration
<i>Tetraria octandra</i>	Y	Y	None required
<i>Tricoryne humilis</i>	Y	Y	None required
<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	Y	Y	None required
<i>Velleia trinervis</i>	N	Y	Consider thinning if dominating the restoration
<i>Viminaria juncea</i>	N	Y	Consider thinning if dominating the restoration
<i>Xanthorrhoea gracilis</i>	Y	Y	None required
<i>Xanthorrhoea preissii</i>	Y	Y	None required
<i>Xylomelum occidentale</i>	N	Y	Consider thinning if dominating the restoration