

# Stockyard Hill Wind Farm

EPBC 2016/7746

22 May 2022 to 21 May 2023

## Annual Compliance Report 2023



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Prepared by: CNC Project Management

For: Stockyard Hill Wind Farm Pty Ltd



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## ABBREVIATIONS

<b>Approval Holder</b>	Stockyard Hill Wind Farm Pty Ltd (ABN 71 118 119 501)
<b>AEMO</b>	Australian Energy Market Operator
<b>BB</b>	Bush Broker
<b>EMP</b>	Environmental Management Plan (approved by DTP under SHWF permit)
<b>Commencement</b>	As per the Definitions in Approval
<b>CTA</b>	Credit Trade Agreement
<b>CMA</b>	Catchment Management Authority
<b>DAWE, DCCEEW or Department</b>	Department of Agriculture, Water and Environment, now the Department of Climate Change, Energy, the Environment and Water administering the EPBC Act 1999
<b>DTP</b>	Department of Transport and Planning
<b>EPBC</b>	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
<b>EPBC 2016/7746</b>	EPBC Approval No. 2016/7746
<b>EPC</b>	Engineer, Procure and Construct
<b>GSM</b>	Golden Sun Moth <i>Synemon plana</i> listed under EPBC Act 1999
<b>GWA</b>	Goldwind Australia Pty Ltd (ACN 140 108 390)
<b>Ha</b>	Hectare
<b>kV</b>	Kilovolt
<b>LA</b>	Landowner Agreement
<b>Minister</b>	The Minister administering the EPBC Act 1999
<b>MW</b>	Megawatt
<b>O&amp;M</b>	Operations and Maintenance (Phase of Development)
<b>OMS</b>	Offset Management Strategy
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SHWF</b>	Stockyard Hill Wind Farm
<b>SHWEF</b>	Stockyard Hill Wind Energy Facility comprising 149 wind turbines and associated facilities
<b>SHWFPL</b>	Stockyard Hill Wind Farm Pty Ltd
<b>SLL</b>	Striped Legless Lizard <i>Delmar impar</i> listed under EPBC Act 1999
<b>Strategy</b>	See OMS, Offset Management Strategy
<b>The Land</b>	Project land as shown in Planning Permit and EPBC Referral/Approval documents
<b>The Proponent</b>	Stockyard Hill Wind Farm Pty Ltd (SHWFPL)
<b>SHWFPL address</b>	Stockyard Hill Wind Farm Pty Ltd Level 25, Tower 1, 100 Barangaroo Avenue, Barangaroo NSW 2000

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## Declaration of Accuracy

*This Annual Compliance Report relates to the Stockyard Hill Wind Farm located in Western Victoria between Beaufort and Skipton.*

*The Annual Compliance Report has been prepared in accordance with the requirements of the Condition 6 of the EPBC Approval, issued under the Environment Protection Biodiversity and Conservation Act 1999, in respect of the following Action:*

***Stockyard Hill Wind Farm, Wind Energy Facility and associated infrastructure, southwest Victoria (EPBC 2016/7746)***

*This Report:*

- has been prepared for submission to the Department of Climate Change, Energy, the Environment and Water in accordance with the submission requirement of Condition 6 of the Approval and based on the anniversary of commencement of the Action, 22 May 2018;*
- addresses each of the Conditions of the Approval and Management Strategies to describe the status of compliance with the respective requirements;*
- provides an accurate account of the respective matters for the Approval and does not intentionally misrepresent circumstances; and*
- Is made publicly available through publication on the Stockyard Hill Wind Farm website (<https://www.stockyardhillwindfarm.com.au/>).*

*Matt McDermott*

*Environmental Consultant, CNC Project Management, on behalf of Stockyard Hill Wind Farm Pty Ltd.*

*16 August 2023*



## 1 INTRODUCTION

### 1.1 Purpose of this document

This Annual Compliance Report describes the activities undertaken and relevant performance in respect of:

- **Project:** Stockyard Hill Wind Farm – Wind Energy Facility and associated infrastructure;
- **Proponent:** Stockyard Hill Wind Farm Pty Ltd (ABN 71 118 119 501);
- **EPBC Approval:** EPBC 2016/7746;
- **Condition No. 6** – Year 5 report under requirements of Condition 6 of the Approval;
- **Report period:** 22 May 2022 to 21 May 2023;
- **Project phase:** Construction/Commissioning/Operations phase for current reporting period.

The report has been prepared by CNC Project Management on behalf of Stockyard Hill Wind Farm Pty Ltd (SHWFPL).

The report has been prepared in accordance with Condition 6 of EPBC Approval, EPBC 2016/7746, to fulfil the requirements of Condition 6. Table 1.1 lists the requirements of Condition 6 and the sections of this report where each requirement is addressed.

**Table 1.1: EPBC Condition 6 - Annual Compliance Reporting Requirements**

EPBC Approval Condition 6 Reporting Requirements	Details
Within three months of every 12-month anniversary of the commencement of construction, the approval holder must publish a report on their website	Due Date is 22 August 2023
<ul style="list-style-type: none"> <li>• The report to be published on the website must address:           <ul style="list-style-type: none"> <li>○ compliance with each of the conditions of this approval, including</li> <li>○ implementation of any strategies specified in the conditions.</li> </ul> </li> </ul>	See below:
<ul style="list-style-type: none"> <li>○ compliance with each of the conditions of this approval, including</li> </ul>	Section 4, and Appendix A, B, C and D
<ul style="list-style-type: none"> <li>○ implementation of any strategies specified in the conditions.</li> </ul>	Section 4, and Appendix A, B, C and D
<ul style="list-style-type: none"> <li>• Documentary evidence providing:           <ul style="list-style-type: none"> <li>○ proof of the date of publication, and</li> <li>○ non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.</li> </ul> </li> </ul>	See below:
<ul style="list-style-type: none"> <li>○ proof of the date of publication, and</li> </ul>	Email/Letter to Department
<ul style="list-style-type: none"> <li>○ non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.</li> </ul>	As per this report. No instances of non-compliance.
<ul style="list-style-type: none"> <li>• Report must remain published for the life of the approval</li> </ul>	Ongoing requirement
<ul style="list-style-type: none"> <li>• Continue to publish reports until such time as advised in writing by Minister</li> </ul>	Ongoing requirement

A summary of compliance status for the Approval Conditions and Management Strategies (Year 5) is shown in Table 1.2 and is expanded on in Section 4, Appendix A (Compliance Tracker), Appendix B

(SMEC SLL Report, May 2022), Appendix C (SMEC GSM Report, May 2023) and Appendix D (AusEco Solutions Report 2022/23).

**Table 1.2 – Summary of Year 5 Compliance for Conditions of Approval and Management Plans**

Condition	Compliance Status	Requirement	Date Completed
1(a)	Compliant	Clear less than 42.16 ha SLL habitat	Refer Year 2 Rpt.
1(b)	Compliant	Clear less than 1.57 ha GSM habitat	Refer Year 2 Rpt.
2(a)	Compliant	SLL Covenant secured	Refer Year 1 Rpt.
2(b)	Compliant	Implement SLL Offset Management Strategy	Year 5 complete
3(a)	Compliant	GSM Covenant secured	Refer Year 1 Rpt.
3(b)	Compliant	Implement GSM Offset Management Strategy	Year 5 complete
<b>Administrative</b>			
4	Compliant	Notify Commencement	4 June 2018
5	Compliant	Maintain records of all activities	Ongoing
6	Compliant	Annual Compliance Reporting	Ongoing – 5 <sup>th</sup> Rpt.
7	Compliant	Revision of Strategy	(Notified 4 Aug 2021)
8	Not Applicable	Revoke choice under Condition 7	NA - Year 5
9	Not Applicable	Exclusions to Condition 7 applicability	NA - Year 5
10	Not applicable	Minister’s decision on revised strategy	23 <sup>rd</sup> December 2021
11	Not applicable	Notify time Condition 7 does not apply	NA - Year 5
12	Not applicable	Conditions 7, 8 not intended to limit operation of Section 143A in respect of revised strategy	Noted
13	Compliant	Not commence after 5 years of Approval without written agreement of Minister. (Approval dated 18 August 2017)	Commenced on 22/5/2018 (less than 5 years)
14	Compliant	Publish all strategies on the website	At time of submission
15	Not applicable	Provide copy of any strategy to members of public upon request within reasonable time	No requests to date
Definitions	For information	Various	Noted
<b>Offset Management Strategies for Year 5</b>			<b>Status Year 5</b>
<b>2 (b) SLL</b>	5.1	Undertake fencing repairs, as required	Ongoing
	5.2	Conduct site preparation works for weed works in Zones 1a (SLL habitat Zone)	1-2 Dec 2022
	5.3	Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.	1-2 Dec 2022
	5.4	Commence direct seeding in Zones 2a and 3a.	March 2023
	5.5	Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020 (Tile Grids 6 and 7).	20-10-2022 - 23-12-2022.
	5.6	Undertake detailed vegetation monitoring within Zones 1, 2 and 3.	30 January 2023.
	5.7	Monitor and assess works and prepare summary report.	April-May 2023.
	5.8	Re-evaluate management and effectiveness. Revise as required.	May 2023.
	5.9	Monitor biomass density and implement stock grazing regime.	December 2023 (ongoing).
<b>3(b) GSM</b>	5.1	Conduct weed control	Complies
	5.2	Monitor populations of pest animals and conduct control works if required	Complies
	5.3	Maintain fences	Complies
	5.4	Monitor biomass density and implement stock grazing regime or develop ecological burn/fuel reduction plan if appropriate	Complies

	5.5	Monitor and assess works <b>(no report)</b>	Complies
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## 2 SUMMARY DETAILS OF SHWEF PROJECT, LOCATION AND CONTEXT

### 2.1 Project Context

Stockyard Hill Wind Energy Facility (SHWEF) has been developed in Western Victoria between the towns of Beaufort and Skipton. Construction activities commenced in May 2018 with commencement of the Action under the EPBC Approval EPBC 2016/7746, notified on 4 June 2018, as having commenced from 22 May 2018.

Since November 2022, the wind farm operates at full capacity with 149 turbines collectively generating approximately 536MW of electricity, providing a significant contribution to Victoria's renewable energy target and national greenhouse gas emissions reduction.

### 2.2 Project Locality and Setting

SHWEF is located in Western Victoria, approximately 35 kilometres west of Ballarat (Figure 2.1). The site is within sparsely settled rural lands within the Victorian Volcanic Plains and within the Pyrenees Shire Council municipality. The land where the turbines are located ranges in height from approximately 325 metres to 430 metres above sea level and within Glen Hopkins Catchment Management Authority (CMA). It spans parts of two bioregions, Central Victorian Uplands and Victorian Volcanic Plain Bioregion.

The site spans a wide area, approximately 25 kilometres from north to south and approximately 20 kilometres from east to west. The wind turbines are grouped in four discrete geographic areas North, East, West and South as indicated in Figure 2.1. Distribution of the turbines by Turbine Group is shown in Table 2.1 and Figure 2.1.

**Table 2.1 SHWEF Groups of Wind Turbines and Associated Infrastructure**

Turbine group	Number of wind turbines	Wind Turbine Numbering	Other infrastructure within each Group
<b>North</b>	15	WTG 1-15	Access tracks, underground cabling, 1 permanent met mast, substation and internal OHL
<b>West</b>	54	WTG 16-69	Access tracks, underground cabling, 2 permanent met masts, substation and internal OHL, 4 new access to RDZ1, Site compound, O&M buildings and Fire suppression water tank
<b>East</b>	43	WTG 70-112	Access tracks, underground cabling, 2 permanent met masts, substation, 7 new access to RDZ1, Site compound, O&M buildings and Fire suppression water tank
<b>South</b>	37	WTG 113- 149	Access tracks, underground cabling, 2 permanent met mast, substation, Site compound, and O&M buildings and Fire suppression water tank
<b>Total</b>	<b>149</b>	<b>1 to 149</b>	

The SHWEF site is accessible by sealed and unsealed roads, normally associated with low to moderate traffic levels, some of which have been upgraded in parts, for the project access requirements.

The wind farm is situated on privately-owned land which is used for pastoral purposes and has scattered residential development. The project area is subject to leases between Stockyard Hill Wind Farm Pty Ltd (SHWFPL) and respective landowners allowing the wind farm activities to be undertaken in accordance with the commercial provisions of the respective leases.

The biodiversity values for the project area have been significantly reduced by many years of pastoral activities, but nevertheless include threatened flora species and native vegetation communities and a number of threatened fauna species. Parts of the project area have been set aside for conservation purposes as part of biodiversity offset provisions arising from the project's unavoidable impacts on the location's biodiversity and native vegetation credits have also been secured prior to commencement of construction. The secured offset credits relate to provisions of the EPBC Approval (Conditions 2 and 3) and the Victorian planning permit (Condition 18).

SMEC 2020, reviewed impacts on Threatened Species and Communities listed under the EPBC Act and assessed the impact on Natural Temperate Grasslands of the Victorian Volcanic Plain as having increased from an estimated 0.08 hectares to 0.121 hectares. The overall increase was assessed by SMEC as 0.041 hectares and was '*considered unlikely to constitute a 'significant impact' under condition thresholds in the EPBC Act Significant Impact Guidelines (SEWPAC 2011).*'

### 2.3 Associated Planning Approvals

In addition to the EPBC approval for the SHWEF Project, the development is permitted under Planning Permit PL-SP/05/0548/D that has been issued by the Victorian Minister for Planning and amended on four occasions, most recently August 2022.

The Victorian planning permit for SHWEF, was initially issued by the Minister for Planning on 26 October 2010 and, has been amended on four occasions, of most relevance in 2017, to provide for a project comprising 149 wind turbines on the layout shown in Figure 2.1 that has been micro-sited generally in accordance with the endorsed Condition 1 Development Plans for SHWEF (consistent with Condition 2).

A quarry was also established within the wind farm area under separate approvals and not within areas of mapped native vegetation. The quarry activity has now ceased, and the site has been rehabilitated.

A 132kV high voltage electricity transmission easement has also been constructed between SHWEF and a new 500 kV Terminal Station some 70 kilometres to the south of the wind farm project. The line has separate permits for native vegetation approval. The line has been constructed by AusNet Services and is owned and operated by AusNet Services.

### 2.4 SHWEF Project Land

The land on which the SHWEF is located is rural land with mostly gently sloping terrain, where Stockyard Hill and Nanimia Hill are elevated features within the project area. The land does also rise to the north of the project area. Lower elevation areas occur between the turbine groups including the large expanse of Lake Goldsmith on the western side of the Skipton Road. The land in the vicinity of Stockyard Hill is characterized by the former volcanic structure at this location with a crater lake to the east of Stockyard Hill Road and land sloping away from the rim of the crater lake. There are also areas of irregular drainage pattern that is generally typical of areas of volcanic terrain in Western Victoria.

The locations of the four turbine groups are shown on Figure 2.1, the pink shaded areas are lands that are within the project area. The SHWEF infrastructure impacts only a small part of the project lands.



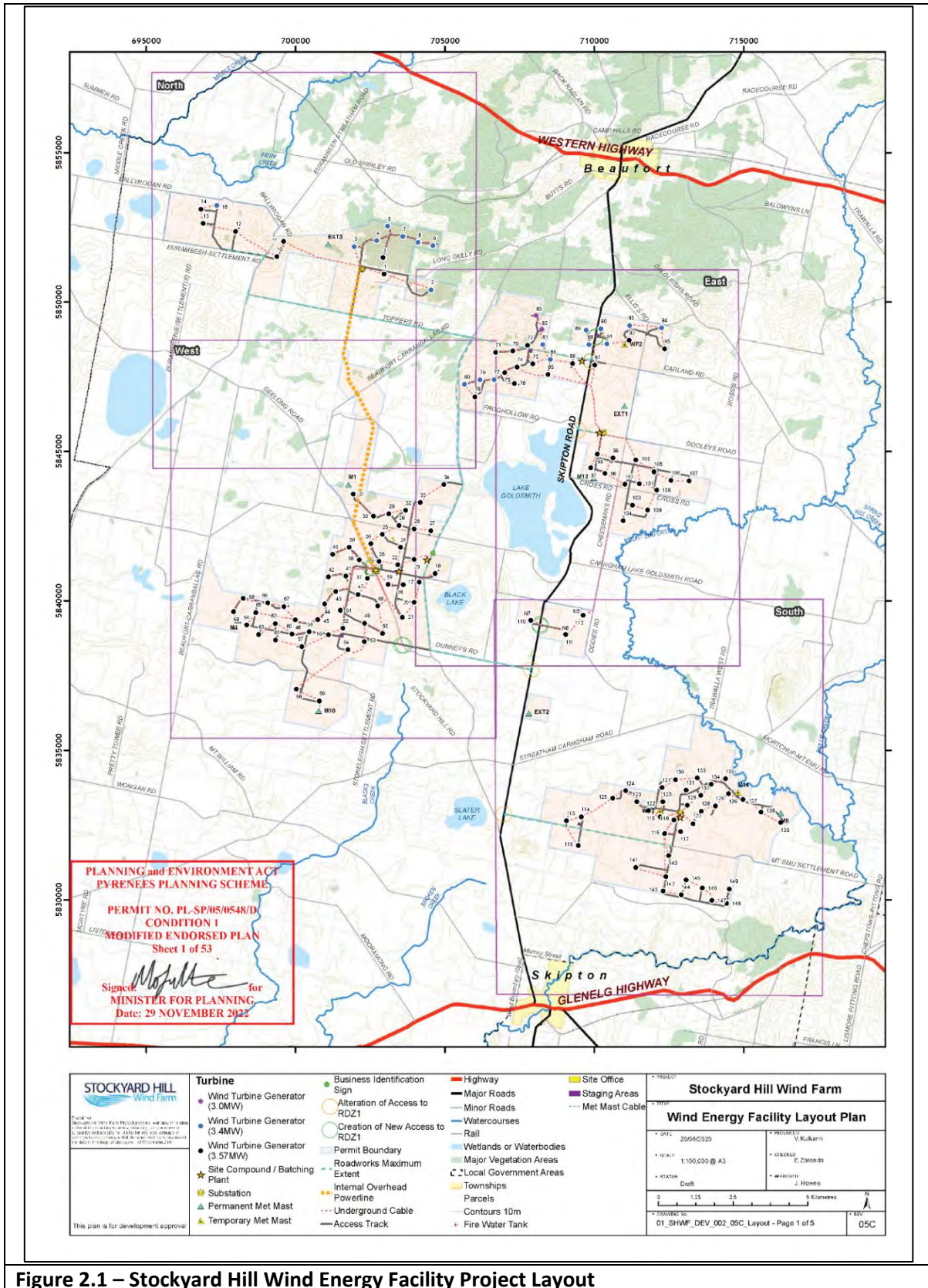


Figure 2.1 – Stockyard Hill Wind Energy Facility Project Layout

### 3 DETAILS OF SHWEF PROJECT AND DEVELOPMENT STATUS

#### 3.1 Approved Action

The EPBC Approval 2016/7746 allows the following Approved Action:

*To develop and operate the Stockyard Hill Wind Farm and associated infrastructure in south-west Victoria, approximately 150 km west, northwest of Melbourne and approximately 35 km west of Ballarat [see EPBC 2016/7746].*

The SHWEF layout (Figure 2.1) comprising 149 wind turbines, has been constructed generally consistent with the referral for EPBC 2016/7746.

The SHWEF project comprising 149 wind turbines has been subject to micro-siting that has not materially increased the impacts on biodiversity.

The details of the SHWEF project being implemented are outlined below in the context of the compliance reporting provided in this document.

#### 3.2 Details of Wind Turbines

The project comprises 149 wind turbines. These are a combination of Goldwind's Permanent Magnet Direct Drive design (models GW140/3000, GW140/3400 and GW140/3570) with a total wind farm generating capacity of approximately 536MW.

The wind turbines have key dimensions as follows:

- a maximum height (to highest point of rotor swept area) of 180 meters above ground level,
- a hub height of approximately 109 metres,
- The three bladed rotors are approximately 140 metres in diameter.

Near the base of each wind turbine tower are:

- an external kiosk-style 33kV Ring Main Unit (RMU)
- two banks of cooling fans. Cooling fluid circulates between the cooling fan units and the internal areas of the tower and turbine.
- A compacted hardstand area has been formed at each wind turbine site, for use by large cranes installing turbines and for component laydown during construction. These hardstands are retained for the operations phase in case large cranes are required for maintenance activities.

No aviation safety lighting is required on the wind turbines. Lighting is provided at the entry to each wind turbine tower. The wind turbines are off-white/grey with non-reflective finish as required by the Victorian Planning Permit.

#### 3.3 Substation details

Three 132kV/33kV substations are located in the West, East and South Turbine Groups. A 33kV switchyard is located in the North Group and a 10 km 33kV transmission line provides connection of the North Group to the West Substation. The grid connection infrastructure (three substations and a switchyard) is sited at locations that avoid impacts on native vegetation. These infrastructure elements comprise:

- Switch-rooms that receive 33 kV cables from each of the wind farm's collector groups.
- 33kV/132kV transformers are located at each of the three 33kV/132kV substations. The transformers are located in concrete bunds that provide containment for any oil spill or leakage

- landing gantry for conductors from substation to cut-in poles for the 132kV-kV transmission lines.
- Control rooms housing battery banks and electrical control equipment.
- Various electrical protection and power quality equipment.
- Security fencing around the substations.
- Earthing grid below gravel cover for substation compounds, and
- Country Fire Authority (CFA) 4 m fuel reduction zone around the 3 substations and switchyard.

### 3.4 Other permanent infrastructure

The wind farm design also includes facilities as described below:

- Access track network from the site entry to all turbine sites and the substation sites (Figure 2.1), comprising approximately 101 km of trackwork.
- 33 kV collections circuits comprising 33kV underground cables between groups of turbines and the respective substation for the Group. Communications and control cables are co-located with the 33kV cables.
- An approximate 10 km section of 33kV overhead line links the North Group to the West Group.
- A Main Operations and Maintenance facility is located within the West Turbine Group adjacent, Stockyard Hill Road:
  - a compound surrounded by security fencing and including parking for service team;
  - a building providing office desks, computer and communications facilities and amenities. A septic system is provided at the location;
  - a warehouse with minor workshop.
- Three remote facilities are necessary for the East and South Substations and North Group Transition Station (switchyard) that provide meal room facilities and amenities for service personnel at these remote locations. Small Warehouses are also located at the East and South Substations.
- None of the substation or O&M/remote facilities are located in areas of native vegetation.

### 3.5 Temporary construction infrastructure

The wind farm design also allowed for temporary construction infrastructure including:

- Construction compounds at each turbine group – have been mostly removed following construction activities. None are located in areas of native vegetation.
- Two batch plant sites (eastern and western sites) – Batch Plants now removed from site.

### 3.6 Status of SHWEF Works

For this reporting period (Year 5, 22 May 2022 to 21 May 2023), the project completed the connection of all its assets on 25 November 2022. Since then, the wind farm has been working at full capacity.

## 4 EPBC APPROVAL CONDITIONS AND PROPONENT RESPONSES

### 4.1 Overview of the EPBC Approval requirements

This report addresses the 5<sup>th</sup> Year since commencement of the Action and, reviews compliance with:

- Conditions 1 to 15 of EPBC Approval 2016/7746 (Section 4 and Appendix A), and
- the implementation of any strategies required by this approval (Sections 4, and 5), specifically:
  - Condition 2b, Striped Legless Lizard Offset Management Strategy
  - Condition 3b, Golden Sun Moth Offset Management Strategy

The review is supported by the reports listed below that provide the substantive evidence of compliance with the EPBC Approval Conditions and the Offset Management Strategy requirements.

- SHWF Striped Legless Lizard Population Monitoring (Year 5) SMEC, May 2023
- Technical Memorandum: Golden Sun Moth Habitat Assessment Report (Year 5) – Stockyard Hill Windfarm (BB-3027-02) SMEC, May 2023
- Goldwind Offset Site Monmot Farming – Aus Eco Solutions, 2022/2023 Works Report

A summary of the compliance status for each of the Conditions is set out in Appendix A. The following parts of Section 4 provide further compliance details, additional to the summary detail in Appendix A.

A summary of compliance for implementation of management strategies, under Conditions 2b and 3b, is also described in Section 4. Full details are provided in the attachments.

A number of conditions are not applicable to the current reporting period, as indicated in this report.

### 4.2 Condition 1(a) – Striped Legless Lizard Habitat

Condition 1(a) requires that:

*The approval holder must not clear more than, 42.16 ha of habitat for Striped Legless Lizard.*

SMEC 2020, reviewed the extent of final construction disturbance within the area of Striped Legless Lizard Habitat and reported that the total extent is 41.40 hectares, which is less than specified in Condition 1(a) by 0.76 hectares.

Accordingly, the works are compliant with requirements of Condition 1(a). No further ground disturbance works is required.

### 4.3 Condition 1(b) – Golden Sun Moth Habitat

Condition 1(b) requires that:

*The approval holder must not clear more than, 1.57 ha of habitat for Golden Sun Moth.*

SMEC 2020, reviewed the extent of final construction disturbance within the area of Golden Sun Moth Habitat and reported that the total extent is 1.26 hectares, less than specified in Condition 1(b) by 0.31 hectares.

Accordingly, the works are compliant with requirements of Condition 1(b). No further ground disturbance works is required.

### 4.4 Condition 2(a) – Covenant secured for Striped Legless Lizard Habitat

Condition 2(a) requires that:

*To compensate for the loss of 42.16 ha of Striped Legless Lizard habitat, the approval holder must secure the Striped Legless Lizard offset with a covenant before commencement of construction;*



In respect of securing a covenant for the Striped Legless Lizard offset, the details were reported in the 2019 Annual Compliance Report. In summary, the offset has been secured under a Department of Transport and Planning (DTP) landowner agreement (BB-3036-LA01). As part of DTP’s oversight of the compliance with Offset management requirements, DTP has previously undertaken a site audit of the covenant and management actions and details were outlined in the 2020 Annual Compliance Report.

As described above, the requirements of Condition 2(a) have been previously complied with.

#### 4.5 Condition 2(b) – Implementation of SLL Offset Management Strategy

Condition 2(b) requires that:

*To compensate for the loss of 42.16 ha of Striped Legless Lizard habitat, the approval holder must implement the Striped Legless Lizard Offset Management Strategy for the secured Striped Legless Lizard offset.*

Components of the Striped Legless Lizard Offset Management Strategy (SLL OMS) implementation for Years 1, 2, 3 and 4 were reported in the 2019, 2020, 2021 and 2022 Compliance Reports respectively. It is noted that SMEC has been engaged by SHWFPL to undertake SLL monitoring and review of actions under the OMS that are described for Year 5 in Appendix B (SMEC March 2023). The landowner separately engaged AusEco Solutions to undertake maintenance including direct seeding and rehabilitation works within the offset site, as required. The landowner and SHWFPL are jointly involved with the implementation of the strategy.

**Table 4.1 SHWF SLL Offset Management Strategy - Year 5 Actions and Status (Appendix B)**

Action	Management Action	Responsible	Timing	Date Completed
5.1	Undertake fencing repairs, as required	Landowner	Ongoing	No fencing repairs were noted by landowner.
5.2	Conduct site preparation weed control for rehabilitation works in Zones 1a	Landowner and Aus Eco Solutions	Oct-Nov '22	Completed by Aus Eco Solutions in 1-2 December 2022 (Aus Eco Solutions 2023). Timing of works fell 1-2 days outside of scheduled window, timing is still considered appropriate.
5.3	Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.	Landowner and Aus Eco Solutions	Oct-Nov '22	Completed by Aus Eco Solutions in 1-2 December 2022 (Aus Eco Solutions 2023). Timing of works fell 1-2 days outside of scheduled window, timing is still considered appropriate.
5.4	Commence direct seeding in Zones 2a and 3a.	Landowner and Aus Eco Solutions	Autumn/Spring	Direct seeding took place in March 2023. The seeding took place at a separate location outlined within.
5.5	Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020.	SMEC	September to November Year 5	Completed between 20-10-2022 and 23-12-2022.

				The timing of Striped Legless Lizard surveys was extended to 23 December 2022. While this was not the proposed timing of surveys (October-November), it is still considered to be an appropriate time of year to detect the species using tile grids methodology.
5.6	Undertake detailed vegetation monitoring within Zones 1, 2 and 3.	SMEC	December-February	Completed 30 January 2023.
5.7	Monitor and assess works and prepare summary report.	SMEC	April-May 2023.	April-May 2023.
5.8	Re-evaluate management and effectiveness. Revise as required.	SMEC	Review based on management actions in Year 1-5.	May 2023.
5.9	Monitor biomass density and implement stock grazing regime.	Landowner	As required by adaptive management.	December 2023 (ongoing)

**Year 5 Action 5.1** - Undertake fencing repairs, as required.

No fencing repairs were noted by landowner during year 5. Fences remain in good condition. Monitoring of fences is undertaken routinely by the landholder, their contractors and SMEC staff delivering the OMS, refer Appendix B.

**Year 5 Action 5.2** Conduct site preparation works for weed works in Zones 1a (SLL habitat Zone)

Herbicide spraying was undertaken in high-value areas and around the rocky rise areas. The main target weed was Scotch Thistle - *Onoprodium acanthium*. The spraying works were completed on the 1<sup>st</sup> and 2<sup>nd</sup> of December 2022. Refer Reporting attached as Appendix D.

**Year 5 Action 5.3** - Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.

Herbicide spraying was undertaken in high-value areas and around the rocky rise areas. The main target weed was Scotch Thistle - *Onoprodium acanthium*. The spraying works were completed on the 1<sup>st</sup> and 2<sup>nd</sup> of December 2022. Refer Reporting attached as Appendix D.

**Year 5 Action 5.4** - Commence direct seeding in Zones 2a and 3a.

Direct seeding of previously collected seed from the local area was done in April with approximately 56kg of Kangaroo grass (*Themeda triandra*) spread through an area marked on the below map, the direct seeding occurred on the 27<sup>th</sup> of March 2023.



The area that was direct seeded this year was prepared by crash grazing and raking out the target area. The direct seeding was undertaken using hand broadcasting. Refer Reporting attached as Appendix D.

**Year 5 Action 5.5** - Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020.

Five Striped Legless Lizard (four confirmed unique individuals, one non-capture) were recorded during Year 5 monitoring. A total of eight individual Striped Legless Lizard individuals have been confirmed (with additional lizards likely across the offset site). Refer Reporting attached as Appendix B.

**Year 5 Action 5.6** - Undertake detailed vegetation monitoring within Zones 1, 2 and 3.

Cover of native species continues to increase with five additional areas of Plains Grassland and six additional areas of Plains Grassy Wetland reaching the 25% perennial native cover threshold requirement of 'a patch' under the Guidelines. Recording of the FFG Act-listed Brackish Plains Buttercup. Refer Reporting attached as Appendix B.

**Year 5 Action 5.7** - Monitor and assess works and prepare summary report.

Monitoring and assessment was undertaken during the year per requirements of the SLL OMS by SMEC, Aus Eco Solutions and the landowner. Refer Reporting attached as Appendix D.

**Year 5 Action 5.8** - Re-evaluate management and effectiveness. Revise as required.

SMEC Striped Legless Lizard Population Monitoring (Year 5) Report provides an evaluation of the effectiveness of management measures and recommendations for ongoing management of the offset area for Year 6 and beyond. Refer Reporting attached as Appendix B.

**Year 5 Action 5.9** - Monitor biomass density and implement stock grazing regime.

Biomass density and stock grazing was assessed by SMEC during Year 5. The site continues to maintain a high level of biomass (80-90%), particularly rocky rises which continue to support the highest cover of introduced pasture grasses. Biomass control will need to focus on rocky rises (Zones 1a, 1c and 2e) via rotation stock grazing in March to August and October to December 2023 (EHP 2021). The site will require installation of temporary stock fencing as depicted in Figure 2. The fencing will split the site into three separate Zones A, B and C. The ability to manage the biomass levels through low density rotation grazing will aid rehabilitation efforts completed by Aus Eco Solutions in March 2023 and species habitat in accordance with the OMS targets. Refer Reporting attached as Appendix B.

Requirements of Condition 2(b) in relation to Year 5 Management Actions for the SLL OMS have been satisfied.

#### **4.6 Condition 3(a) – Covenant secured for Golden Sun Moth Habitat**

Condition 3(a) requires that:

*To compensate for the loss of 1.57 ha of golden sun moth habitat, the approval holder must secure the golden sun moth offset with a covenant prior to commencement of construction. The golden sun moth offset must contain at least 9 ha of known golden sun moth habitat (Figure 2).*

In respect of securing a covenant, for Golden Sun Moth offset, SHWFPL, entered into a Two-Party Agreement for an area 300 metres by 300 metres (9 hectares) details of which were provided with the First Year Annual Compliance Report. The agreement is referred to as Asset BBA-3027 – Landowner Agreement No LA02, Bush Broker Site Plan – BB-3027/LA02-01.

As described above, the requirements of Condition 3(a) have been previously complied with.

#### 4.7 Condition 3(b) – Implementation GSM Offset Management Strategy

Condition 3(b) requires that:

*To compensate for the loss of 1.57 ha of golden sun moth habitat, the approval holder must implement the Golden Sun Moth Offset Management Strategy for the secured golden sun moth offset.*

Details of responses to Year 5 management actions specified in Table 2 of the Strategy are provided in Technical Memorandum Golden Sun Moth Habitat Assessment Report (Year 5) – Stockyard Hill Windfarm (BB-3027-02) (Appendix C), and key points are summarized in Table 4.2.

**Table 4.2 SHWF GSM Offset Management Strategy - Year 5 Actions and Status (Appendix C)**

Action	Management Action	Responsible	Timing	Date Completed
5.1	Conduct weed control	Landowner	Species dependent	Evidence of landowner maintenance sighted in May 2023
5.2	Monitor populations of pest animals and conduct control works if required	Landowner	After peak breeding season - late summer/early autumn	Evidence of landowner maintenance sighted in May 2023
5.3	Maintain fences	SHWFPL and Landowner	As required	May 2023
5.4	Monitor biomass density and implement stock grazing regime or develop ecological burn/ fuel reduction plan if appropriate	SHWFPL and landowner	Summer/Autumn	May 2023
5.5	Monitor and assess works (no report)	Suitably qualified ecological specialist	Five years after commencement of OMS	May 2023

##### Year 5 Action 5.1 – Conduct weed control

The Landowner (Gerrpart Holdings Pty Ltd 2023) is required to maintain a work diary to keep records of weed management and pest animal management. This was viewed by SMEC to confirm adequate measures have been put in place throughout Year 5.

No woody weeds were recorded within the offset site. Weed management has been focused on high threat weeds including Yorkshire Fog, Brown-top Bent, Cat’s Ear and Cape Weed, per Management Plan for Credit Site BB-3027/LA02 Year 5 Report 2023.

##### Year 5 Action 5.2 - Monitor populations of pest animals and conduct control works if required

The landowners are required to maintain a work diary to keep records of weed management and pest animal management. This was viewed by SMEC to confirm adequate measures have been put in place throughout Year 5.

#### **Year 5 Action 5.3 – Maintain fences**

Fencing was in good condition and is being used to avoid unauthorised entry to the offset site and target biomass management via sheep grazing.

#### **Year 5 Action 5.4 - Monitor biomass density and implement stock grazing regime or develop ecological burn/ fuel reduction plan if appropriate.**

Vegetation was recorded at approximately 90% cover throughout the offset site, with bare ground recorded up to 10% cover. Recommendation made to focus biomass reduction throughout the offset site, particularly in Priority Zone 1. Implementation of additional measures to include temporary fencing to target grazing efforts or burning to minimize biomass.

#### **Year 5 Action 5.5 - Monitor and assess works (no report)**

SMEC was engaged to undertake a rapid Year 5 Golden Sun habitat assessment at the secured offset site. The assessment included:

- Completing a habitat assessment detailing information on:
  - Habitat quality
  - Biomass levels
  - Presence of weeds
  - Floristic diversity
- Providing advice on biomass and grazing management regimes;
- Identifying areas of focused management activities with respect to pest plants and animals; and
- Determine recommendations for ongoing works to ensure the conservation of Golden Sun Moth habitat and persistence of the existing population.

Discussion and recommendations for the ongoing management into Year 6 are made within Section 4 of Appendix C.

No report required in Year 5 of the OMS (EHP 2021) however a technical memorandum is attached in Appendix C.

Requirements of Condition 3(b) in relation to Year 5 management actions of the GSM OMS have been satisfied.

### **4.8 Condition 4 – Notify Commencement**

Condition 4 requires that.

*Within 14 days after the commencement of construction, the approval holder must advise the Department in writing of the actual date of commencement of construction.*

SHWFPL submitted a letter to the Department, on 4 June 2018, notifying commencement of construction on 22<sup>nd</sup> May 2018.

No further requirements apply for Condition 4.

#### 4.9 Condition 5 – Maintain records of all activities

Condition 5 requires that:

*The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the strategy 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.*

This is an ongoing requirement, is applicable for this reporting period and has been complied with.

#### 4.10 Condition 6 – Annual Compliance Reporting

Condition 16 requires that:

*Within three months of every 12-month anniversary of the commencement of construction, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any strategies as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain published for the life of the approval. The approval holder must continue to publish reports until such time as advised in writing by the Minister.*

In response to Condition 6, SHWFPL has:

- Prepared this 5<sup>th</sup> annual compliance report, required by Condition 6.
- Published this report on website as per link here:  
<https://www.stockyardhillwindfarm.com.au/>
- Provides evidence to the Department of proof of publication (email direct to Department).

#### 4.11 Condition 7 – Revision of Strategies

Condition 7 requires that:

*The approval holder may choose to revise a strategy approved by the Minister under conditions 2 and 3 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised strategy would not be likely to have a new or increased impact. If the approval holder makes this choice they must:*

- notify the Department in writing that the approved strategy has been revised and provide the Department with an electronic copy of the revised strategy*
- implement the revised strategy from the date that the strategy is submitted to the Department; and*
- for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised strategy would not be likely to have a new or increased impact.*

Strategies were not revised during the reporting period.

#### 4.12 Condition 8 – Revocation of choice under Condition 7

Condition 8 requires that:

*The approval holder may revoke their choice under condition 7 at any time by notice to the Department. If the person taking the action revokes the choice to implement a revised strategy, without approval under section 143A of the Act, the strategy approved by the Minister must be implemented.*

Condition 8 was not triggered during the 2023 report period. Its requirements are noted by SHWFPL.

#### 4.13 Condition 9 – Condition 7 may not apply if including change to environmental offsets

Condition 9 requires that:

*Condition 7 does not apply if the revisions to the approved strategy include changes to environmental offsets provided under the strategy in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised strategy would, or would not, be likely to have new or increased impacts.*

Condition 9 was not triggered during the 2023 report period. Its requirements are noted by SHWFPL.

#### 4.14 Condition 10 – Minister advises revised strategy has a new or increased impact

Condition 10 requires that:

*If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised strategy would be likely to have a new or increased impact, then:*

- i. Condition 7 does not apply, or ceases to apply, in relation to the revised strategy; and*
- ii. The person taking the action must implement the strategy approved by the Minister.*

*To avoid any doubt, this condition does not affect any operation of conditions 7 and 8 in the period before the day the notice is given.*

Condition 10 was not triggered during the 2023 report period. Its requirements are noted by SHWFPL.

#### 4.15 Condition 11 – Minister may notify that Condition 7 does not apply for specified time

Condition 11 requires that:

*At the time of giving the notice the Minister may also notify that for a specified period of time that condition 7 does not apply for the strategies required under the approval.*

Condition 11 was not triggered during the 2023 report period. Its requirements are noted by SHWFPL.

#### 4.16 Condition 12 – Conditions 7 and 8 not limit the operation of Section 143A of EPBC Act

Condition 12 requires that:

*Conditions 7 and 8 are not intended to limit the operation of section 143A of the EPBC Act which allows the person taking the action to submit a revised strategy to the Minister for approval.*

Condition 12 is noted by SHWFPL. No further response is required for this report.

#### 4.17 Condition 13 – Not Commenced after 5 years of Approval Date

Condition 13 requires that:

*If, at any time after 5 years from the date of this approval, the approval holder has not commenced the action, then the person taking the action must not commence the action without the written agreement of the Minister.*

The project commencement and Action under the Approval occurred on 22 May 2018, within 5 years of the approval date and, there are no further requirements of the Condition that are applicable to the project.

#### **4.18 Condition 14 – Publish all strategies on website**

Condition 14 requires:

*Unless otherwise agreed to in writing by the Minister, the approval holder must publish all strategies referred to in these conditions of approval on their website.*

In response to Condition 14, SHWFPL has published the following documents on the project website (<https://stockyardhillwindfarm.com.au>).

- Condition 2(b) – Striped Legless Lizard Revised Offset Management Strategy (published August 2021);
- Condition 3(b) – Golden Sun Moth Revised Offset Management Strategy (published August 2021);
- Annual Compliance Report May 2018 to May 2019, published August 2019;
- Annual Compliance Report May 2019 to May 2020, published August 2020;
- Annual Compliance Report May 2020 to May 2021, published August 2021;
- Annual Compliance Report May 2021 to May 2022, published August 2022.

A request to post this August 2022 Annual Compliance Report on the SHWEF Website will be made at time of its submission to the Department.

#### **4.19 Condition 15 – Provision of Strategies to public upon request**

Condition 15 requires that:

*Unless otherwise agreed to in writing by the Minister, the approval holder must provide a copy of any strategy referred to in these conditions of approval to members of the public upon request, within a reasonable time of the request.*

No such requests have been received for the reporting period and no copies of strategies needed to be provided. It is noted that the strategies referred to in the conditions of approval, are in accordance with Condition 14, published on the project website.



## 5 IMPLEMENTATION OF THE MANAGEMENT STRATEGIES

The compliance requirements for implementation of the revised Striped Legless Lizard Offset Management Strategy (Condition 2(b)) are outlined in Section 4.5 of this report and Appendix B (SMEC May 2023).

The compliance requirements for implementation of the revised Golden Sun Moth Offset Management Strategy (Condition 3(b)) are outlined in 4.7 of this Report and Appendix C (SMEC May 2023).

## 6 CONCLUSIONS

This report provides the relevant details required for satisfying requirements of Condition 6 of the EPBC Approval 2016/7746 for the 5<sup>th</sup> year after commencement of the Action on 22 May 2018.

The report addresses:

- status of compliance with conditions of the EPBC approval, and
- status of implementation of the revised SLL and GSM Offset Management Strategies required by Conditions 2(b) and 3(b) of the approval.

SHWFPL concludes that all compliance requirements have been met for the Year 5 Period as described in this Report. No instances of non-compliance have been identified for the reporting period.

## 7 REFERENCES

DCCEEW	EPBC Approval 2016/7746 approved on 18 August 2017.
DEECA	Permit No: PL-SP/05/0548/D as amended 04 Aug 2022
SMEC	SHWF SLL Population Monitoring (Year 5), May 2023
SMEC	Golden Sun Moth Habitat Assessment Report (Year 5) – Stockyard Hill Windfarm (BB-3027-02) May 2023

Aus Eco Solutions: P3869 Goldwind Offset Site Monmot Farming - 2022/2023 Works Report

Other references are referred to in the text of this report or its attachments, in relation to specific aspects addressed by this report.

## 8 APPENDICES

Appendix A – Review of Compliance with Approval Conditions – Report for August 2023.

Appendix B – SHWF SLL Population Monitoring (Year 5), SMEC, May 2023

Appendix C - Golden Sun Moth Habitat Assessment Report (Year 5) – Stockyard Hill Windfarm (BB-3027-02) May 2023

Appendix D – P3869 Goldwind Offset Site Monmot Farming - 2022/2023 Works Report

**APPENDIX A - STOCKYARD HILL WF –EPBC APPROVAL (EPBC 2016/7746) - REVIEW OF COMPLIANCE WITH APPROVAL CONDITIONS – REPORT AUGUST 2023**

Ref	part	Details of Condition	Stage	Responsibility	Compliance	Details for demonstrating compliance
1		The approval holder must not clear more than:				
1	a	42.16 ha of habitat for Striped Legless Lizard; and	Planning and Construction	GWA	Partial	<p>Areas of SLL habitat were to be marked out on site in advance of removal activities commencing and that occurred for the initial construction works at Dunnets Rd, however was not undertaken for all high-risk SSL habitat within the wind farm and road side areas.</p> <p>Within Dunnets Rd, opportunities to avoid clearance of NTGVVP and confirmed SSL habitat were identified and implemented. Realignment of Dunnett’s Rd approximately 5 meters north along its full extent, avoided disturbance of confirmed SLL habitat on the southern boundary, as well as disturbance to critically endangered NTGVVP grasslands. An additional section of plains grassland was also protected as a result of this change.</p> <p>Pre-clearance was undertaken prior to construction, with rocks within the construction footprint mechanically lifted. No SLL were found or harmed. during this process, however, 5 blue tongue lizards were salvaged and relocated into the adjoining SLL offset area in accordance with the approved Fauna Management Plan.</p> <p>SMEC 2020, undertook a survey of post-construction project disturbance and advised that the impact on the area of Striped Legless Lizard is 41.40 ha impacted and is less than the 42.16 ha allowed under Condition 1(a). Refer SHWF Annual Compliance Report 2020, Appendix B, SMEC August 2020.</p>
1	b	1.57 ha of habitat for golden sun moth,	Planning and Construction	GWA	Partial	<p>Areas of Golden Sun Moth (GSM) habitat within the WEF were largely avoided during the design process, with the exception of the area surrounding Golden Sun Moth offset (Gerard’s property in the north).</p> <p>SMEC 2020, concluded that approximately 1.26 ha of GSM was disturbed (less than 1.57 ha allowed under Condition 1(b). Refer to SHWF Annual Compliance Report 2020, Appendix B (SMEC August 2020)</p>
1		Without the prior written approval of the Minister.	Construction	GWA	Ongoing	The limits of clearing for Condition 1 were complied with. Impact was assessed by SMEC 2020.

Ref	part	Details of Condition	Stage	Responsibility	Compliance	Details for demonstrating compliance
2	To compensate for the loss of 42.16 ha of Striped Legless Lizard (SLL) habitat, the approval holder must:					
	a	secure the Striped Legless Lizard offset with a covenant before commencement of construction; and	Before construction	SHWFPL	Complies	A s 69 covenant was executed by the landowner and signed by DTP. A Credit Trade Agreement is in place and was forwarded to DTP prior to construction commencing.  Evidence of securing the SSL offset was included as Attachment 2a of the Annual Compliance Report, 2019.
b	implement the Striped Legless Lizard Offset Management Strategy for the secured SLL offset.	Construction / Operations	SHWFPL	Complies – ongoing	<p>Actions were undertaken during the report period to address Year 5 requirements for the SLL Offset Management Strategy, Section 6.10, Table 4 and Revised OSM Strategy SMEC 2021, included as follows:</p> <ul style="list-style-type: none"> <li>• 5.1: Undertake fencing repairs, as required</li> <li>• 5.2: Conduct site preparation weed control for rehabilitation works in Zones 1a</li> <li>• 5.3: Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.</li> <li>• 5.4: Commence direct seeding in Zones 2a and 3a.</li> <li>• 5.5: Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020.</li> <li>• 5.6: Undertake detailed vegetation monitoring within Zones 1, 2 and 3.</li> <li>• 5.7: Monitor and assess works and prepare summary report.</li> <li>• 5.8: Re-evaluate management and effectiveness. Revise as required.</li> <li>• 5.9: Monitor biomass density and implement stock grazing regime.</li> </ul> <p>Requirements of Condition 2(b) for Year 5 have been satisfied.</p>	
3	To compensate for the loss of 1.57 ha of golden sun moth (GSM) habitat, the approval holder must:					
	a	secure the GSM offset with a covenant prior to commencement of construction. The GSM offset must contain at least 9 ha of known GSM habitat and	Before construction	SHWFPL	Complies	A Section 69 covenant has been executed by the landowner and signed by DTP. A Credit Trade Agreement is also in place, which was forwarded to DTP in advance of construction commencing.  Evidence of securing the GSM offset was included as Attachment 3a of the 2019 EPBC Annual Compliance Report.
b	implement the Golden Sun Moth Offset Management Strategy for the secured golden sun moth offset.	Construction / Operations	SHWFPL	Complies – ongoing	<p>Management actions undertaken to comply with Year 5 requirements for the GSM Offset Strategy (Table 2, Year 5) were undertaken as follows:</p> <ul style="list-style-type: none"> <li>• 5.1: Conduct weed control</li> </ul>	

Ref	part	Details of Condition	Stage	Responsibility	Compliance	Details for demonstrating compliance
						<ul style="list-style-type: none"> <li>5.2: Monitor populations of pest animals and conduct control works if required</li> <li>5.3: Maintain fences</li> <li>5.4: Monitor biomass density and implement stock grazing regime or develop ecological burn/ fuel reduction plan if appropriate</li> <li>5.5: Monitor and assess works (no report)</li> </ul> <p>Requirements of Condition 3(b) for Year 5 have been satisfied.</p>
		<b>ADMINISTRATIVE</b>				
4		Within 14 days after the commencement of construction, the approval holder must advise the Department in writing of the actual date of commencement of construction.	At the start of construction	SHWFPL	Complies	A letter (dated 4 June 2018) was sent to the Department advising commencement of construction activities in Dunnett’s Lane as of 22 May 2018.
5		The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the strategy 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 publicized through the general media.	Construction / Operations	SHWFPL	Ongoing	Records to be kept for the duration of the approval documenting implementation of the EPBC approval requirements and approved strategies. Record keeping requirements have been discussed with both landowners and the appointed consultants and are being kept as required in line with project management, incident, and annual reporting requirements.
6		Within three months of every 12-month anniversary of the commencement of construction, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any strategies as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain published for the life of the approval and must continue to be published until advised in writing by the Minister.	Annually	SHWFPL	Compliant  Ongoing	Annual Compliance Reports (ACRs) have been submitted annually to the Department addressing the requirements of Condition 6. This is the fourth in the series of ACRs.  The Annual Compliance Reports are also placed on the SHWF Website in conjunction with being submitted to the Department. Evidence is also provided to the Department of proof of publication, usually within a day or two of being submitted to the Department.  The Project submits this Year 5 annual compliance report by 22 August 2023.
		The approval holder may choose to revise a strategy approved by the Minister under conditions 2 and 3 without	At any time	SHWFPL	N/A	

Ref	part	Details of Condition	Stage	Responsibility	Compliance	Details for demonstrating compliance
7		submitting it for approval under section 143A of the EPBC Act, if the taking of the action under the revised strategy would not be likely to have a new or increased impact. If the approval holder makes this choice they must:				SHWFPL prepared revised GSM and SLL Offset Management Strategies and submitted them to the Department on 4 August 2021, during the 2021/2022 reporting period.  The Department notified SHWFPL of approval of the strategies on 23 December 2021. Reporting of performance of the strategies is included in the 2022 Annual Compliance Report.
	i	notify the Department in writing that the approved strategy has been revised and provide the Department with an electronic copy of the revised strategy;				
	ii	implement the revised strategy from the date that the strategy is submitted to the Department; and				
	iii	for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised strategy would not be likely to have a new or increased impact.	Construction / Operations	SHWFPL	N/A	Any changes to the proposed arrangements must have adequate records kept for the duration of the approval which substantiate the change. At this time, and for the foreseeable future, no changes are envisioned.
8		The approval holder may revoke their choice under condition 7 at any time by notice to the Department. If the person taking the action revokes the choice to implement a revised strategy. without approval under section 143A of the Act, the strategy approved by the Minister must be implemented.	At any time	SHWFPL	N/A	N/A
9		Condition 7 does not apply if the revisions to the approved strategy include changes to environmental offsets provided under the strategy in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised strategy would, or would not, be likely to have new or increased impacts.	At any time	SHWFPL	N/A	N/A
10		If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised strategy would be likely to have a new or increased impact, then:	At any time	SHWFPL	N/A	N/A
	i	Condition 7 does not apply, or ceases to apply, in relation to the revised strategy; and				
	ii	The person taking the action must implement the strategy approved by the Minister.				

Ref	part	Details of Condition	Stage	Responsibility	Compliance	Details for demonstrating compliance
	iii	This condition does not affect any operation of conditions 7 and 8 in the period before the day the notice is given.				
11		At the time of giving the notice the Minister may also notify that for a specified period that condition 7 does not apply for the strategies required under the approval.	At any time	SHWFPL	N/A	N/A
12		Conditions 7 and 8 are not intended to limit the operation of section 143A of the EPBC Act which allows the person taking the action to submit a revised strategy.	At any time	SHWFPL	N/A	Revised strategies for the GSM and SLL were approved (23 Dec 2021) and are now published on SHWF website as the current OMSs.
13		If, at any time after 5 years from the date of this approval, the approval holder has not commenced the action, then the person taking the action must not commence the action without the written agreement of the Minister.	Operations	SHWFPL	Complies	N/A – the action commenced on 22 May 2018. within 5 years of the approval date
14		Unless otherwise agreed to in writing by the Minister, the approval holder must publish all strategies referred to in these conditions of approval on their website.	At any time	GWA	Complies	Copies of the revised and approved SSL and GSM strategies, and maps showing the offset areas are available on the project website <a href="#">here</a>
15		Unless otherwise agreed to in writing by the Minister, the approval holder must provide a copy of any strategy referred to in these conditions of approval to members of the public upon request, within a reasonable time of the request	At any time	GWA	N/A	Copies of the approved SSL and GSM strategies, and maps showing the offset areas should also be made available within the shop front located in Beaufort.

**DEFINITIONS**

**Approval holder:** means the person to whom the approval is granted, or to whom the approval is transferred under section 1458 of the EPBC Act.

**Commencement of construction:** the date that preparatory construction works are first undertaken, including but not limited to clearing of vegetation (the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation), the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for fencing, infrastructure or earthworks associated with construction of the wind farm and associated infrastructure within the areas of identified habitat for the golden sun moth and striped legless lizard as shown on Figure 3. For the purposes of this approval, the carrying out of preliminary investigative works, including geotechnical investigations, for the purposes of gathering data or making other assessments necessary to confirm the final location of proposed infrastructure, is not considered to be commencement of construction.

**Covenant:** a long-term conservation agreement on the land title/s, such as a section 69 agreement under the Victorian Conservation, Forests and Lands Act 1987 or a Trust for Nature (Victoria) covenant.

**Clear:** the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native or non-native vegetation.

**Department:** The Australian Government Department or any other agency administering the Environment Protection and Biodiversity Conservation Act 1999 (Cth) from time to time.



<b>DEFINITIONS</b>
<b>EPBC Act:</b> Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
<b>Golden sun moth:</b> Synemon p/ana listed under the EPBC Act 1999.
<b>Golden Sun Moth Offset Management Strategy:</b> the approved document which outlines the management actions for the offset area for golden sun moth (Golden Sun Moth Synemon plana Offset Management Strategy for the Stockyard Hill Wind Farm April 2017).
<b>Golden sun moth offset:</b> means the area shown in yellow on the map at Figure 2, or other area approved by the Minister.
<b>Known Striped Legless Lizard habitat:</b> relevant habitat as identified by a suitably qualified expert experienced in targeted surveys in accordance with the Department's guidelines.
<b>Minister:</b> The Minister administering the Environment Protection and Biodiversity Conservation Act 1999 (Cth) and includes a delegate of the Minister.
<b>New or increased impact:</b> A new or increased impact on any matter protected by the controlling provisions for the action, when compared to the strategy approved by the Minister.
<b>Offset Policy:</b> Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, October 2012.
<b>Offset Management Strategy:</b> The Golden Sun Moth Offset Management Strategy or Striped Legless Lizard Offset Management Strategy
<b>Striped Legless Lizard Offset Management Strategy:</b> the approved document which outlines the management actions for the offset area for Striped Legless Lizard (Striped Legless Lizard Delma impar Offset Management Strategy for the Stockyard Hill Wind Farm April 2017).
<b>Striped Legless Lizard:</b> Delma impar listed under the EPBC Act 1999.
<b>Suitably qualified expert:</b> a person with qualifications in environmental science, biology or ecology and demonstrated experience in the management of native vegetation and the preparation of offset strategies under the EPBC Act, or a person otherwise agreed to in writing by the Department.
<b>Targeted surveys:</b> surveys undertaken in accordance with Departmental guidelines

## **APPENDIX B: SHWF STRIPED LEGLESS LIZARD POPULATION MONITORING (YEAR 5) SMEC, MAY 2023**



SMEC INTERNAL REF. 30049123

Habitat Management and Species Monitoring

# Striped Legless Lizard Population Monitoring (Year 5)

Client Reference No. 30049123  
Prepared for: Stockyard Hill Wind Farm Pty Ltd  
22 May 2023

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The information within this document is and shall remain the property of: Stockyard Hill Wind Farm Pty Ltd

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## Time of year

The detailed vegetation assessment of the offset site was undertaken on January 2023. Mid-summer is considered a less optimal time of year for conducting vegetation surveys as many ephemeral flora species have finished flowering. However, most vegetative, and senescent reproductive material is still visible in the absence of annual pasture grasses which have finished flowering and subsequently set seed (particularly native tussock species which are most prevalent at the offset site).

The timing of Striped Legless Lizard surveys was extended to 23 December 2022. While this was not the proposed timing of surveys (October-November), it is still considered to be an appropriate time of year to detect the species using tile grids methodology.

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# Acronyms

Acronyms	Description
CaLP Act	<i>Catchment and Land Protection Act 1994</i>
CMA	Catchment Management Authority
DAWE	Commonwealth Department of Agriculture, Water and the Environment (Now DCCEEW)
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DEECA	Department of Energy, Environment and Climate Action (formally DELWP)
DELWP	Department of Environment, Land, Water and Planning (now DEECA)
DEPI	Department of Environment and Primary Industries (now DEECA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988 and Flora and Fauna Guarantee Amendment Act 2019</i>
GIS	Geographic Information System
Guidelines	<i>Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017)</i>
ha	Hectares
km	Kilometres
LGA	Local Government Authority
m	Metres
MNES	Matters of National Environmental Significance
NVIM	Native Vegetation Information Management tool
sp.	Species (one species)
spp.	Species (more than one species)
subsp.	Subspecies

# 1. Introduction

## 1.1 Background

SMEC Australia Pty Ltd (SMEC) was commissioned by Stockyard Hill Wind Farm Pty Ltd (SHWFPL) to undertake Striped Legless Lizard (*Delma impar*) habitat management and species monitoring as part of the Stockyard Hill Wind Farm project (the project). The project was approved under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 19 August 2018 (formerly the Department of Agriculture, Water and the Environment [DAWE]). The project will consist of the construction of 149 approved wind turbines located approximately 35 km west of Ballarat, Victoria.

It is understood that the DCCEEW post-approvals team have approved the 10-year Offset Management Strategy (OMS) for Striped Legless Lizard prepared by Ecology and Heritage Partners Pty Ltd (EHP 2021), subject to conditions (Approval Decision EPBC 2016/7746). The conditions outlined within the OMS and project approvals set out how impacts to Striped Legless Lizard (listed under Sections 18 and 18A of the EPBC Act) will be mitigated and managed to acceptable levels.

The offset site is located on private property to the south of Dunnets Road, Stockyard Hill, Victoria (the 'offset site') (Figure 1). The project has now completed 5-years of monitoring within the 10-year OMS. During this time the 43 ha onsite offset site has been managed in accordance with the OMS and/or included adaptive management procedures which are outlined in this report. This report also provides an opportunity to review the effectiveness of management activities specific to the objectives of the OMS. This review will aim to identify any further adaptive measures or for the site in response to current monitoring results.

## 1.2 Scope of works

### 1.2.1 Project objectives and scope

The broader objectives for the project are in accordance with the approved OMS which requires Goldwind and the landowner to complete the following (EHP 2021):

- *Protect and secure the offset site for the long-term conservation of Striped Legless Lizard;*
- *Maintain and enhance grassland habitat for the extant Striped Legless Lizard population;*
- *Control and, if possible, eliminate pest plants and animals; and*
- *Achieve a high level of ecologically sound on-ground management, monitoring and reporting.*

The objectives of Striped Legless Lizard monitoring and implementation of the OMS in Year 5 included:

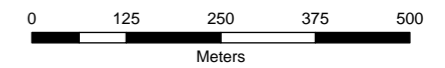
- Completion of Striped Legless Lizard monitoring in accordance with suitable survey methodology;
- Providing advice on biomass and grazing management regimes;
- Undertaking detailed vegetation monitoring to ascertain the quality and extent of native vegetation on site;
- Identifying areas of focused management activities with respect to pest plant and animals; and
- Provision of a Year 5 summary report detailing the monitoring results specific to the objectives of the OMS and review of management plan effectiveness.

## 1.3 Offset site

The offset site is south of Dunnets Road and covers 43 ha, approximately 180 km west of Melbourne and 35 km west of Ballarat, Stockyard Hill, Victoria (Figure 1). The property covers Lot 1 and Lot 2 on Title Plan 761464V. The offset site has historically been used for rotational grazing by sheep and cropping activities.

The offset site occurs within the Victorian Volcanic Plain bioregion, Pyrenees Shire Council municipality and Glenelg Catchment Management Authority (CMA) (DEECA 2023). The offset site is zoned Farming Zone (FZ) within the Pyrenees Planning Scheme and an Environmental Significance Overlay – Schedule 1 (ESO1) applies for the protection and enhancement of water quality within the designated water supply catchment (DTP 2023a, 2023b).





**LEGEND**

- Study site
- Major road
- Minor road
- Stream

**KEY MAP**



**SOURCES:**  
1. Roads and Waterways © DELWP 2023  
2. Basemap © Light Gray Base: Vicmap, Esri, HERE, Garmin, FAO, NOAA, USGS World Imagery, Maxar

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<b>PROJECT:</b>	Stockyard Hill Wind Farm - SLL Monitoring
<b>PROJECT NO:</b>	30049123
<b>FIGURE NO:</b>	1
<b>FIGURE TITLE:</b>	Study Area
<b>CREATED BY:</b>	JO15865
<b>DATE:</b>	17/04/2023
<b>VERSION:</b>	1



## 2. Striped Legless Lizard

### Conservation Status

EPBC Act: Vulnerable; FFG Act: Endangered

### Description

Striped Legless Lizard is a pale-grey lizard up to 30 cm in length with a series of stripes on their sides and the sides of their back, becoming diagonal bands on the tail (TSSC 2016). Superficially, these animals resemble snakes, but can be readily distinguished from the latter by the presence of external ear openings, a fleshy undivided tongue and a tail which is longer than the body (TSSC 2016).



Image 1: Striped Legless Lizard (Source: A. Taylor, SMEC, 2022)

### Distribution

Striped Legless Lizard is a grassland specialist, found only in areas of native grassland and nearby grassy woodland (sometimes in exotic pasture). They occur in the dryer plains found west of the great divide in both Victoria (Volcanic Plain) and south-eastern NSW (TSSC 2016).

In Victoria, remaining habitat is very limited and severely fragmented. Most recently, the species has been recorded from areas west and north of Melbourne, surrounding Ballarat, near Cressy in the Western District and in roadside remnants in southwestern Victoria (TSSC 2016).

### Habitat

Striped Legless Lizard is known to inhabit lowland native grasslands and grassy woodlands, typically dominated by native tussock-forming grass species such as Kangaroo Grass (*Themeda triandra*), spear grasses (*Austrostipa* spp.) and Poa tussocks (*Poa* spp.). The species also inhabits areas dominated by introduced grass species and at sites with a history of grazing and pasture improvement (SEWPaC 2011a), this is true for the current offset site being managed under this OMS.

While the specific habitat requirements for the Striped Legless Lizard are not fully understood, all sites occupied by the species have a grassy ground cover, often with a mixture of native and exotic perennials and annuals. The species shelters in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows and underground debris such as timber. Embedded rock is a key feature within the Victorian Volcanic Plain, and also one that is often removed for agricultural purposes, which greatly limits the habitat available for this species. As a result, roadsides and rail corridors are often the most undisturbed habitat where rocks and native grass species have been left in place (SEWPaC 2011a).

### Key threats

The principal threats to Striped Legless Lizard include loss, degradation, modification, and fragmentation of habitat through:

- Urban development;
- High intensity grazing by livestock and kangaroos;
- Ploughing and pasture improvement including use of superphosphate and sowing of introduced species;
- Rock collection or destruction;
- Spread of exotic grasses;
- Predation by cats and foxes; and
- Inappropriate burn timing of grasslands including urban and roadside reserves and travelling stock reserves (TSSC 2016).

## 3. Methods

### 3.1 Striped Legless Lizard Monitoring

#### 3.1.1 Survey permits

Striped Legless Lizard monitoring was undertaken in accordance with a Research Permit approved by the Department of Energy, Environment and Climate Action (DEECA) (formerly the Department of Environment, Land, Water and Planning [DELWP]) under the *Wildlife Act 1975* (Permit 10009728). All animal handling was in accordance with SMEC's Standard Operating Procedure (SMEC 2020a), and Wildlife and Small Institutions Animal Ethics Committee (WSIAEC) approval 23.20.

#### 3.1.2 Survey locations

A review of native vegetation rehabilitation has been undertaken during Year 4 and as part of current monitoring on site to determine if adequate levels of native vegetation have been established in formerly cropped areas. Based on a general lack of established native vegetation in cropped areas, the five tile grid sites required to be deployed in Year 4 of the OMS was not undertaken (see Section 6.8.1 within EHP 2021) (SMEC 2022). Based on the current level of native vegetation available in cropped areas, an adaptive management approach is discussed further in Section 4.1 below.

#### 3.1.3 Survey methods

##### 3.1.3.1 Reference documents

Striped Legless Lizard monitoring was undertaken in accordance with the following DCCEE departmental guidelines:

- Referral guidelines for the Vulnerable Striped Legless Lizard, *Delma impar* (SEWPaC 2011a); and
- Survey guidelines for Australia's threatened reptiles (SEWPaC 2011b).

##### 3.1.3.2 Field methods










The following field methodologies were completed as part of Year 5 population and habitat monitoring for Striped Legless Lizard:

- Suitably trained observers conducted surveys and collected the data;
- Surveys were conducted at seven (7) tile grids, with their locations shown in Figure 2. The grids have now been in situ for a number of years, with Tile Grids 1-5 deployed prior to Year 1 monitoring (2017) and Tile Grids 6-7 deployed prior to Year 2 monitoring (SMEC 2020b);
- Each tile grid consisted of 50 tiles, at 5 m spacing between tiles, arranged in a grid of 10 x 5 array.
- Grids were checked a minimum of six times between October and December<sup>1</sup> 2022 when ambient temperatures did not exceed 28°C;
- Checking more frequently than twice a week was avoided as it may lead to Striped Legless Lizard abandoning the artificial shelters; and
- Information such as the date, time and weather conditions were recorded for each survey event.

<sup>1</sup> The timing of Striped Legless Lizard surveys was extended into December 2022. While this is not the proposed timing under the OMS (October – November), it is still considered to be an appropriate time of year to detect the species using tile grid survey methodology.



**LEGEND**

-  Study site
-  Rabbit warren
-  Rock pile
-  Burn plot
-  Cropped pasture/revegetation zone
-  Rocky rises/modified vegetation
-  Rock deployment
-  Tile grid location (current)
-  Tile grid location (new)
- Stock Exclusion Fencing**
- A- Zone A
- B- Zone B
- C- Zone C
- Base Layers**
- Major road
- - - Minor road
- Stream

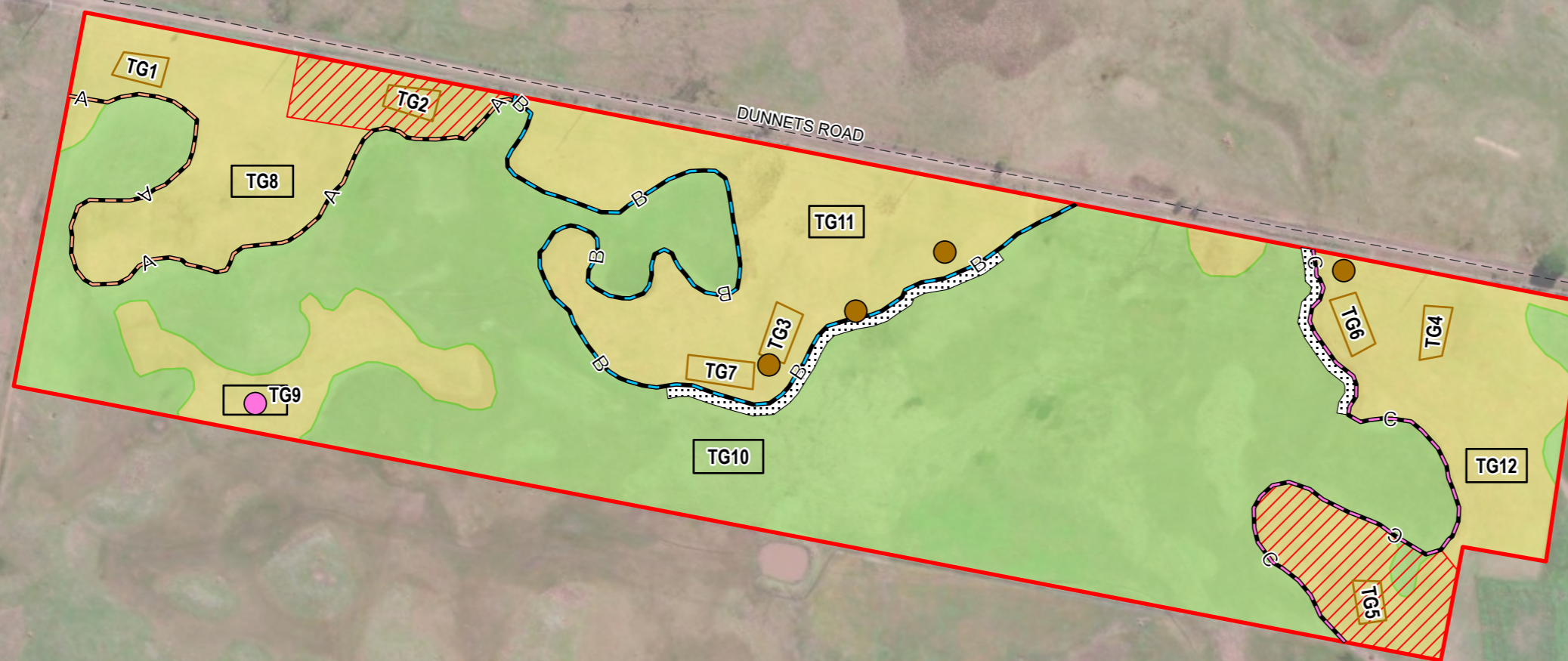
**KEY MAP**



**SOURCES:**  
1. Roads and Waterways © DELWP 2023  
2. Basemap © Light Gray Base: Vicmap, Esri, HERE, Garmin, FAO, NOAA, USGS World Imagery: Maxar

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**PROJECT:** Stockyard Hill Wind Farm - SLL Monitoring  
**PROJECT NO:** 30049123  
**FIGURE NO:** 2  
**FIGURE TITLE:** Monitoring Sites (Year 5)  
**CREATED BY:** AP15941  
**DATE:** 12/05/2023  
**VERSION:** 2





## 3.2 Detailed vegetation monitoring

Detailed vegetation monitoring was undertaken to obtain data on the quality and quantity of native grassland within the offset site. The results of vegetation monitoring are used to support the enhancement of existing areas of native vegetation through the guided management of biomass and weed control activities.

All surveys were conducted by qualified personnel who are Vegetation Quality Assessment (VOA) accredited by DEECA.

This report documents the following, as required by the OMS:

- Overall assessment of the quality and quantity of vegetation and composition of species (Habitat Hectare assessment if applicable);
- Biomass levels;
- The extent and presence of current weed species and any new and emerging weed species; and
- Map areas of scattered native vegetation to assist with management.

As an additional measure, fixed photo points using drone imagery by a third-party contractor engaged by the landowner have been taken to record visual changes over the 10-year monitoring period. These photos were used to compare vegetation changes and improvements over time, and are shown in Appendix F.

## 3.3 Biomass density and stock grazing

Biomass control within the offset site is managed through low-intensity rotational grazing by sheep. All sheep are to be removed (or excluded via fencing from the offset site) during the critical flowering/reproductive period for native flora species (September and January to February). Grazing can be reintroduced to reduce biomass levels over autumn and winter (March to August) (EHP 2021, SMEC 2021). Biomass control via stock grazing remains a key management item for the site and is discussed in more detail in Section 4.3 below.

An overview of the adaptive management approach for biomass control is provided below:

1. Continue biomass control in accordance with the OMS between March to August at a Dry Sheep Equivalent (DSE) stocking rate of 10 DSE/Ha (approximately 450 sheep);
2. Removing all stock in September;
3. Implementing adaptive biomass control between October to December at a stocking rate of 15 DSE/Ha (approximately 650 sheep) (as required);
4. Sheep are to be retained on site for a maximum of seven (7) days and removed for a minimum of 14 days in any given month between October to December to reduce biomass levels;
5. Sheep must be removed within seven (7) days should total vegetation cover fall to or below 70% and open bare ground between 20 and 40%;
6. All sheep are to be removed annually from the site between January to February to allow the critical flowering/reproductive period for native species; and
7. Installation of temporary fencing may be undertaken around Tile Grids 3 and 6 (and other areas supporting potential habitat or native vegetation) to minimise stock access as required in response to biomass objectives in the OMS.

### 3.3.1 Biomass actions

Biomass control will proceed in accordance with the following:

- Ensure adequate grazing to reduce biomass to acceptable ground cover levels (i.e. 70% grass cover);

- Spell offset site containing current rehabilitated grassland areas from approximately late September and February to late January; and
- Co-ordinate weed control works with the grazing regime.

### 3.3.2 Performance measures

The following key performance targets have been provided to measure the success of the biomass control:

- Vegetation cover is maintained at 70% throughout the offset site;
- Availability of bare ground for native flora species recruitment is between 20% and 40%;
- Striped Legless Lizard populations are not reduced;
- A diversity of native open ground cover flora species is maintained and enhanced;
- No evidence of an increase in soil pugging; and
- The maintenance of open structured Plains Grassland community suitable for the ecological requirements of Striped Legless Lizard.

## 3.4 Fixed photo points

Ten fixed photo points were established in October 2018 (Figure 3). This comprised:

- Five points within rocky rises containing modified grassland vegetation; and
- Five points within areas proposed for rehabilitation works.

Annual fixed-point and aerial (drone) photograph assessments were undertaken on 11 November 2022. This does not coincide with proposed OMS timing for native vegetation assessments (i.e. October), however given the extensive rainfall and associated biomass growth rates in spring, the results of the January vegetation assessment and November aerial imagery is considered unlikely to have significantly altered the outcomes of the results. This is consistent with the timing of previous aerial drone imagery and vegetation assessments (SMEC 2021).

## 3.5 Reporting

### 3.5.1 Landowner progress reports

Regular progress and monitoring reports will be submitted separately in Years 1, 3, 5, 7, 9 and 10 of the program with input from the landowner and Aus Eco Solutions (2023). The reports will summarise all completed management activities (i.e. revegetation, pest animal and weed control etc.), which will be submitted to the relevant authorities for review (DCCEEW and DEECA), including:

- Completion of the management actions table detailing actions fulfilled during Year 5 monitoring (Section 5);
- Landowner monitoring and reporting forms (or similar documentation provided by Aus Eco Solutions);
- Results of weed and pest animal control work;
- Successful management tools (e.g. techniques used to control weed species, monitoring technique, etc.);
- Any problems or issues experienced (e.g. new infestation of weed species, etc.); and
- Photographs showing evidence of works.

## 4. Results

### 4.1 Striped Legless Lizard monitoring

#### 4.1.1 Survey results

Monitoring was undertaken over six separate days across the offset site between October and December 2022 (Table 1). Weather conditions during monitoring events were considered suitable for the detection of Striped Legless Lizard.

Five Striped Legless Lizard (four confirmed unique individuals, one non-capture) were recorded during Year 5 monitoring based on morphological data collected at the offset site. Two adult individuals were detected at Tile Grid 6 during Survey 1, however only one was captured and detailed morphological data recorded. The head scale pattern of this individual identified it as a unique individual from previous monitoring events (Appendix A). The second individual was not captured, however notes on general morphological features were recorded (i.e. adult size, slim, light colours).

A sloughed Striped Legless Lizard skin was detected at Tile Grid 6 during Survey 3, however as it was located under the same tile as the adult recorded in Survey 1, it is assumed to have come from this individual. One adult Striped Legless Lizard was also detected in Tile Grid 6 during Survey 4; however, it is unclear if this individual is the same as the non-captured individual during Survey 1, with both having similar morphological features. It can be surmised that there may be up to three unique individuals detected at Tile Grid 6 during Year 5 monitoring, although without detailed morphological data on all individuals this assumption should be treated with some caution.

One adult Striped Legless Lizard was detected at Tile Grid 1 during Survey 1 and represents another unique individual (Appendix A). This is also a significant result as no individuals have been recorded in Tile Grid 1 in the past four years of monitoring, indicating that additional individuals are likely to occupy habitat located across rocky rises within the study site.

One deceased adult Striped Legless Lizard was detected at Tile Grid 7 during survey 5. The individual was not observed under tiles during previous checks and was very clean and the body soft (i.e. recently deceased). This lizard died from unknown causes as the body did not appear damaged or crushed. The specimen was taken to the Melbourne Museum by SMEC on 5 January 2023 for their collection. The size and head scale pattern of this individual were unique to previously captured individuals (Appendix A).

No additional Striped Legless Lizard were observed for the remainder of monitoring across Tile Grids 2, 3, 4 and 5.

Six additional fauna species were also recorded during Year 5 monitoring comprising:

- Tussock Skink (*Pseudemoia pagenstecheri*);
- Eastern Blue-tongue Lizard (*Tiliqua scincoides*);
- Little Whip Snake (*Parasuta flagellum*);
- Lowland Copperhead (*Austrelaps superbus*);
- Pobblebonk Frog (*Limnodynastes dumerilii*); and
- House Mouse (*Mus musculus*).

Juvenile Eastern Blue-tongue Lizard, Little Whip Snake and Lowland Copperhead were observed across Tile Grids 6 and 7 indicating active breeding of these species within the offset site. This correlates with findings of previous monitoring periods in Years 3 and 4. Particularly high numbers of Little Whip Snake were recorded within Tile Grid 7, with adults and juveniles recorded during all surveys and up to eight individuals detected during any one survey.

Photographs of all fauna captured during the Year 5 monitoring are provided in Appendix A (excluding House Mouse which was not photographed). Photographs of each Tile Grid are presented in Appendix B between October and December at Survey 1 (20 October 2022) and Survey 6 (23 December 2022).

Table 1: Monitoring survey results and weather conditions<sup>2</sup>.

Survey No.	Survey Date	Survey Period	Species	Tile Grid	Total	Temp. (°C)	Wind speed	Wind direction
1	20-10-2022	9:00-12:30pm	SLL (e)	T1	1	16.1	30 km	ESE
			PF	T3	1			
			LWS	T3	1			
			LCh	T4	1			
			SLL (f)	T6	2			
			LCh	T6	(1)			
			EBTL	T6	1			
			PF	T7	1			
			LWS	T7	7 (2)			
			EBTL	T7	1			
2	03-11-2022	8:30-11:30am	LWS	T3	1	7.6	19 km	SSW
			PF	T3	1			
			LWS	T7	4 (1)			
3	25-11-2022	11:00-14:30am	LWS	T3	2	11.8	20 km	SSE
			LCh	T6	2			
			SLL (skin)	T6	1			
			LWS	T7	3 (1)			
			EBTL	T7	1			
			PF	T7	1			
4	02-12-2022	9:00-12:00pm	LWS	T3	1	15.1	15 km	ESE
			SLL (g)	T6	1			
			LWS	T7	3 (1)			
			EBTL	T7	1			
5	16-12-2022	8:00-11:00am	LWS	T3	1	11.0	22 km	S
			SLL (h)	T7	1			
			LWS	T7	6 (2)			
			LCh	T7	1			
			TS	T7	1			
6	23-12-2022	8:30-11:00am	HM	TG1	nest	15.3	7 km	WSW
			LWS	TG3	1			
			LWS	TG7	8			

<sup>2</sup> Bureau of Meteorology: data sourced from Ballarat Aerodrome (Station 089002).

Note: T = Tile Grid Number, (n) = number of juveniles in totals detected, SLL = Striped Legless Lizard, EBTL = Eastern Blue-tongue Lizard (juv. = juvenile), TS = Tussock Skink, HM = House Mouse, LWS = Little Whip Snake, LCh = Lowland Copperhead, PF = Pobblebonk Frog. SLL identifiers, e.g. (e), (f) etc., correspond to morphological data in Appendix A.

## 4.1.2 Striped Legless Lizard

### 4.1.2.1 Population dynamics

Morphological data including total length and head scale photographs were recorded for all captured Striped Legless Lizard in Year 5 monitoring. This data was then compared with data collected in Years 3 and 4 (Appendix A)<sup>3</sup>. The sex of individuals has not been determined during species monitoring due to its invasive methodology.

The four individuals captured in Year 5 monitoring are confirmed to be new individuals based on comparison of unique head-scale patterns with previously caught individuals (Appendix A). The individual that was not captured in Tile Grid 1 may represent a fifth unique individual, however this cannot be confirmed. The presence of a deceased adult (11cm with a severed tail) during Year 5 monitoring indicates that the species is likely to be breeding in the vicinity of Tile Grids 3 and 7. This is supported by adults previously being identified at Tile Grid 3 (SMEC 2021). Interestingly, Striped Legless Lizard was not detected at Tile Grid 3 or Tile Grid 4 during Year 5 monitoring. This contrasts with previous monitoring in Years 1-4, where Striped Legless Lizard was detected at these locations (although not consistently across all years).

Additionally, Striped Legless Lizard was detected in Tile Grid 1 and Tile Grid 7 where it has not previously been recorded. To date, Striped Legless Lizard has now been detected at all sites with the exception of Tile Grids 2 and Tile Grid 5. These findings indicate that the species is more widely distributed across the offset site than previously known, with likely low detection rates due to low sampling effort across a large area (i.e. six tile grids over 43 ha), in addition to the high level of availability refuge habitats in the form of embedded rock and high biomass (tussock grass) cover.

At present there is a total of eight confirmed Striped Legless Lizard individuals with unique identification within the offset site (Appendix A).

### 4.1.2.2 Additional monitoring sites

Five monitoring sites were deployed in Year 1 (Tile Grids 1 to 5). Two additional sites, Tile Grids 6 and 7, were deployed in Year 2 (SMEC 2019) (Figure 2). As outlined in the OMS (Section 6.8.1), an additional five monitoring sites were to be deployed in Year 4, however, this was not undertaken due to insufficient native vegetation cover in cropped areas (SMEC 2021). It was concluded by SMEC that the extent of native vegetation rehabilitation, in consultation with Aus Eco Solutions, would be reviewed in Year 5 to determine if adequate levels of native vegetation have been established for the deployment of additional tile grid sites (see Section 6.8.1 within EHP 2021).

This will aim to obtain additional species information that can be used to inform areas of the site that may be better suited to active management (i.e. ecological burns). As a result, five additional monitoring sites within rocky rises and areas supporting potentially suitable habitat were identified during detailed vegetation monitoring and are presented in Figure 2. Native vegetation cover remains low or absent in previously cropped areas. These areas do not yet support suitable habitat for Striped Legless Lizard, and the deployment of additional tile grids in these locations is unlikely to be beneficial to the objective of the OMS at present (Figure 3). It is recommended that the remaining five grids are deployed in areas most likely to support populations of Striped Legless Lizard. Further review of adding monitoring grids within cropped areas, and in accordance with the OMS will be reviewed annually, and once an adequate cover of native vegetation has established to support the species in these locations.

<sup>3</sup> Head scale identification photos were not undertaken in Year 1 and Year 2 monitoring.

#### 4.1.2.3 Additional habitat creation

In addition to deploying additional monitoring sites, the installation of species habitat in the form of surface rock was identified as a requirement within the OMS (see Section 6.4 within EHP 2021). This included introduction of surface rock into newly rehabilitated grassland to increase the availability of suitable habitats for Striped Legless Lizard within the offset site (EHP 2021).

Four rock piles were identified during detailed vegetation monitoring and are presented in Figure 2. Based on the amount of stockpiled rock available and known information of species occupancy across the site, it is recommended that the existing rock piles available be distributed adjoining rocky rises and areas known to support the species (Figure 2). Given the general lack of established vegetation in newly rehabilitated cropped areas, deployment of rock in these areas is not recommended at present as the species is highly unlikely to occupy such habitat(s). Review of surface rock installation into newly rehabilitated grassland will be ongoing as rehabilitated cropped areas improve in suitability for the species. This will involve further discussions with SHWFPL to review availability of additional rock from the project site for use in the offset site.

The deployment of rock should be done under the guidance of an ecologist, particularly the area adjoining Tile Grids 3 and 6 where species occupancy is confirmed. Rocks should be arranged in small groupings of 5-10 rocks in the suggested areas to allow multiple refuges (Figure 2).

## 4.2 Detailed vegetation monitoring

### 4.2.1 Year 1

A total of 25 native and 25 introduced species were recorded during Year 1 assessments (SMEC 2019). A full list of species recorded during the detailed vegetation assessment are provided in Appendix C.

Vegetation within areas of rocky rises/modified vegetation was dominated by introduced pasture grasses, primarily Toowoomba Canary-grass (*Phalaris aquatica*) and Wild Oat (*Avena fatua*) (Figure 3). Introduced species comprised on average 80% cover across the offset site. The remaining comprised 10% native vegetation and 10% bare ground (SMEC 2019).

Native grassland species were scattered throughout the site, including Kangaroo Grass (*Themeda triandra*), Spear Grass (*Austrostipa* sp.), Drumsticks (*Pycnosorus globulus*), Yellow Rush Lily (*Tricoryne elatior*) and Bluebell (*Wahlenbergia* sp.). Scattered Rush (*Juncus* sp.) and Sedge (*Carex* sp.) also occurred in depressions throughout the site. In the north of the offset site along the fence line, Blackwood (*Acacia melanoxylon*) was regenerating.

Cover of native vegetation within the offset site was not high enough to be considered a patch of native vegetation in accordance with the Guidelines (DELWP 2017). Locations of scattered native vegetation are shown in Figure 3.

#### 4.2.1.1 Pest plants

Two noxious weeds, Spear Thistle (*Cirsium vulgare*) and Horehound (*Marrubium vulgare*), listed under the *Catchment and Land Protection Act 1994* (CaLP Act) were identified within the offset site. Cover of Spear Thistle ranged between 10-15% within a single patch located on Figure 3. Horehound was recorded in small patches of  $\leq 1\%$ , further discussions on current extents is provided in Section 4.2.3 below for Year 5.

#### 4.2.1.2 Pest animals

The presence of active European Rabbit (*Oryctolagus cuniculus*) warrens was noted during Year 1 assessments and management of pest animals is ongoing as per the OMS requirements.

### 4.2.2 Year 3

A total of 20 native and 23 introduced species were recorded during the assessment (SMEC 2020b). A full list of species recorded during Year 1 and 3 assessments are provided in Appendix C for comparison.



Vegetation within areas of rocky rises/modified vegetation was still dominated by introduced pasture grasses, primarily Perennial Rye-grass (*Lolium perenne*), Toowoomba Canary-grass and Wild Oat. Introduced species comprised on average 70% cover across the offset site. The remaining comprised 15% native vegetation and 5% bare ground (SMEC 2020b).

Cover of native species increased since Year 1 monitoring was undertaken with small patches of native grassland (Plains Grassland EVC 132) and wetland (Plains Grassy Wetland EVC 125) present throughout the site (Table 2, Figure 3).

Patches of Plains Grassland were dominated by Kangaroo Grass, Wallaby Grass (*Rytidosperma* spp.) and Spear Grass. Herbs were scattered throughout the patches including Drumsticks, Yellow Rush Lily, Blue Devil (*Eryngium ovinum*), Australian Bindweed (*Convolvulus angustissimus*) and Bluebell. Patches of Plains Grassy Wetland were dominated by Common Blown-grass (*Lachnagrostis filliformis*), Wallaby Grass and Prickfoot (*Eryngium vesiculosum*). Grassy weeds were common in all patches of native vegetation (SMEC 2020b).

#### 4.2.2.1 Pest plants

Spear Thistle was identified within the offset site during the Year 3 monitoring (SMEC 2020b). The cover of Spear Thistle ranged between 10-15%, majority of which was confined to a single patch located on Figure 3. Management of Spear Thistle was undertaken by the landowner on 3 December 2020 across the entire offset site, but further spraying was recommended (SMEC 2020b).

#### 4.2.2.2 Pest animals

Low pest activity has been observed on-site by the landholder, who suggested that the Dunnetts Road upgrade and the removal of the Gorse has reduced numbers of pest animals on site (Aus Eco Solutions 2020). A pest animal spotlight shooting session was undertaken in late autumn resulting in low pest animal activity (Aus Eco Solutions 2020).

#### 4.2.2.3 Direct seeding

Direct seeding has been implemented into the offset sites previously cropped regions in the hope of successful germination of the species identified within the management plan, including Wallaby Grass, Wheat Grass, Common Tussock Grass and Spear Grasses (Aus Eco Solutions 2020). Direct seeding took place over four days during June 2020 within a separate section to the 2019 seeding. This is the second time that seeding was undertaken within the reserve (Aus Eco Solutions 2020).

Locally sourced seed was collected from the landholder's property in summer 2020 for Common Tussock Grass and Kangaroo Grass (Aus Eco Solutions 2020).

### 4.2.3 Year 5

A SMEC ecologist attended the offset site on 30 January 2023 to undertake detailed vegetation monitoring. A total of 34 native and 34 introduced species were recorded during the assessment, an increase of 14 native and 11 introduced species compared to the 2021 assessment, respectively.

Areas of the site were observed to be partially inundated, which is likely due to the above average rainfall the study site had received. For example, 828 mm of rain was recorded in the 2022 calendar year compared to a mean annual rainfall of 585 mm in 2021 (BOM 2023). This above average precipitation has favoured native flora species that tolerate saturated soils as evidenced by the large areas colonised and dominated by Common Blown-grass (*Lachnagrostis filliformis*) (Figure 3). This has also allowed other species to establish, with seven small patches of Plains Grassy Wetland identified during Year 5 monitoring (HZ A5-11). Common Spike-sedge (*Eleocharis acuta*) and Common Blown-grass noted, with scattered occurrences of Mat Grass (*Hemarthria uncinata*), Streaked Arrowgrass (*Triglochin striata*) and Creeping Brokweed (*Samolus repens*) were also noted.

However, above average precipitation has also favoured introduced species that can take advantage of saturated soils, namely Browntop Bent-grass (*Agrostis capillaris*) and Yorkshire Fog-grass (*Holcus lanatus*) which were observed across the site.



Three additional patches of Plains Grassland were recorded during the site assessment in southern sections of the offset site (Figure 3, HZ B3-5). Considering the general increase in introduced species coverage as a result of the recent high rainfall across the site, it is reasonable to conclude that the development of these patches of native vegetation is likely a result of the previous direct seeding efforts. Whilst these patches were generally sparse (usually between 25-35% cover) and species poor (often comprising only Spear Grass, Wallaby Grass, Common Tussock-grass or Common Wheat-grass) they were competing well with introduced species and are likely to increase in extent provided biomass of introduced annuals is effectively managed.

Two areas previously mapped as supporting scattered native ground cover, recorded in the central northern extent of the study site in Year 3, now contains a high enough percentage cover of Wallaby Grass, Blue Devil, Milky Beauty-heads, Common Wheat-grass and Spear Grass that they constitute as patches under the Guidelines (HZ B6-8) (Figure 3). It is not clear whether this area has improved as a result of grazing practices, direct seeding or both but it is likely that the area has benefitted from supplementary seeding of native grasses.

Table 2: Results of Habitat Hectare Assessment (Year 3 and 5)

EVC	132 (Year 3)	132 (Year 5)	125 (Year 3)	125 (Year 5)
Habitat Zone(s)	B2	B3-B8	A1-A4	A5-A11
Bioregion	Victorian Volcanic Plain			
Large Old Trees	n/a	n/a	n/a	n/a
Canopy Cover	n/a	n/a	n/a	n/a
Understorey	5	5	5	5
Weeds	2	2	6	9
Recruitment	3	3	3	3
Organic Litter	2	2	3	5
Logs	n/a	n/a	0	0
Subtotal (out of max. 75)	12	12	17	22
Multiplier for treeless EVCs	1.36	1.36	1.36	1.36
Adjusted subtotal (out of max. 75)	16.32	16.32	23.12	29.92
Patch Size	1	1	1	1
Distance to Core	0	0	0	0
Neighbourhood	0	0	0	0
Subtotal (out of max. 25)	1	1	1	1
Final Habitat Score (total out of 100)	17.32	17.32	24.12	29.92

Vegetation within the rocky rises of the study site was still predominantly introduced pasture species (80-90% cover) however there was an observed shift toward predominantly annual species such as Yorkshire Fog-grass and Rats-tail Fescue (*Vulpia myuros*).

This is likely to be associated with targeted removal of introduced perennial species such as Toowoomba Canary-grass and good conditions for shallow rooted annuals (high rainfall). Patches of Plains Grassland recorded in Year 3 assessments were observed to have persisted however generally declined in extent likely due to encroachment and increased cover of Browntop Bent-grass. Five additional patches of Plains Grassland were recorded during the assessment however were generally species poor (comprising of either Spear Grass or Common Tussock Grass).

#### 4.2.3.1 Pest plants

Two noxious weeds, Spear Thistle and Horehound, listed under the CaLP Act were again identified within the offset site. The extent of Spear Thistle however has been greatly reduced from its previously recorded extent and is now constrained to the south of the site following the existing boundary fence (the boundary fence is likely acting as a net for airborne Spear Thistle seed).

The observed reduction in Spear Thistle coverage is likely due to ongoing landowner management of the species. Only scattered Horehound individuals were recorded (often and were not observed to have increased in number or extent from previous years).

#### 4.2.3.2 Pest animals

No pest animals were observed during the site assessment. A single European Rabbit warren was recorded in the south western extent of the study site (Figure 2). Ongoing management practices appear to be successful in reducing the European Rabbit population, but ongoing management is required to maintain these efforts.

#### 4.2.3.3 Results of direct seeding

Native seed from the local area was collected in April 2022 following recommendations in Year 4 monitoring (SMEC 2022). Approximately 56 kg of Kangaroo Grass was spread through areas marked on the below map (in purple), the direct seeding occurred on the 27 March 2023 (Aus Eco Solutions 2023).

The area that was direct seeded this year was prepared by crash grazing and raking out the target area. The direct seeding was undertaken using hand broadcasting (Aus Eco Solutions 2023).



Plate 1. Approximate areas (in purple) of direct seeding efforts in March 2023 (Map 2, Aus Eco Solutions 2023).

### 4.3 Biomass density and stock grazing

Previous discussions with the landowners identified limitations in the OMS with regards to stock grazing periods and the control of biomass (particularly in seasonally wet years, as observed in the 2019/20, 2020/21 and 2021/22 monitoring periods) (SMEC 2020, SMEC 2021, SMEC 2022).

Previous stocking rates across the offset site have been approximately 10 DSE/Ha (450 sheep), this will remain in place between March to August annually, with all sheep being removed during the critical flowering/reproductive period for native species (September and January to February). However, the revised OMS provides adaptive biomass management measures between October to December with increased stocking rates (EHP 2021).

Overall, biomass cover was high (80-90%) on average and exceeded the target of 70% ground cover and open ground (20-40%) identified within the OMS (EHP 2021). Grass height is typically lowest (ranging between a height of 15-40 cm) at the commencement of monitoring (October-November), and after stock grazing has been implemented between March to August. Grass height without stock grazing can reach up to 1.8 m if not managed during peak growth periods (September to December).

Temporary fencing was installed by the landowner to keep sheep out of wetland areas, comprising approximately 25 ha of the western end of the offset site. In accordance with the OMS, low intensity stocking rates (10 DSE/Ha) were applied in two separate intervals; 1-5 May 2022 and 17 July 2022 to 7 August 2022 before being removed in September 2022.

Adaptive biomass management between October to December was not actioned until early December 2022, with installation of temporary fencing in Zones B and C to remove stock from wetter areas of the site (Figure 2). This meant crash grazing within rocky areas resulted in a limited overall reduction in biomass levels with one grazing event between 9-16 December 2022.

#### 4.3.1 Adaptive biomass management

##### 4.3.1.1 Stock grazing

The site will require installation of temporary stock fencing as depicted in Figure 2. The fencing will split the site into three separate Zones A, B and C. These zones will focus on reducing biomass and introduced species in rocky rises where the majority of biomass is persisting, particularly between October to December. The ability to manage the biomass levels through low density rotation grazing will aid rehabilitation efforts completed by Aus Eco Solutions in March 2023 and species habitat in accordance with the OMS targets.

##### 4.3.1.2 Ecological burns

Two proposed burn plots are recommended within the offset site (Figure 2). Locations have been selected based on i) areas where Striped Legless Lizard has not been detected, ii) areas which comprise a high level of introduced pasture grasses and refuge habitat in the form of embedded and/or surface rock, and iii) adjoining areas being trialled in 2023 for direct seeding applications by Aus Eco Solutions.

The burns will be trialled between April and September when conditions are suitable, this will involve liaison with local the Country Fire Authority and/or Forest Fire Management Victoria representatives (as required). The burns will consist of small low-intensity fires which reduce the risk of high flames. Unlike hazard-reduction burns, where lines of fire can create walls of flames, low-intensity fires comprise spot ignitions that create a mosaic of fire (leaving space for wildlife to escape). The fires will aim to reduce the cumulative thatch and vegetation biomass that has developed over many years, and which has not been removed during stock grazing.

Open ground created by mosaic burning can then be trialled with direct seeding by Aus Eco Solutions to compare methods utilised in March 2023. The mosaic burning will need to be accompanied by active pest plant management (spot spraying) and biomass control using stock grazing within exclusion fencing installed for Zones A, B and C.

## 4.4 Threatened Species

### 4.4.1 Flora

During the detailed vegetation assessment, a large number (well over 500 individuals) of one endangered *Flora and Fauna Guarantee Act* (FFG Act) listed species, Brackish Plains Buttercup (*Ranunculus diminitus*), was detected within a newly recorded patch of Plains Grassy Wetland (HZ-A2) in the south western extent of the study site (Figure 3).

Due to low cover of native vegetation, the number and detectability of this species has likely been very low in previous assessments. Favourable conditions during the last few months has led to an increase in extent and likely the flowering of this species, vastly increasing the detectability. The above average rainfall of the past year has likely favoured the development and expression of other semi-aquatic species that have not previously been recorded within the study site such as the Streaked Arrowgrass (*Triglochin striata*) and Creeping Brookweed (*Samolus repens*) that were co-dominant with the Brackish Plains Buttercup.

Whilst ancillary to the Striped Legless Lizard OMS management objectives, it is recommended that signage is erected in the area containing the Brackish Plains Buttercup. This will assist to prevent any damage to plants from management activities such as herbicide use or revegetation as the species is of state conservation significance.

### 4.4.2 Fauna

One new fauna species, Tussock Skink (*Pseudemoia pagenstecheri*), listed as endangered under the FFG Act was detected at Tile Grid 7 for the first-time during Year 5 monitoring. This is a significant result, as skinks have been entirely absent to date (with exception of Eastern Blue-tongue Lizard). Tussock Skink is a ground-dwelling lizard occurring in grassland and grassy woodland habitats at a range of elevations in south eastern Australia. In Victoria, the species is often associated with remnant Victorian Volcanic Plain grasslands and native derived grasslands west of Melbourne, as well as alpine and sub-alpine areas along the Great Dividing Range.

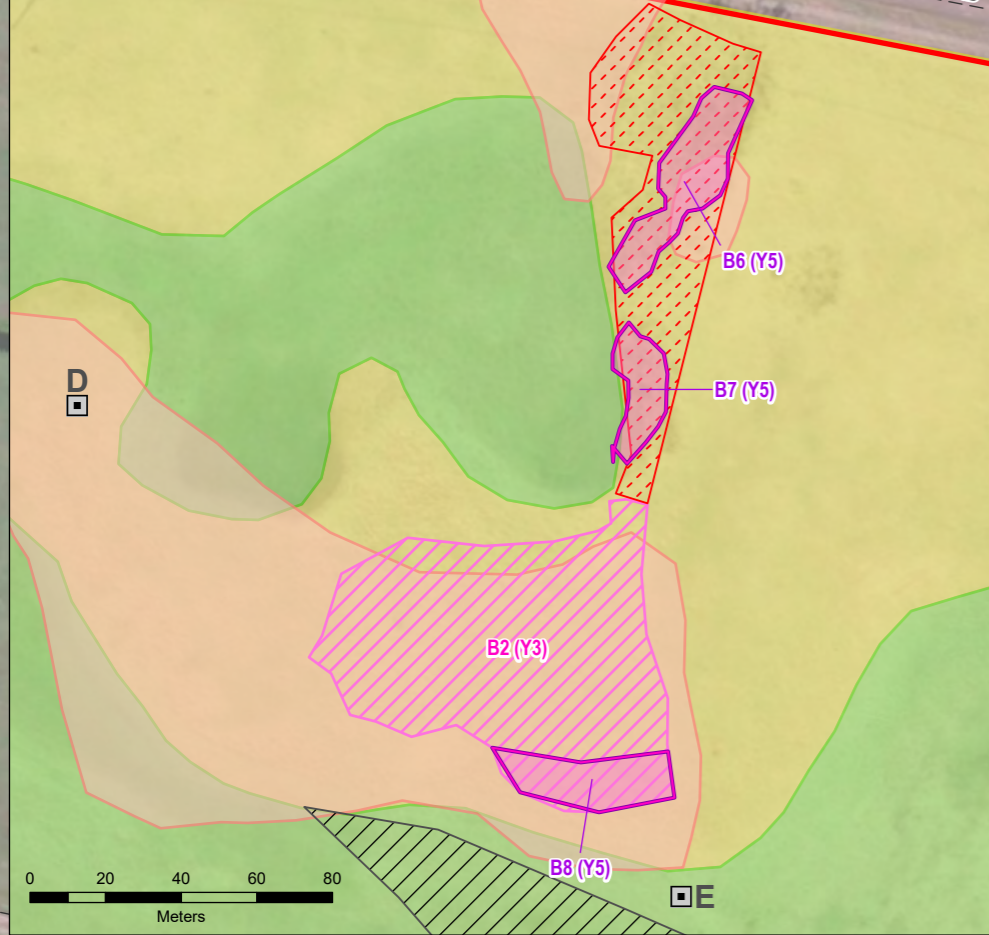
Tussock Skink predominantly shelter under surface refugia such as rocks, logs or other refuse such as tin, cardboard sheets or discarded concrete and bask to thermoregulate. They are most common in grassland habitats that have a relatively open, grassy ground layer, and prefer more open habitat structure to grasslands with dense tussocks and limited or no interstitial space. The species is documented as being uncommon in heavily grazed grasslands, even when embedded and/or surface stone is present (Turner 2012).

## 4.5 Fixed photo points

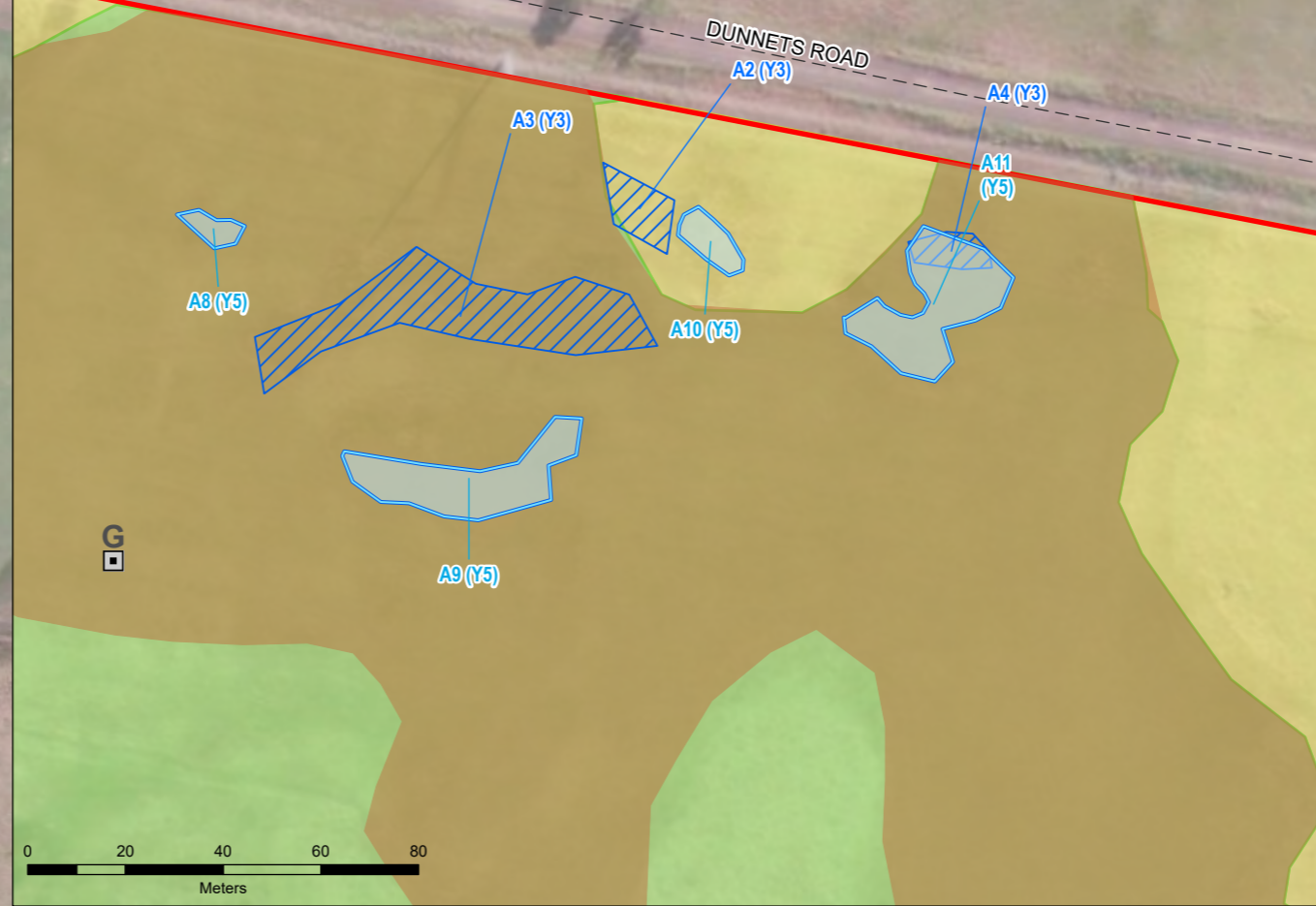
The results of fixed photo points for the 10 sites are provided in Appendix F and will provide a general reference point for monitoring the progress of management actions over the 10-year program. The location of photo points A to J are presented in Figure 3. Based on the level of work to date, there appears to be a clear increase in biomass which is evident by the aerial photos in Appendix F. This increase in biomass is likely due to high growth rates over the past 3 years and reduced stock grazing in key growth periods (October-December) (refer to Sections 4.2 and 4.3).



**INSET MAP 1**

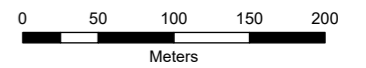


**INSET MAP 2**



Member of the Surlana Jurong Group

SMEC AUSTRALIA PTY LTD  
ABN 47 065 475 149



Scale: 1:5,000 @ A3  
GDA2020 MGA Zone 54

**LEGEND**

- Study site
- Photo point
- Area's dominated by Common Blown-grass
- Cropped pasture/revegetation zone
- Rocky rises/modified vegetation
- Year 5**
- Plains Grassland
- Plains Grassy Wetland
- Spear Thistle management area
- Year 3**
- Plains Grassland
- Plains Grassy Wetland
- Scattered natives
- Spear Thistle management area
- Year 1**
- Scattered natives
- Base Layers**
- Minor road
- Stream

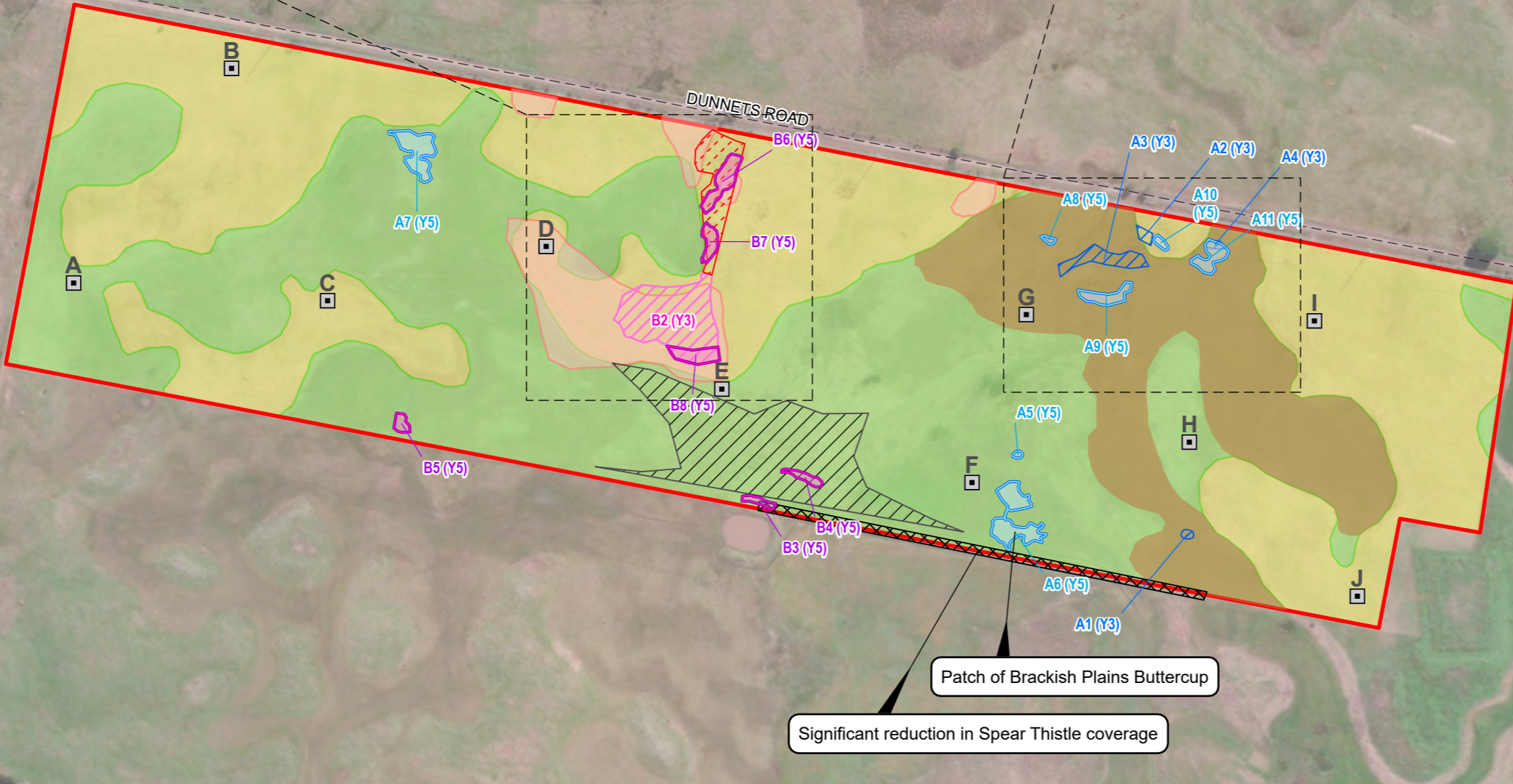
**KEY MAP**



**SOURCES:**  
1. Roads and Waterways © DELWP 2023  
2. Basemap © World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
Light Gray Base: Vicmap, Esri, HERE, Garmin, FAO, NOAA, USGS  
World Imagery: Maxar

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Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, this map contains data from a number of sources - no warranty is given that the information contained on this is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of all information prior to using it. This map is not a design document.

**PROJECT:** Stockyard Hill Wind Farm - SLL Monitoring  
**PROJECT NO:** 30049123  
**FIGURE NO:** 3  
**FIGURE TITLE:** Vegetation Monitoring (Years 1, 3 and 5)  
**CREATED BY:** AP15941  
**DATE:** 16/05/2023  
**VERSION:** 2



Patch of Brackish Plains Buttercup

Significant reduction in Spear Thistle coverage



## 4.6 Summary of monitoring

Table 4 outlines the monitoring results in response to targeted management objectives of the OMS.

Table 3: Summary of monitoring targets and survey outcomes.

Management objective	Target objective	Year 3 results	Year 5 results	Recommendations
Striped Legless Lizard monitoring	Maintain grassland habitat by undertaking Striped Legless Lizard monitoring so that populations are not reduced.	Three individual Striped Legless Lizard confirmed between Tile Grids 3 (two individuals) and Tile Grid 6 (one individual). Highest abundance of the species recorded to date.	Five Striped Legless Lizard (four confirmed unique individuals, one non-capture) were recorded during Year 5 monitoring. A total of eight individual Striped Legless Lizard individuals have been confirmed (with additional lizards likely across the offset site).	Continue to monitor individuals identified within offset site (including any new individuals in response to breeding activity). Recommendations in Section 6.1 are aimed to improve habitat quality for the species.
Detailed vegetation assessment	Record quantity and extent of native vegetation in accordance with DELWP (2017).	Cover of native species has increased since Year 1 with small patches of native grassland (Plains Grassland EVC 132) and wetland (Plains Grassy Wetland EVC 125) present throughout the site.	Cover of native species continues to increase with five additional areas of Plains Grassland and six additional areas of Plains Grassy Wetland reaching the 25% perennial native cover threshold requirement of 'a patch' under the Guidelines. Recording of the FFG Act-listed Brackish Plains Buttercup.	It is recommended that vegetation management by Aus Eco Solutions and the landowner focus on biomass, grazing and weed control activities within and adjoining areas noted to contain native vegetation patches (Figure 3). Continue to measure the quality and extent of these habitat zones within the offset site. Internal fencing recommended by SMEC in Zones A, B and C to manage exclusion periods within OMS. Signage or exclusion fencing surrounding the patch of Brackish Plains Buttercup.
Biomass / grazing	70% grazing between March-August.	70-90% cover after two separate crash grazes undertaken between May and August 2020.	An increase in biomass to 80-90% cover across site with a high percentage of introduced annuals likely as a result of above average precipitation.	Focus biomass reduction by low-intensity stock grazing in Zones A, B and C in March-August and October to December annually. Trial mosaic burns in two selected plots to review biomass management using fire.
Bare ground / recruitment	20-40% bare ground	5-10% bare ground	5-10% bare ground.	Due to the high level of biomass, the availability of bare ground suitable for recruitment was below the required target. It is expected that more regular grazing will increase open ground for recruitment opportunities. Trial mosaic burns in two selected plots to review biomass management using fire.

## 5. Management action summary

Table 5 summarises the management actions required in accordance with the OMS, including actions required for Year 5 and the date they were completed.

Table 4: Management action summary for Year 5 OMS objectives.

Year	Action	Management action	Responsible authority / personnel	Timing of action	Date completed
1	1.1	Construct permanent fencing surrounding the property and ensure offset sites are secure.	Landowner (and Goldwind)	Within six months of this plan being approved by DAWE	20/10/2018 (Aus Eco Solutions 2018)
1	1.2	Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.	Landowner and Aus Eco Solutions (and Goldwind)	October-November	Dates included 07-10-2018 and 29-11-2018 (see Section 2.2.9, 2.3.0 and 4.3 of Aus Eco Solutions 2018)
1	1.3	Monitor populations of pest animals and conduct control works	Landowner and Aus Eco Solutions (and Goldwind)	After peak breeding season - late summer/early autumn	Dates included 4-11-2018, 28-11-2018 and 10-11-2018 (see Sections 2.2.5 and 4.2 of Aus Eco Solutions 2018)
1	1.4	Undertake SLL monitoring at five existing sites within offset site.	SMEC	September to November Year 3	19-12-2018
1	1.5	Monitor biomass density and implement stock grazing regime.	SMEC, landowner and Aus Eco Solutions	August-September	Late-October 2018
1	1.6	Undertake detailed vegetation monitoring within Zones 1a, 1b, 2a and 3a.	SMEC	December-February	November 2018 and February 2019
1	1.7	Monitor and assess works and prepare summary report.	SMEC	Two months after Striped Legless Lizard and vegetation monitoring is completed	March-April 2019
3	3.1	Undertaken fencing repairs as necessary	Landowner	Ongoing as required	No fencing repairs were noted by landowner.
3	3.2	Commence direct seeding in Zones 1b, 1c, 2b and 3b	Landowner and Aus Eco Solutions	Autumn/Spring	Direct seeding took place over four days during June 2020. The seeding took place at a separate location to plantings undertaken in 2019 (Aus Eco Solutions 2020).
3	3.3	Conduct site preparation weed control for	Landowner and Aus Eco Solutions	October-November	Spot spraying by landowner on 03-12-20. More effort



Year	Action	Management action	Responsible authority / personnel	Timing of action	Date completed
		rehabilitation works in Zones 2a and 3a			required in 2021 in Zones 2a and 3a.
3	3.4	Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020 (Tile Grids 6 and 7).	SMEC	September to November Year 3	Completed between 02-10-2020 to 08-12-2020.
3	3.5	Undertake detailed vegetation monitoring within Zones 1a, 1b, 2a and 3a.	SMEC	December-February	Completed January 2021
3	3.6	Monitor populations of pest animals and conduct control works if required	Landowner and Aus Eco Solutions	December-February	May 2020
3	3.7	Monitor and assess works and prepare summary report.	SMEC	Two months after Striped Legless Lizard and vegetation monitoring is completed	March 2021
5	5.1	Undertaken fencing repairs as necessary	Landowner	Ongoing as required	No fencing repairs were noted by landowner.
5	5.2	Conduct site preparation weed control for rehabilitation works in Zones 1a	Landowner and Aus Eco Solutions	October-November	Completed by Aus Eco Solutions in 1-2 December 2022 (Aus Eco Solutions 2023).
5	5.3	Conduct site preparation works for weeds in Zones 1b, 1c, 2b and 3b.	Landowner and Aus Eco Solutions	October-November	Completed by Aus Eco Solutions in 1-2 December 2022 (Aus Eco Solutions 2023).
5	5.4	Commence direct seeding in Zones 2a and 3a.	Landowner and Aus Eco Solutions	Autumn/Spring	Direct seeding took place in March 2023. The seeding took place at a separate locations outlined within Section 4.2.3.3 (Aus Eco Solutions 2023).
5	5.5	Undertake SLL monitoring at five existing sites within offset site. Inclusive of two additional grids added in 2020 (Tile Grids 6 and 7).	SMEC	September to November Year 5	Completed between 20-10-2022 and 23-12-2022. See Section 4.1.
5	5.6	Undertake detailed vegetation monitoring within Zones 1, 2 and 3.	SMEC	December-February	Completed 30 January 2023. See Section 4.2.3.
5	5.7	Monitor and assess works and prepare summary report.	SMEC	Two months after Striped Legless Lizard and vegetation	April-May 2023.

Year	Action	Management action	Responsible authority / personnel	Timing of action	Date completed
				monitoring is completed.	
5	5.8	Re-evaluate management and effectiveness. Revise as required.	SMEC	Review based on management actions in Year 1-5.	May 2023. Refer to Section 6 for management recommendations.
5	5.9	Monitor biomass density and implement stock grazing regime.	Landowner	As required by adaptive management.	December 2023 (ongoing)

## 6. Conclusion

Management actions in accordance with the endorsed OMS were undertaken for Year 5 by SMEC, Aus Eco Solutions and the landowner. Four new Striped Legless Lizard individuals were recorded, based on comparison of unique head-scale patterns with previously caught individuals. Striped Legless Lizard has now been detected at all sites with the exception of Tile Grids 2 and 5. These findings indicate that the species is more widely distributed across the offset site than previously known, with likely low detection rates due to low sampling effort across a large area (i.e. six tile grids over 43 ha), in addition to the high level of available refuge habitats in the form of embedded rock and high biomass (tussock grass) cover. At present there is a total of eight confirmed Striped Legless Lizard individuals within the offset site (Appendix A).

Four additional fauna species were recorded within the offset site including one endangered FFG Act-listed species, Tussock Skink, in addition to Lowland Copperhead, Eastern Blue-tongue Lizard, Little Whip Snake, Spotted Marsh Frog, Pobblebonk Frog and House Mouse. No additional mammal, reptile or frog species were recorded.

Detailed vegetation monitoring has also identified 14 new patches of native grassland (Plains Grassland EVC 132) and wetland (Plains Grassy Wetland EVC 125). In addition, a large number (well over 500 individuals) of one endangered FFG Act-listed species, Brackish Plains Buttercup (*Ranunculus diminutus*), was detected within a newly recorded patch of Plains Grassy Wetland (HZ-A2) in the south western extent of the study site. The quality and extent of these patches will be monitored in subsequent years to enhance these areas of native vegetation.

Overall, the site continues to maintain a high level of biomass (80-90%), particularly rocky rises which continue to support the highest cover of introduced pasture grasses. Biomass control will need to focus on rocky rises (Zones 1a, 1c and 2e) via rotation stock grazing in March to August and October to December 2023 (EHP 2021). The site will require installation of temporary stock fencing as depicted in Figure 2. The fencing will split the site into three separate Zones A, B and C. The ability to manage the biomass levels through low density rotation grazing will aid rehabilitation efforts completed by Aus Eco Solutions in March 2023 and species habitat in accordance with the OMS targets.

### 6.1 Recommendations

The following monitoring requirements will apply to Year 6 in accordance with the OMS (EHP 2021):

- Undertake fencing repairs as required;
- Conduct weed management works for rehabilitation Zones 1, 2 and 3;
- Commence over sowing and direct seeding in Zones 1b, 1c, 2b and 3b;
- Consider biomass reduction (mosaic low-intensity burning);
- Monitor biomass density and implement stock grazing regime
- Deploy five additional Striped Legless Lizard monitoring sites (Tile Grids 8-12) as recommended by SMEC in August 2023; and
- Monitor populations of pest animals and conduct works as required.

### 6.2 Additional recommendations

The following are additional recommendations in addition to the requirements of Year 6 monitoring in the OMS, which are considered warranted for the improvement of species habitat management activities across the offset site:

- Focus biomass and weed control activities around patches of native vegetation to promote recruitment opportunities for Plains Grassland and Plains Grassy Wetland (Figure 3);
- Focus weed management on Spear Thistle as per indicative location shown in Figure 3;

- Apply more intensive stock grazing in Zones A, B and C to manage high biomass levels in target zones of the offset site (i.e. Zones 1a, 1c, 2c and 2e);
- Implement mosaic burns in two selected areas proposed by SMEC to reduce biomass and support rehabilitation efforts through direct seeding (Zones 2c and 2e). This is to be accompanied by active weed management (spot spraying) and stock grazing in accordance with the OMS; and
- Monitor newly deployed Tile Grids 8-12 to determine presence of Striped Legless Lizard in new locations within the offset site.

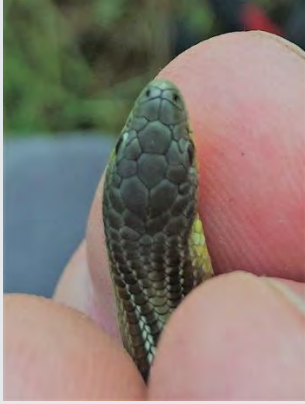


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# Appendix A - Morphological data for Striped Legless Lizard captured in Year 3, Year 4 and Year 5 monitoring

SLL ID	Total Length	Location and Date	Head scale photographs	Body image
SLL(a)	17 cm	Tile Grid 3 – 20/11/2020		
SLL(b)	24 cm	Tile Grid 3 – 8/12/2020		
SLL(c)	20 cm	Tile Grid 6 – 8/12/2020		



SLL ID	Total Length	Location and Date	Head scale photographs	Body image
SLL(d)	25cm	Tile Grid 6 – 4/11/2021		
SLL (e)	25cm	Tile Grid 1 – 20/10/2022		
SLL (f)	25cm	Tile Grid 6 – 20/10/2022		
SLL (g)	21cm	Tile Grid 6 – 02/10/2022		

SLL ID	Total Length	Location and Date	Head scale photographs	Body image
SLL (h) - deceased	11cm	Tile Grid 7 – 16/12/2022		



## Appendix B – Additional fauna detected during Year 5 monitoring



Eastern Blue-tongue Lizard detected at Tile Grid 7 (20-10-2022).



Little Whip Snake detected at Tile Grid 7 (03-11-2022).



Pobblebonk Frog detected at Tile Grid 3 (20/10/2023).



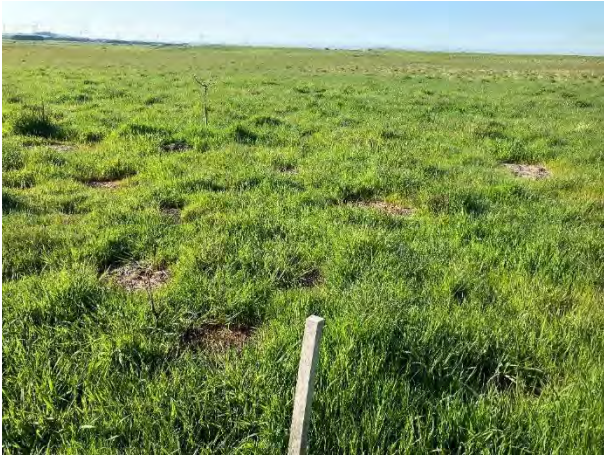
Lowland Copperhead detected at Tile Grid 6 (20/10/2023).



House Mouse nest detected at Tile Grid 1 (23/12/2021).



## Appendix C - Tile grid vegetation condition during Year 3 monitoring



Tile Grid 1 – vegetation condition 20 October 2022.



Tile Grid 1 – vegetation condition 23 December 2022.



Tile Grid 2 – vegetation condition 20 October 2022.



Tile Grid 2 – vegetation condition 23 December 2022.



Tile Grid 3 – vegetation condition 20 October 2022.



Tile Grid 3 – vegetation condition 23 December 2022.





Tile Grid 4 – vegetation condition 20 October 2022.



Tile Grid 4 – vegetation condition 23 December 2022.



Tile Grid 5 – vegetation condition 20 October 2022.



Tile Grid 5 – vegetation condition 23 December 2022.



Tile Grid 6 – vegetation condition 20 October 2022.



Tile Grid 6 – vegetation condition 23 December 2022.





Tile Grid 7 – vegetation condition 20 October 2022.



Tile Grid 7 – vegetation condition 23 December 2022.

## Appendix D - Flora species lists Years 1, 3 and 5

Scientific name	Scientific name	Status	Year 1	Year 3	Year 5
Indigenous species					
<i>Anthosachne scabra</i>	Wheat Grass		X	X	X
<i>Acaena echinata</i>	Sheep's Burr		X	X	X
<i>Acacia melanoxylon</i>	Blackwood		X	X	X
<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass				X
<i>Austrostipa</i> spp.	Spear-grasses		X	X	X
<i>Bolboschoenus</i> sp.	Marsh Club-rush				X
<i>Calocephalus lacteus</i>	Milky Beauty-heads		X		X
<i>Calocephalus citreus</i>	Lemon Beauty-heads				X
<i>Carex</i> sp.	Sedge		X		X
<i>Chrysocephalum apiculatum</i>	Common Everlasting		X		
<i>Convolvulus angustissimus</i>	Australian Bindweed		X	X	X
<i>Coronidium</i> sp.	Coronidium		X		
<i>Cyperus</i> sp.	Cyperus			X	
<i>Desmodium gunnii</i>	Southern Tick-trefoil				X
<i>Eleocharis acuta</i>	Common Spike-rush				X
<i>Epilobium billardioreanum</i> subsp. <i>cinereum</i>	Willow-herb				X
<i>Epilobium billardioreanum</i> subsp. <i>billardioreanum</i>	Willow-herb				X
<i>Erodium moschatum</i>	Musky Heron's-bill		X		
<i>Eryngium ovinum</i>	Blue Devil			X	X
<i>Eryngium vesiculosum</i>	Prickfoot			X	X
<i>Glycine tabacina</i>	Variable Glycine		X		
<i>Glyceria australis</i>	Australian Sweet-grass			X	X
<i>Isolepis</i> sp.	Club-rush		X		X
<i>Juncus bufonius</i>	Toad Rush		X		X
<i>Juncus</i> sp. 1	Rush		X	X	X
<i>Juncus</i> sp. 2	Rush			X	
<i>Lachnagrostis filiformis</i>	Blown-grass				X
<i>Laphangium luteoalbum</i>	Jersey Cudweed		X	X	X
<i>Lotus</i> sp.	Lotus			X	
<i>Lythrum hyssopifolia</i>	Lesser Loosestrife		X	X	X

Scientific name	Scientific name	Status	Year 1	Year 3	Year 5
<i>Microtis unifolia</i>	Common Onion-orchid				X
<i>Oxalis thompsoniae</i>	Fluffy-fruit Wood-sorrel			X	
<i>Oxalis perennans</i>	Grassland Wood-sorrel		X		X
<i>Pelargonium</i> sp.	Stork's-bill			X	
<i>Persicaria prostrata</i>	Creeping Knotweed		X		X
<i>Poa labillardierei</i>	Common Tussock-grass		X	X	X
<i>Pycnosorus globosus</i>	Drumsticks		X	X	
<i>Ranunculus diminutus</i>	Brackish Plains Buttercup	en			X
<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass				X
<i>Rytidosperma</i> spp.	Wallaby-grasses		X	X	X
<i>Samolus repens</i>	Creeping Brookweed				X
<i>Themeda triandra</i>	Kangaroo Grass		X	X	X
<i>Tricoryne elatior</i>	Yellow Rush Lily		X		
<i>Triglochin striata</i>	Streaked Arrow-grass				X
<i>Wahlenbergia</i> sp.	Bluebell		X	X	X
<b>Introduced species</b>					
<i>Acetosella vulgaris</i>	Sheep Sorrel		X		X
<i>Agrostis capillaris</i>	Brown-top bent		X	X	X
<i>Aira</i> sp.	Hair-grass		X	X	X
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass		X	X	X
<i>Arctotheca calendula</i>	Capeweed		X	X	X
<i>Avena fatua</i>	Wild Oat		X	X	X
<i>Briza minor</i>	Lesser Quaking Grass		X	X	X
<i>Bromus diandrus</i>	Great Brome		X		X
<i>Bromus hordeaceus</i>	Soft Brome		X	X	X
<i>Centaureum erythraea</i>	Common Centaury			X	X
<i>Cerastium glomeratum</i>	Sticky Mouse-ear Chickweed		X		
<i>Cirsium vulgare</i>	Spear Thistle	CaLP (R)	X	X	X
<i>Cynosurus cristatus</i>	Crested Dog's-tail				X
<i>Cynosurus echinatus</i>	Rough Dog's-tail				X
<i>Cyperus eragrostis</i>	Drain Flat-sedge				X
<i>Dactylis glomerata</i>	Cocksfoot		X		X
<i>Geranium</i> sp.	Geranium			X	

Scientific name	Scientific name	Status	Year 1	Year 3	Year 5
<i>Geranium dissectum</i>	Cut-leaf crane's-bill			X	X
<i>Helminthotheca echioides</i>	Ox-tongue				X
<i>Holcus lanatus</i>	Yorkshire Fog		X	X	X
<i>Hordeum</i> sp.	Barley Grass		X		X
<i>Hypochaeris radicata</i>	Cat's-ear		X	X	X
<i>Lactuca saligna</i>	Willow-leaf Lettuce				X
<i>Lactuca serriola</i>	Prickly lettuce			X	X
<i>Lolium perenne</i>	Perennial Ryegrass		X	X	X
<i>Modiola caroliniana</i>	Red-flowered Mallow			X	
<i>Marrubium vulgare</i>	Horehound	CaLP (C)	X		X
<i>Mentha pulegium</i>	Pennyroyal				X
<i>Phalaris aquatica</i>	Toowoomba Canary-grass		X	X	X
<i>Plantago coronopus</i>	Buck's-horn Plantain		X	X	X
<i>Romulea rosea</i>	Onion-grass		X		
<i>Silybum marianum</i>	Variegated Thistle			X	
<i>Rumex conglomeratus</i>	Clustered Dock			X	X
<i>Rumex crispus</i>	Curled Dock		X	X	X
<i>Solanum nigrum</i>	Black Nightshade		X		
<i>Sonchus oleraceus</i>	Sow Thistle		X		X
<i>Trifolium fragiferum</i> var. <i>fragiferum</i>	Strawberry Clover				X
<i>Trifolium repens</i>	White Clover		X	X	X
<i>Triticum aestivum</i>	Wheat		X		X
<i>Vulpia myuros</i>	Rat's-tail Fescue				X

Notes: CaLP = *Catchment and Land Protection Act 1994*, C = Listed as Regionally Controlled under the CaLP Act, (R) = Listed as Restricted under the CaLP Act, en = endangered under the FFG Act (DEECA 2023).



## Appendix E – Detailed vegetation assessment (Year 5)



Pasture grasses in Zone 2g and 2b (30 January 2023).



Pasture grasses in Zone 2b (30 January 2023).



Plains Grassy Wetland identified in Habitat Zone A10-11 (30 January 2023).



Common Blown-grass in Zone 2b (23 December 2022).



High biomass cover in rock rises in Zone 1c (30 January 2023).



Plains Grassy Wetland identified in Habitat Zone A9 (30 January 2023).





Plains Grassland identified in Habitat Zone B6 (30 January 2023).



Brackish Plains Buttercup identified in south of offset site (30 January 2023).



Proposed Spear Thistle management area along southern fence line of offset site (30 January 2023).



Rock pile to be redistributed in 2023 as Striped Legless Lizard habitat (30 January 2023).



## Appendix F – Aerial drone imagery comparison – Year 1, Year 3 and Year 5

Photo Point ID	Year 1 (November 2018)	Year 3 (December 2020)	Year 5 (November 2022)
A			
B			
C			












Photo Point ID	Year 1 (November 2018)	Year 3 (December 2020)	Year 5 (November 2022)
D			
E			
F			











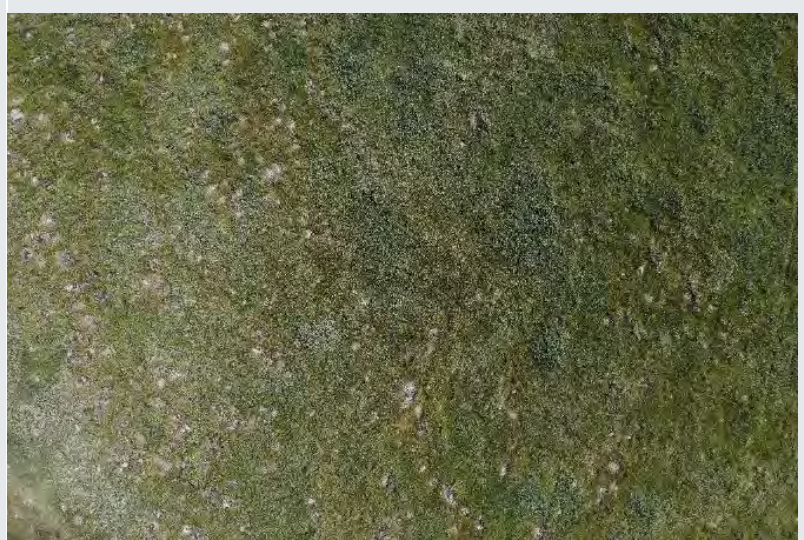
Photo Point ID	Year 1 (November 2018)	Year 3 (December 2020)	Year 5 (November 2022)
G			
H			
I			



Photo Point ID	Year 1 (November 2018)	Year 3 (December 2020)	Year 5 (November 2022)
J			



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**APPENDIX C: TECHNICAL MEMORANDUM: GOLDEN SUN MOTH HABITAT  
ASSESSMENT REPORT (YEAR 5) – STOCKYARD HILL WINDFARM (BB-3027-  
02) MAY 2023**



# Technical Memorandum

Project title	Golden Sun Moth Habitat Assessment Report (Year 5) – Stockyard Hill Windfarm (BB-3027-02)		
Prepared for	Stockyard Hill Wind Farm Pty Ltd	Date of Issue	15 May 2023
Author	Catriona Chauval	Project No.	30049132
Reviewed by	Clio Gates Foale, Andrew Taylor	Approved by	Andrew Taylor

## 1. Introduction

### 1.1 Background

SMEC was engaged by Stockyard Hill Wind Farm Pty Ltd to undertake a rapid Year 5 Golden Sun Moth (*Synemon plana*) habitat assessment at a secured offset site associated with the Stockyard Hill Wind Farm (the Project). The Project was approved under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 19 August 2018 (EPBC Act Approval 2016/7746; the approval). The Project is located approximately 35 km west of Ballarat, Victoria and consists of the construction of 149 wind turbines.

A 10-year Offset Management Strategy (OMS) for Golden Sun Moth was prepared by Ecology and Heritage Partners Pty Ltd (EHP 2021) to compensate for the loss of Golden Sun Moth habitat as part of the Project. The OMS includes conditions for how impacts to Golden Sun Moth will be mitigated and managed to acceptable levels, including securing a Golden Sun Moth offset containing at least 9 ha of known Golden Sun Moth habitat. As such, impacts pertaining to the Project are managed through a 9 ha offset site located on private property (Crown Allotments 23A on Plan Subdivision TP272841S, Parish of Eurambeen) at Long Gully Road, Beaufort, Victoria (the *offset site*, Figure 1). The OMS also outlines management actions that will need to be undertaken to maintain, and where relevant, increase the quality of habitat o the protected area.

### 1.2 Scope

- This report outlines the results of the Year 5 Golden Sun Moth habitat assessment which includes the following:
- Completing a habitat assessment detailing information on:
  - Habitat quality
  - Biomass levels
  - Presence of weeds
  - Floristic diversity
- Providing advice on biomass and grazing management regimes;
- Identifying areas of focused management activities with respect to pest plants and animals; and
- Determine recommendations for ongoing works to ensure the conservation of Golden Sun Moth habitat and persistence of the existing population.

### 1.3 Description of the offset site

The offset site is located at an agricultural property at the end of Long Gully Road in Beaufort, Victoria. The offset site covers 9 ha hectares of Grassy Woodland (Ecological Vegetation Class [EVC] 175; Figure 1). It is currently owned and managed by Gerrpart Holdings Pty Ltd (herein referred to as *the landowners*).

The following information pertains to the offset site:

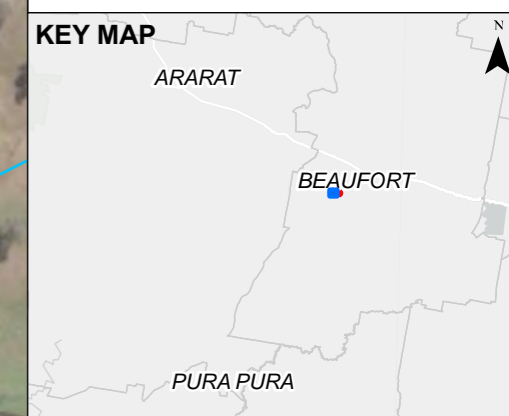
- Nearest town: Approximately 7.5 km south-west of Beaufort.
- Local bioregion: Central Victorian Uplands
- Local Government Area (LGA): Pyrenees Shire
- Catchment Management Authority (CMA): Glenelg Hopkins





**LEGEND**

-  Offset site
-  Stream



**SOURCES:**  
 1. Roads and Waterways © DELWP 2022  
 2. Basemap © Light Gray Base: Vicmap, Esri, HERE, Garmin, FAO, NOAA, USGS World Imagery, Maxar

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 Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, this map contains data from a number of sources - no warranty is given that the information contained on this is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of all information prior to using it. This map is not a design document.

**PROJECT:** Stockyard Hill Wind Farm - Golden Sun Moth Monitoring  
**PROJECT NO:** 30049132  
**FIGURE NO:** 1  
**FIGURE TITLE:** Study Site  
**CREATED BY:** JO15865  
**DATE:** 21/04/2023  
**VERSION:** 2



## 1.4 Species description

### 1.4.1 Golden Sun Moth

#### Conservation Status

EPBC Act: Vulnerable

FFG Act: Vulnerable

#### Description

The Golden Sun Moth is a medium-sized, diurnal moth with a wingspan up to 3.4 cm (DCCEEW 2023). The species have clubbed antennae and a pattern of grey, brown and bronze scales on their forewings, while the hind wings of females are vivid orange with black spots (DEWHA 2009). Females rarely fly; instead, they emerge from their pupal cases and display their wings to attract a passing male. Males spend their adult lives (approximately 2-5 days) flying over grass tussocks in search of females. Female Golden Sun Moths lay about 150 eggs at the base of wallaby grass tussocks (DCCEEW 2023).

For much of their lifecycle Golden Sun Moth are underground in a larval stage, feeding on the roots of wallaby grasses (*Rytidospema* spp.), however, the species may also inhabit degraded grasslands dominated by the exotic Chilean Needle-grass (*Nassella neesiana*).

#### Distribution

The distribution of Golden Sun Moth corresponds with native temperate grasslands across NSW, the ACT, Victoria and South Australia. Native grasslands once covered approximately 2,000,000 ha of south-eastern Australia, however, less than 1% of these temperate native grasslands remain. As a result, the remaining Golden Sun Moth populations are thought to be reduced and fragmented throughout their historical range (DCCEEW 2023).

#### Habitat

Golden Sun Moth persist in native temperate grassland and open grassy woodlands dominated by Wallaby-grasses within the species historical range throughout Victoria (DCCEEW 2023). The most common native grasses in these systems are wallaby grasses, spear grasses (*Austrostipa* spp.), tussock grasses (*Poa* spp.) and Kangaroo Grass (*Themeda triandra*) (DAWE 2021). Habitat containing a high cover ( $\geq 40\%$ ) of suitable host plants combined with well drained and north facing sites with minimal shading are preferred by the species. Areas of bare or sparsely covered ground between grass tussocks (inter-tussock spaces) are important in helping males locate females during the breeding period (October-January) (DCCEEW 2023).

#### Key Threats

The principal threats to the Golden Sun Moth include loss, degradation, modification and fragmentation of habitat through the following impacts (DEWHA 2009):

- Removal of vegetation;
- Inappropriate fire regimes;
- Weed invasion;
- Overstocking (causing loss of food plants);
- Changes to soil and plant structure;
- Increased nutrient loads;
- Changes to agricultural practices (e.g. fertiliser application, ploughing and overgrazing);
- Rank growth (loss of inter-tussock spaces); and
- Soil compaction.



Image 1. Golden Sun Moth – male (left) and female (right) (Source: DEWHA 2009).



## 2. Methods

The 9 ha offset site was surveyed by two ecologists familiar with the ecology and habitat requirements of Golden Sun Moth on the 31 January 2023. The following was recorded:

- Weed cover and extent;
- Biomass accumulation;
- Priority management areas; and
- Evidence of pest plants and animals.

The landowners are required to maintain a work diary to keep records of weed management and pest animal management. This was viewed to confirm adequate measures have been put in place throughout Year 5 (Gerrpart Holdings Pty Ltd 2023).



## 3. Results


### 3.1 Golden Sun Moth habitat assessment

#### 3.1.1 Habitat quality

The offset site had a low-moderate cover of foraging habitat available for Golden Sun Moth. Areas supporting Golden Sun Moth host plant species comprised up to 25% cover on average and included wallaby-grasses (*Rytidosperma* spp.) and spear-grasses (*Austrostipa* spp.). A description of the vegetation recorded at the offset site is provided in Table 1.

Table 1: Description of vegetation at the offset site

Description	Photograph
<p><b>Golden Sun Moth food plants:</b> Although recorded at a low to moderate percentage cover across the site, the following suitable host plants for Golden Sun Moth were recorded within the offset site: Supple Spear-grass (<i>Austrostipa mollis</i>), Common Wallaby-grass (<i>Rytidosperma caespitosum</i>), Brown-back Wallaby-grass (<i>R. duttonianum</i>), Kneed Wallaby-grass (<i>R. geniculatum</i>) and Slender Wallaby-grass (<i>R. racemosum</i> var. <i>racemosum</i>).</p> <p><b>The eastern extent</b> of the offset site had the highest cover of Golden Sun Moth food sources, with up to 50% of plant cover comprising wallaby-grasses. Bare or sparsely covered ground between grass tussocks (inter-tussock space), which are important in helping males to locate females during the breeding period, comprised up to 10% cover in this area.</p> <p><b>The southern and western extent</b> comprised lower cover of Golden Sun Moth food sources, with between 5 and 10% cover of wallaby-grasses recorded. Inter-tussock space was also lower in this zone with between 1 and 5% open ground observed. The highest cover of native species suitable for Golden Sun Moth was recorded in elevated and drier areas in comparison to expanses of non-native species which were recorded in low elevations that were subject to inundation or regular waterlogging throughout the spring period.</p> <p><b>Native vegetation:</b> Additional native grasses scattered throughout the offset site include Weeping Grass (<i>Microleana stipoides</i>) and Kangaroo Grass (<i>Themeda triandra</i>) at up to 5% cover. Scattered native herbaceous species were observed throughout the offset site including Sheep's Burr (<i>Acaena echinata</i>), Lemon Beauty-heads (<i>Calocephalus citreus</i>), Chocolate Lily (<i>Athropodium strictum</i>), Bulbine Lily (<i>Bulbine bulbosa</i>), Blue Devil (<i>Eryngium ovinum</i>) and Common Raspwort (<i>Gonocarpus tetragynus</i>) at up to 10% cover on average.</p>	 <p>Golden Sun Moth food plants recorded in the eastern extent of the offset site.</p>  <p>Native and non-native vegetation recorded at the offset site</p>

Description	Photograph
<p><i>Non-native vegetation:</i> Introduced annual grasses and herbaceous weeds are the most widespread weeds within the offset site, with dominant species including Brown-top Bent (<i>Agrostis capillaris</i>), Rats-tail Fescue (<i>Vulpia myuros</i>), Flatweed (<i>Hyerchaeris radicata</i>) and Toad Rush (<i>Juncus bufonius</i>) recorded.</p> <p><i>Trees and shrubs:</i> Scattered mature native trees are present at low densities, and no shrubs are present. Recruitment of native trees and shrubs is constrained by the opportunistic browsing of domestic stock and the local population of Eastern Grey Kangaroo (<i>Macropus giganteus</i>).</p> <p>The OMP allows for adaptive management in the continued controlled sheep grazing (pulse grazing) to manage biomass accumulation and maintain the open vegetation structure.</p>	 <p>Patches of native and non-native vegetation scattered across the offset site.</p>

### 3.1.2 Priority management areas

One main priority management area was recorded within the offset site, determined by the presence of excess biomass and cover of high-threat weeds. Overall, the offset site had a high cover of biomass in January 2023. The remaining area not identified as a priority management area contained higher quality vegetation to support Golden Sun Moth, and management should continue as per usual. As noted in previous monitoring events (Year 4, SMEC 2022), dominant weed species on site that will require focused and ongoing management include Brown-top Bent, Soft Brome (*Bromus hordeaceus*), Cat's Ear (*Hypochaeris radicata*) and Cape Weed (*Arctotheca calendula*).


Discussions with the landowners and review of their work diary has confirmed that Cape Weed, Brown-top Bent and Yorkshire Fog (*Holcus lanatus*) have been spot-sprayed and are being actively monitored. Additional weeds were recorded earlier in the year by the landowners and were sprayed, including Horehound (*Marrubium vulgare*) and Black Nightshade (*Solanum nigrum*). These species were not observed during the habitat assessment, confirming their management has been successful to date. A description of priority management zone for controlling excess biomass and high threat weeds identified within the offset site and recommended management is provided below in Table 2.

### 3.2 Golden Sun Moth observations

Golden Sun Moth population monitoring was not required in Year 5 of the OMS. However, there was evidence that a population of Golden Sun Moth continue to persist at the site with the following opportunistic observations recorded:

- Golden Sun Moth monitoring at a neighbouring 73 ha offset site that borders this 9 ha offset site were undertaken in January 2023, and a population of Golden Sun Moth is confirmed to persist.

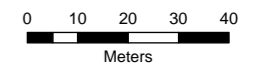
Table 2: Priority management zones for weed control and biomass accumulation

Priority level	Description	Photograph	Recommended management
Priority Zone 1	<p>The southern and western extent of the offset site were identified as an area for priority management (Figure 2). This zone contained up to 70% cover of non-native vegetation with a high biomass typical of the species recorded. This area is located in a low-lying area that is subject to inundation or water-logging during the spring and summer period.</p> <p>Species of concern that dominated these patches included Brown-top Bent, Rats-tail Fescue and Soft Brome. Brown-top Bent comprised at up to 60% total cover. Rats-tail Fescue and Soft Brome were recorded at 10-15% cover. Native species were present and included Golden Sun Moth host plant species (i.e. wallaby-grasses), however, these were recorded at a small total percentage cover (&lt;5-10%).</p>		<p>The following management measures are recommended for Zone 1:</p> <ul style="list-style-type: none"> <li>• Application of ecological burns with local Country Fire Authority (CFA) to be trialed prior to the seed set of annual grassy weed species (i.e. late autumn, April to June);</li> <li>• Apply selective herbicide via spot-spraying to target priority weed species (i.e. Brown-top Bent, Rats-tail Fescue and Soft Brome);</li> <li>• Undertake physical removal of weed species and replace the newly occupied spaces with Golden Sun Moth host plant species; and</li> <li>• Utilise rotational grazing (and use of exclusion fencing) as per the OMS to control biomass accumulation in this zone.</li> </ul>





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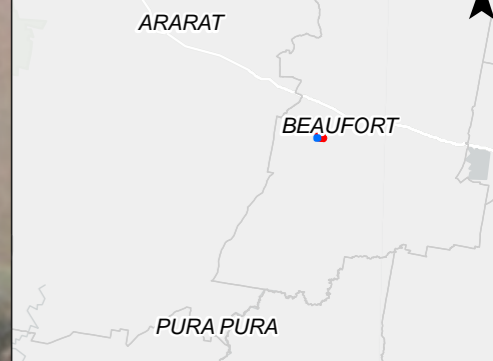


Scale: 1:1,500 @ A3  
GDA2020 MGA Zone 54

**LEGEND**

- Offset site
- Priority Management one**
- Priority Zone 1
- Stream

**KEY MAP**



**SOURCES:**  
 1. Roads and Waterways © DELWP 2022  
 2. Basemap © World Imagery, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
 Light Gray Base: Vicmap, Esri, HERE, Garmin, FAO, NOAA, USGS

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**PROJECT:** Stockyard Hill Wind Farm - Golden Sun Moth Monitoring  
**PROJECT NO:** 30049132  
**FIGURE NO:** 2  
**FIGURE TITLE:** Vegetation Management  
**CREATED BY:** JO15865  
**DATE:** 21/04/2023  
**VERSION:** 2



## 4. Conclusion

### 4.1 Discussion and recommendations

The success of annual weedy grasses is likely due to high rainfall experienced throughout the year (Gerrpart Holdings Pty Ltd 2023), which has limited the access of stock to the site in order to graze and control excessive biomass (i.e. to avoid pugging by stock and damage to species habitat). Rainfall experienced in 2022 is in line with the established La Niña weather cycle which increases rainfall events in eastern Australia (BOM 2023). Excess biomass is likely to be managed in the coming months as drier conditions throughout late autumn and early winter are experienced and stock access is permitted. The landowners have confirmed that crash crazing was successful in autumn months in previous years, however stock were excluded during winter and spring due to excess water-logging at the offset site during 2022. This is the likely cause of higher-than-normal levels of biomass which was observed during the current site assessments.

It is noted that seasonal fluctuations and changes in rainfall between years can vary greatly from year to year and influence offset site management actions in any one year. Seasonal conditions may affect the extent and success of weed species and/or the effectiveness of the application of herbicides. Therefore, management activities need to be flexible in response to changing conditions and unpredictable events (such as seasonally wet years). It is also acknowledged that in years when rainfall is above average, and ground cover growth is persistently high, there are limitations in access for stock and the potential use of ecological burning (i.e. the main management techniques to control biomass cover). As this was the case for 2022 (Year 5), the landowners should make additional efforts in subsequent years to maintain the rate of improvement required within the OMS. Additionally, active weed management (spot spraying or physical removal) will be required throughout autumn 2023 to increase open ground for native species recruitment.

Given the high level of biomass observed, the application of ecological burns is recommended in consultation with the CFA to be trialled in Priority Zone 1 within the offset site. The germination habits and responses of native and non-native flora species to environmental stimuli (i.e. rain events and fire) can vary between species and origin. This may be a useful distinction in determining management approaches where herbicide application or controlled burning alone may be ineffective strategies. The controlled application of fire prior to the seed set of annual grassy weed species (i.e. typically between April and June) could be an effective control method and is recommended to be trialled in suitable conditions (Robinson 2015).

In addition to the above recommendations, the landowners should undertake the following to improve the opportunity for Golden Sun Moth success and persistence within the offset site:

- Continue monitoring for Golden Sun Moth as per the OMS requirements (EHP 2021);
- SMEC recommends the landowners review opportunities to set-up weed management trials throughout the offset site. This may include areas used for ecological burning, installing exclusion fencing and applying different weed management approaches within each trial location to determine the most effective method of controlling weeds within the offset site;
- Continue to apply selective herbicide via spot-spraying to target priority weed species (i.e. Brown-top Bent, Rats-tail Fescue, Cat's Ear, Cape Weed and Soft Brome);
- Undertake physical removal of weed species and replace the space with native Golden Sun Moth host plant species (wallaby-grasses and spear-grasses);
- Utilise the adaptive management approach within the OMS by implementing flexible stock grazing within the offset site to manage biomass levels;
- Remove stock from low lying areas during periods of inundation to avoid soil pugging; and
- Undertake weed management in areas that border the offset site, to avoid the incursion of weedy species into the offset site itself.

## 4.2 Summary

Table 3 outlines the monitoring results in response to the target management objectives of the OMS alongside the associated recommendations.

Table 3: Summary of findings in comparison to the Target Objectives outlined within the OMS

Management objective	Target objective	Year 5 result	Recommendation
Golden Sun Moth monitoring and vegetation quality	Undertake species monitoring over four separate occasions between October-January for an initial four-year period, then in years six, eight and 10.	Not required in Year 5 of the OMS (EHP 2021).	N/A
Access control	Maintain existing and any new fencing to appropriate standards.	Fencing was in good condition and is being used to avoid unauthorised entry to the offset site and target biomass management via sheep grazing.	Introduce rotational grazing between March to August and October to December, install additional temporary fencing to target control in areas of excessive biomass.
Biomass density and stock grazing	Vegetation maintained to a level of 70% with areas of recruitment (bare ground) ranging between 20-40%.	Vegetation was recorded at approximately 90% cover throughout the offset site, with bare ground recorded up to 10% cover.	Focus biomass reduction throughout the offset site, particularly in Priority Zone 1. Implement additional measures including temporary fencing to target grazing efforts or burning to minimise biomass.
Weed control	Control and manage high threat weeds, remove woody weeds.	No woody weeds were recorded within the offset site. Weed management has been focussed on high-threat weeds including Yorkshire Fog, Brown-top Bent, Cat's Ear and Cape Weed (refer to Gerrpart Holdings Pty Ltd 2023).	Continue active management of high threat weeds. Consider the application of ecological burning to manage high weed cover zones. The application of fire prior to the seed set for weedy annual grasses (April to June) is known to have a significant negative impact on these weeds (Robinson 2015). Periodic burning that is followed by spot spraying will also be important for the control of weed species that are difficult to control (such as Brown-top Bent) (Morgan 2015).
Pest animal control	Monitor and treat pest animals as required	Pest animal monitoring has been undertaken by the landowners (refer to Gerrpart Holdings Pty Ltd 2023).	Continue to monitor pest animal activity in accordance with the OMS requirements (EHP 2021).
Reporting	Completing of a summary report for Year 5 monitoring	Refer to documented results contained within this report and Gerrpart Holdings Pty Ltd 2023.	N/A



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## APPENDIX D: GOLDWIND OFFSET SITE MONMOT FARMING - 2022/2023 WORKS REPORT

# P3869 Goldwind Offset Site Monmot Farming - 2022/2023 Works Report

**Trish & Simon Tayler,  
Monmot Farming**

**PREPARED BY:**

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**Acknowledgments:**

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Stockyard Hill

Andrew Taylor  
Senior Scientist - Ecology  
SMEC

**With reference to:**

- Striped Legless Lizard Offset Management Strategy (SLLOMS)
- The BushBroker landowner agreement (BB-3036/LA01)

## 1 Introduction

Stockyard Hill Wind Farm Pty Ltd (SHWFPL) obtained approval under the Environment Protection Biodiversity and Conservation Act 1999 (EPBC Act) to build a Wind Energy Facility and associated infrastructure at Stockyard Hill, approximately 150 kilometres west of Melbourne. Under this approval, surveys were undertaken by Ecology and Heritage Partners Pty Ltd between 2012 and 2017 for the threatened Striped Legless Lizard *Delma impar* (SLL).

The Striped Legless Lizard is a grassland specialist, found only in areas of native grassland and nearby grassy woodland and exotic pasture. The lizard's primary habitat is encompassed by four nationally threatened ecological communities including Natural Temperate Grassland of the Victorian Volcanic Plain.

The life history of the striped legless lizard is poorly known, though estimates of lifespan start at about 10 years. Loss, modification, degradation and fragmentation of habitat including urban development, high intensity grazing and ploughing and pasture improvement are threats to the SLL.

A SLL Offset Management Strategy (SLLOMS) was prepared to outline suitable alternative habitat for the species. The site now lies directly south of Dunnetts Road reserve. The SLLOMS has been revised and detailed management actions provided to the offset site over a 10 year management period. Aus Eco Solutions (AES) was engaged by SHWFPL to carry out the management objectives of the onsite offset site.

Aus Eco Solutions are assisting with the management of this offset site through the implementation of native vegetation habitat improvements through direct seeding and monitoring. Our ongoing management commitments will relate back to the BushBroker landowner agreement (BB-3036/LA01) for all management zones:

- To maintain / improve the quality of the SLL habitat onsite
- Monitor all woody weeds <1% cover
- Ensure weed cover does not increase beyond current level
- Monitor for any new emerging weeds
- Vegetation cover is maintained at greater than 70% throughout site

The landowner will also aid with management objectives by:

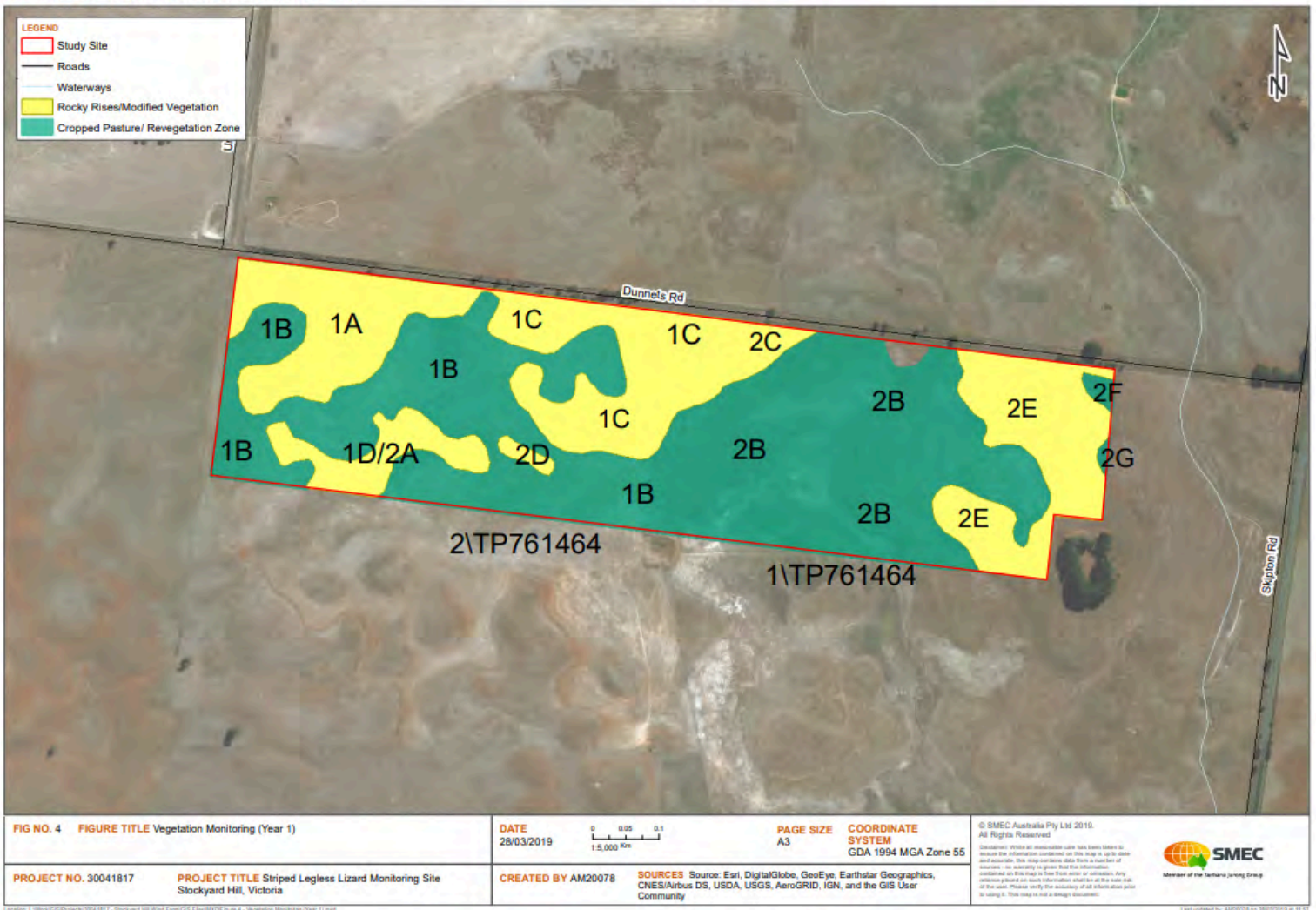
- Controlling rabbits
- Eliminate / monitor all weeds <1% cover (including woody weeds)
- Retaining all rocks, logs or fallen timber
- No cropping, no drainage/hydrology alternation
- No artificial stock feeding
- No pasture improvements
- Boom spraying within habitat zones (1B, 2B, 2F and 2G)

## 1.1 Site Location

Aus Eco Solutions objective is to maintain and improve the quality of Striped Legless Lizard habitat onsite for the initial 3 years of the project. The management and the progress of the site will be re-visited after year 3 to make further plans of the offset site.

Figure 1 is an updated map featuring fine grained definition of the two distinct management zones. This type of data progression is a direct result of the project maturing and will form an improved baseline to measure site development over time.

**FIGURE 4.** Vegetation Monitoring (Year 1)



Map 1: Stockyard Hill SLL Offset Site. Map supplied by Andrew Taylor from SMEC. Management zones have been updated



## 1.2 Aus Eco Solutions Management Actions 2021

Management actions this reporting period include:

- Direct seeding in areas adjacent to SLL Tiles areas.
- Spot spraying of Thistles around the rocky rise areas.
- Reporting.

## 1.3 Site Observations

Ongoing monitoring will need to be done for all the direct seeded areas to confirm germination percentages.

It is recommended to keep biomass low in direct-seeded areas to give the seed the best chance of germination through crash grazing, slashing or ecological burning.

Large amounts of Fog grass have been found across the site. follow up grassy weed control should be done around higher quality areas of site, this will assist with native seed spread across the site.

Small acacia seedlings are starting to come up along the Dunny's road boundary of site.

The fencing off of the Stoney rises areas has been completed.

## 1.4 Raking

Raking was undertaken prior to direct seeding in order to reduce biomass giving seed a chance to germinate.

## 1.5 Pest Animal Control

No pest animal control was undertaken this period.

## 1.6 Crash Grazing

Crash grazing was undertaken prior to and post direct seeding to keep pasture grass low giving seed a chance to germinate.

## 1.7 Seed Collection

No seed collection was undertaken throughout the reporting period.

## 1.8 Direct Seeding & Re-vegetation

Direct seeding of previously collected seed from the local area was done in April with approximately 56kg of Kangaroo grass (*Themeda triandra*) spread through an area marked on the below map, the direct seeding occurred on the 27th/03/2023.

The area that was direct seeded this year was prepared by crash grazing and raking out the target area. The direct seeding was undertaken using hand broadcasting



Map 2: Approximate area Direct Seeded in purple.





Images of direct seed from the 2023 seeding

## 1.9 Herbicide Spraying

Herbicide spraying was undertaken in high-value areas and around the rocky rise areas. The main target weed was Scotch Thistle - *Onopordium acanthium* (Map 3). The spraying works were completed on the 1st and 2nd/12/2023.



Map 3: Area treated for Scotch Thistles *Onopordium acanthium* and other broadleaved weeds is in orange.





Areas that have had Herbicide weed control this year.

### **CRASH GRAZING**

The management plan (SLLOMS) states that grazing is to be used to control bio-mass in March through to August, this should be done on an as required basis, based on vegetation growth and rainfall events.

### **SPOT SPRAYING (INC WOODY WEED)**

Follow up thistle control is recommended as there are new emerging seedlings across the site. These weeds would be best controlled via spot spraying using a selective herbicide.

### **DIRECT SEEDING & REVEGETATION**

The direct seeded areas will be monitored for successful germination and assessed for key site attributes contributing to germination such as soil type and position.

### **OTHER RECOMMENDATIONS**