EPBC Act referral 2017/8049
Youth Justice Redevelopment Project, Cherry Creek:

Offset Management Plan: *Warrambeen*

815 Gumley Road, Mount Mercer

Prepared for Department of Justice and Community Safety

24 January 2020

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- Sonika Kumar (mapping)

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Declaration of accuracy

Youth Justice Redevelopment Project, Cherry Creek,

Victoria

EPBC 2017/8049

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Shana Nerenberg

Consultant Botanist

Biosis Pty Ltd

24/01/2020

Summary

Biosis Pty Ltd was commissioned by the Department of Justice and Community Safety (DJCS) to prepare an **Offset Management Plan** (**OMP**) for the Youth Justice Redevelopment Project (YJRP), Cherry Creek, Victoria. The YJRP was declared a controlled action under the EPBC Act and assessed via preliminary documentation. The controlled action was approved by the Minister for the Environment on 20 November 2018.

The purpose of this **OMP** is to describe how the DJCS will meet approval Condition 6 and Condition 7 for the provision of Environmental Offsets under the approval conditions for *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) referral number 2017/8049. This **OMP** will demonstrate how the Environmental Offsets will compensate for the loss of 28.23 hectares of **Natural Temperate Grassland of the Victorian Volcanic Plain** (**NTGVVP**) and 35.66 hectares of **Golden Sun Moth** (**GSM**) habitat consistent with the **EPBC Act Environmental Offsets Policy**. In summary, these conditions will be met in part by securing for conservation and improving the condition of 144.35 hectares of **NTGVVP** and **GSM habitat** within a new third party **Offset area** located at the property called '*Warrambeen*', 815 Gumley Road, Mount Mercer, Victoria, 60 kilometres west of the development site.

The **specific objectives** for the **Offset area** result from the inputs into and the outputs from the Offsets Assessment Guide. The **specific objectives** form the basis of the **management commitments** that the Landholder has agreed to when reviewing earlier versions of this **OMP**. The **management commitments** will be implemented on the ground using defined **management actions** that are practical and feasible within an agricultural context. Each of the individual **management actions** will have a management target based on maintenance or improvement of the current condition of the **Offset area**.

The **specific objectives** of the **Offset area** will be assessed using the following **key performance indicators**:

- Permanent legal protection of 144.35 ha of **NTGVVP** and **GSM habitat** via **Trust for Nature** covenant.
- Permanent exclusion of all agricultural practices except as described in this **OMP**.
- Completion of the 10-year program of intensive management, including monitoring and reporting.
- Improving the **Quality** of **NTGVVP** and **GSM habitat** from 6 (out of 10) to 7 (out of 10).
- Annual works plan in place for on-going **management actions** from Year 11 onwards.

The broad approach of the **management actions** is to produce a decrease in the abundance of perennial weeds and maintain open grassland conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs. The increased abundance of native grasses will also improve food availability for **GSM**.

A risk assessment has been undertaken to address potential threats to the success of the **Offset area**. Surveillance of the **Offset area** is an integral component of risk management for the **Offset area** and includes both routine inspections by the Landholder and ecological monitoring by a qualified ecologist. These activities allow for early identification of changes, appropriate and timely management responses, and adaptive management to changing conditions. Regular reporting to regulatory bodies will track the improvement of the **Offset area** over time.

Schedules for **management actions**, monitoring and reporting are provided at the end of this document. The table on the following page summarises the **OMP specific objectives**, **key performance indicators** (KPIs) and **management actions** to be implemented according to the details in this **OMP**.

Summary Table **Specific objectives, KPIs and management actions**

Specific objective	Offsets Assessment Guide	KPI / Measureable target	Management actions		
			Upon commencement	Year 1 to Year 10	Year 11 onwards
Offset area protection (security)	Provide 144.35 ha **Offset area**	On-title protection via **Trust for Nature** covenant	Register **Trust for Nature** covenant on-title		
Offset area protection (threat abatement)	Risk of loss reduced from 10% to 1%	• No loss of NTGVVP or GSM habitat or prevental weed introductions over 20 year time horizon of OMP • No unauthorised access or unapproved works within offset area • Understory score maintained at a minimum of 15 (out of 25)	Exclude all agricultural practices except those in accordance with **OMP**	Routine inspections and maintenance of: • Fencing • Signage and access	Routine inspections and maintenance of: • Fencing • Information and access
Offset area improvement	**Quality** score of **NTGVVP** and **GSM habitat** improved from 6/10 to 7/10.	• Average Habitat Hectares score improves from 63.10 to a minimum of 67.04, with a preferred score of 69.76. • **GSM** stocking rate to increase from less than 5 males per hectare to more than 5 males per hectare.	Conversion from agricultural management to conservation management: • New internal fencing & watering points • Signage & markers • Convert to rotational cell grazing with exclusion periods • Install monitoring plots	Intensive program of **management actions** for: • Weeds • Pest animals • Biomass & organic litter • Routine inspections by Landholder and **Trust for Nature**. • Ecological monitoring of **NTGVVP** & **GSM**	
Offset area maintenance	**Quality** score achieved at the end of Year 10 maintained from Year 11 onwards	Habitat Hectares score and **GSM** stocking rate achieved at the end of Year 10 maintained			Maintenance of Year-10 condition with annual works plan for: • Weeds • Pest animals • Biomass & organic litter • Routine inspections by Landholder and **Trust for Nature**

Structure of this document

The structure and content of the **Offset Management Plan** (**OMP**) is organised as follows: Sections 1 and 2 are aimed at technical professionals at DoEE, DJCS, and ecologists undertaking monitoring of the **Offset area**; meanwhile, Sections 3, 4 and 5 are also aimed at the Landholder who will implement the **OMP** as well as technical professionals. Appendix 1 is contains the detailed schedule of **management actions**, including monitoring and reporting, to enable implementation of the **OMP.**

- **1. Introduction:** summarises the background information leading up to the requirement for this **OMP**, including the purpose and scope of the **OMP** and who is responsible for its implementation.
- **2. Offset area description:** provides information about the property on which the offset is located and describes the **Offset area** itself. This section also defines the **specific objectives** as they arise from the Offset Assessment Guide, rather than detailed management targets.
- **3. Specific management actions:** details the **management actions** to achieve the **specific objectives** of the **OMP** including weed, pest and biomass control targets.
- **4. Monitoring actions:** describes how the progress of the **Offset area** will be tracked over the 10 year timeframe to achieve the **specific objectives**.
- **5. Risk assessment and adaptive management:** details how management of the **Offset area** will adapt to changes conditions, the results of monitoring and any unforeseen events or **Incident**s.
- **Appendices:** provides schedule for **management actions** and background information.

For terms in **bold**, a list of terms and their definitions is provided on the following page. A glossary of technical terms used throughout this **OMP** is provided in Appendix 5.

Definition of terms

The following terms are defined in the EPBC Act approval:

Credit Trading Agreement means a legal agreement between the approval holder, **Trust for Nature** and the owner of the **Offset area** to outline the arrangements for the **Offset area** in accordance with the **Offset Management Plan.**

Conservation covenant means a binding agreement registered on the title of the property that provides enduring protection of the environmental values of the property.

Environmental services means services including: (i) entering into and registering a **conservation covenant** over the **Offset area;** and, (ii) managing the **Offset area** in accordance with the **Offset Management Plan.**

EPBC Act Environmental Offsets Policy means the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy,* October 2013 or any document published by the Australian Government which supersedes this document.

Golden Sun Moth or **GSM** means the **EPBC Act** listed threatened species *Synemon plana.*

Golden Sun Moth habitat or **GSM habitat** means the habitat for the **Golden Sun Moth** as defined in the species *approved conservation advice.*

Incident means any event which has the potential to, or does, impact on **protected matter(s).**

Independent audit(s): means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2015).

Monitoring data means the data required to be recorded under the conditions of this approval.

Natural Temperate Grassland of the Victorian Volcanic Plain or **NTGVVP** means the **EPBC Act** listed ecological community: the **Natural Temperate Grassland of the Victorian Volcanic Plain** ecological community.

Offset area means the area of land to be secured and managed for **NTGVVP** and/or **Golden Sun Moth habitat**.

Offset Management Plan or **OMP** means the document outlining the management and protection of the **Offset area,** or any subsequent version approved by the **Minister** under section 143A of the **EPBC Act.**

Preliminary Documentation means the document titled *Youth Justice Redevelopment Project, Cheery Creek, Victoria: Preliminary Documentation EPBC Referral number: 2017/8048* and dated 9 August 2018, inclusive of *Appendices 1-15,* provided to the **Department** on 13 August 2018.

Protected matter(s) means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

Trust for Nature means the Victorian based not-for-profit organisation working to protect native plants and wildlife in cooperation with private landowners (ABN: 60 292 993 543).

The following terms are defined below for use in this OMP:

Key performance indicator or **KPI** means a measureable change that provides evidence that the **Offset area** has achieved/is progressing towards achieving the **specific objectives.**

Management commitment(s) means the overall changes to land management practices that will be undertaken by the Landholder within the **Offset area.**

Management action(s) means the works that will be undertaken within the **Offset area** to improve and maintain **NTGVVP** and **GSM habitat** within the **Offset area**.

Management target means a measureable change that provides evidence that the **management action** has achieved/is progressing towards achieving the improvement in **NTGVVP** and **GSM habitat.**

Quality means the score out of 10 used in the Offset Assessment Guide to define the conservation values present within an area of Listed threatened species habitat or ecological community.

Specific objectives means the requirements for the performance of the **Offset area** as defined by the Offsets Assessment Guide.

The following list of the entities are referred to in this document:

Department of Justice and Community Safety (DJCS) means the Victorian government department responsible for correctional facilities (regardless of the name of the department). At the time the EPBC Act approval 2017/8049 was granted, this department was called Department of Justice and Regulation (DJR). The name of the department may undergo further changes throughout the life of this document but the department responsible for correctional facilities will remain the approval holder.

Department of Environment and Energy (DoEE) means the Commonwealth Government department responsible for the Environment *Protection and Biodiversity Conservation Act 1999* (EPBC Act). The name of the department may undergo changes throughout the life of this document but it is assumed the department responsible for the EPBC Act will remain the regulator of the approval.

Trust for Nature (TfN) means the statutory body enacted under the *Victorian Conservation Trusts Act 1972* and is responsible to covenants enacted as a result of that Act. Regardless of any future name changes, this document assumes that a successor organisation would take responsibility for and be bound by the covenants should TfN be dissolved.

Landholder means the current or future owner of the **Offset area** or their legal representative or their delegate, where the delegate is the person responsible for land management within the **Offset area** (e.g. farm manager).

Warrambeen means the name of the property at 815 Gumley Road, Mount Mercer, on which the **Offset area** is located. Note that the alternative spelling Warrambine applies to some geographic features but does not apply to the property name.

The Trustee for the Taylor Gumley Land Holding Trust (T/G Land Holding Trust) is the legal entity that owns Warrambeen.

1. Introduction

1.1 Background information / description of the action

The Department of Justice and Community Safety (DJCS) is undertaking the Youth Justice Redevelopment Project (YJRP) at Cherry Creek, Victoria (Figure 1). The YJRP was declared a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and assessed via **Preliminary Documentation** (EPBC Act referral number 2017/8049). An ecological assessment of the development site and an environmental impact assessment of the YJRP was provided in the **Preliminary Documentation** by which EPBC Act referral 2017/8049 was assessed. The controlling provisions on the action are summarised as significant impacts on *Listed Threatened Species and Communities* protected under Section 18 and Section 18A of the EPBC Act. A second controlling provision, *Wetlands of international importance,* does not have any relevance to this document or environmental offsets associated with the YJRP and is not mentioned further.

The impacts on *Listed Threatened Species and Communities* were described in detail in the **Preliminary Documentation** and are summarised here. The **Preliminary Documentation** identified that there would be a significant impact on two Matters of National Environmental Significance (MNES):

- 28.225 ha Temperate Grassland of the Victorian Volcanic Plain (**NTGVVP**)
- 36.67 ha Habitat for **Golden Sun Moth** *Synemon plana* (**GSM**).

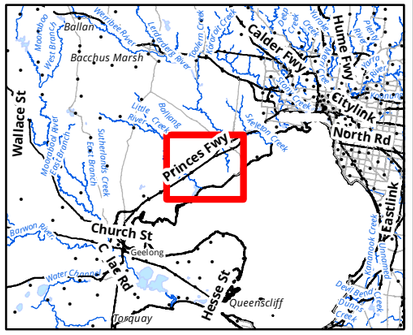
The total area of NTGVPP was considered to be **GSM habitat** (Figure 1) with an additional 7.366 hectares of predominantly introduced vegetation and poor condition native vegetation also identified as **GSM habitat**.

The **Quality** (measured out of 10) of the **NTGVVP** varied within the development site. The majority of the **NTGVVP** was assessed as **Quality** 6 (out of 10), with small areas along the access road assessed as **Quality** 3 (out of 10). The **Quality** of **GSM habitat** varied according to the condition of the vegetation. Of the total of 36.6 hectares of **GSM habitat**, approximately 20% of the development site was **GSM habitat** of **Quality** 3 (out of 10), a small section supported **Quality** 4 (out of 10), and approximately 80% of the development site supported **GSM habitat** of **Quality** 5 (out of 10) (Figure 1).

The proposed controlled action was approved by the Minister for the Environment on 20 November 2018. The approval has effect until 1 November 2035. The details of the development site are provided Table 1.

Table 1 Development Site Details

Site details:	
Applicant	Department of Justice and Community Safety
Location/address of Development Site	215 Farm Road Cocoroc 3030
Local Government Area	City of Wyndham
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
Planning Scheme Amendment (ID)	Wyndham C222
Date Planning Scheme Amendment approved	18 October 2018
EPBC Act referral	2017/8049
Date Controlled Action approved	20 November 2018



Legend

- Impact area
- Melbourne Strategic Assessment Area - BCS
- GSM habitat removal
- NTGVVP removal

Figure 1 Removal of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) and Golden Sun Moth (GSM) habitat that was approved on 20/11/2018 under EPBC Act referral 2017/8049

0 100 200 300 400 500

Metres
Scale: 1:10,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

N

Biosis Pty Ltd
Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 27706,
Date: 05 June 2018,
Checked by: SN, Drawn by: SSK, Last edited by: skumar
Location:P:\25100s\25102\Mapping\27706_F4a_VegRemoval.mxd

1.2 Purpose

The purpose of this **OMP** is to describe how Condition 6 and Condition 7 for the provision of Environmental Offsets under EPBC Act referral 2017/8049 (reproduced below) will be met in part by an **Offset area** established at the property called Warrambeen. The **specific objectives** of this **OMP** are as follows:

- **Offset area protection (security):** In-perpetuity, legal protection of the conservation values of the **Offset area**.
- **Offset area protection (threat abatement):** in-perpetuity **management commitments** for removing the threats posed by agricultural production and current land use rights.
- **Offset area improvement:** An intensive 10-year program of **management actions** to be implemented from the commencement of the **OMP** to improve **NTGVVP** and **GSM habitat Quality**.
- **Offset area maintenance:** In-perpetuity **management actions** that will ensure that the improvement achieved in the first 10 years of the **OMP** is maintained over time.

The **management actions** are described in the sections that follow and are supported by schedules at the end of this document (Appendix 1).

1.3 Objectives

This **OMP** has the following objectives based on Condition 7 of the EPBC Act approval for referral 2017/8049:

- Provide supporting documentation for the establishment of a conservation covenant for the **Offset area** (Condition 6);
- Describe the **Offset area** including location, size, condition, environmental values present and surrounding land uses and provide maps of the **Offset area**.
- Document the presence and baseline **Quality** of the **NTGVVP** and **Golden Sun Moth habitat** within the **Offset area**.
- Define **specific objectives** to demonstrate **NTGVVP** and **Golden Sun Moth habitat Quality** improvement.
- Describe specific **management actions**, and timeframes for implementation, to be carried out to meet **specific objectives**.
- Define **key performance indicators** to demonstrate the improvement to the **Quality** of **NTGVVP** and **Golden Sun Moth habitat**.
- Detail the nature, timing and frequency of monitoring to determine the success of **management actions** against **key performance indicators**.
- Provide information on indicative corrective actions that will be implemented in the event monitoring activities indicate **key performance indicators** are not or are unlikely to be achieved.
- Explain the roles and responsibilities for implementing the **management actions**.

All **management actions** are consistent with conservation advice for **NTGVVP** and **GSM**, and threat abatement plans relevant to both **protected matters**. These documents are referenced throughout where necessary.

There is one other EPBC Act listed threatened species known to be present in the **Offset area**: two individuals of Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* were recorded during site inspection. As a flora species characteristic of **NTGVVP**, Spiny Rice-flower will also be accommodated within the **management actions**.

1.4 Approval conditions

The following approval conditions for EPBC Act referral 2017/8049 relate to this **Offset Management Plan** (**OMP**). A list of terms is provided in the next section.

- *6. To provide for the conservation and enhancement of **NTGVVP** and **Golden Sun Moth habitat** the approval holder must:*
  - *a. Within 12 months of the date of this approval, execute a **Credit Trading Agreement** for the provision of **Environmental Services** at the **Offset area**.*
  - *b. The Department must be provided with a copy of the signed **Credit Trading Agreement** within 4 weeks following its execution.*
  - *c. Within 12 months of the date of signing the **Credit Trading Agreement**, provide written evidence to the Department of the signed conservation covenant for the **Offset area** has been registered on the title of the **Offset area**.*
  - *d. The Department must be provided with a copy of the signed conservation covenant within 4 weeks following execution.*
- *7. Prior to executing the **Credit Trading Agreement** under condition 6, the approval holder must submit to the Department an **Offset Management Plan** for the **Offset area**.*
  - *a. The approval holder must obtain the Minister's approval for the **Offset Management Plan** before executing a **Credit Trading Agreement**.*
  - *b. The **Offset Management Plan** must be prepared by a **suitably qualified person** and be consistent with the Department's Environmental Management Plan Guidelines, and the EPBC Act Environmental Offset Policy.*
  - *c. The **Offset Management Plan** must demonstrate how the **Offset area** and **Environmental Services** will compensate for the loss of 28.23 hectares of **NTGVVP** and 35.66 hectares of **Golden Sun Moth habitat** consistent with the **EPBC Act Environmental Offsets Policy**.*
  - *d. The **Offset Management Plan** must include, but not be limited to:*
    - *i. a description of the **Offset area** including location, size, condition, environmental values present and surrounding land uses.*
    - *ii. baseline data and other supporting evidence that documents the presence and baseline **Quality** of the **NTGVVP** and **Golden Sun Moth habitat** within the **Offset area**.*
    - *iii. maps and shapefiles of the **Offset area**.*
    - *iv. **specific objectives** to demonstrate **NTGVVP** and **Golden Sun Moth habitat Quality** improvement over the period of the **Offset Management Plan**'s implementation.*
    - *v. specific **management actions**, and timeframes for implementation, to be carried out to meet **specific objectives** to improve the **Quality** of the **NTGVVP** and **Golden Sun Moth habitat** within the **Offset area**.*
    - *vi. **key performance indicators** to demonstrate the improvement to the **Quality** of **NTGVVP** and **Golden Sun Moth habitat**.*
    - *vii. the nature, timing and frequency of monitoring to determine the success of **management actions** against **key performance indicators**.*
    - *viii. indicative corrective actions that will be implemented in the event monitoring activities indicate **key performance indicators** are not or are unlikely to be achieved.*
    - *ix. the roles and responsibilities for implementing the **management actions**.*
    - *x. Evidence of consistency with relevant conservation advices, recovery plans and/or threat abatement plans.*
    - *xi. maintain or improve the extent and **Quality** of habitat and populations of other EPBC Act listed threatened species and ecological communities in the **Offset area**.*

1.5 Roles and responsibilities

This section is important because it provides the details of which entities (see Definition of terms section above for the full list of entities listed in this document) are responsible for the various components of this **OMP**. Under Condition 7.d.ix., this **OMP** must include the roles and responsibilities for implementing the **management actions**, however, this section expands on this requirement to include the execution of the conditions themselves. Note that the **Credit Trading Agreement** and **Trust for Nature** covenant have further contractual obligations defined as part of their terms and conditions and should be referred to as necessary.

Table 2 provides a list of the responsibilities allocated to each entity and further description is provided below. The legal liabilities associated with these responsibilities are not directly controlled by this document but are conferred through the approval under the EPBC Act for EPBC Act referral 2017/8049, the **Credit Trading Agreement** and the **Trust for Nature** covenant.

DJCS: The approval for EPBC Act referral 2017/8049 is granted to the approval holder, who is the Victorian Department of Justice and Community Safety (DJCS). As the approval holder, DJCS is ultimately responsible for execution of the approval conditions for their project, the YJRP. Unless otherwise agreed in a legally binding document, DJCS retains ultimately responsible for ensuring the approval conditions are met to the satisfaction of DoEE including providing compensation for loss of **NTGVVP** and **GSM habitat** via implementation of the **OMP**, ecological monitoring, reporting to DoEE, and ensuring adequate oversight (e.g. auditing). DJCS has engaged the Landholder of Warrambeen to deliver **Environmental Services** on their behalf, including implementation of the **management actions** in this **OMP**.

Trust for Nature: The responsible authority for the conservation covenant under the *Victorian Conservation Trust Act 1972* (VCT Act) is **Trust for Nature** (TfN). TfN has authority under the VCT Act to enforce restrictions contained in the covenant but also provides advice on land management to the Landholder (both during the 10 year management period and from Year 11 onwards). TfN bears no responsibility for the execution of approval conditions for EPBC Act referral 2017/8049.

Landholder: The TfN covenant binds the current (and future) Landholder to the standard restrictions in the TfN covenant and to the requirements described in this **OMP**. As agreed with DJCS and TfN, the Landholder will be responsible for carrying out the works and associated reporting to manage the **Offset area**. The Landholder will also facilitate access to the **Offset area** for ecological monitoring and auditing, as required. The Landholder can engage suitably qualified contractors to carry out the works on the Landholder's behalf. The Landholder can deputise responsibility for carrying out the works to a designated site manager and/or managing ecologist, however, the Landholder remains responsible for ensuring the works are undertaken (Table 2).

Funding arrangements: Financial liabilities have been agreed between DJCS, TfN and the Landholder, who are parties to the **Trust for Nature** agreement. In general terms, **Trust for Nature** will retain sufficient funding to ensure that the **Offset area** can be managed according to the 10-year management period described in this **OMP**. A portion of the funds held in trust are released each year to the Landholder, with the exact arrangements stipulated in the TfN agreement. The **Credit Trading Agreement** has further arrangements pertaining to financing the management and monitoring of the **Offset area**, however, the details of the financial arrangements associated with the **Offset area** are beyond the scope of this **OMP**.

Table 2 Offset area responsibilities

Notes to table: DJCS: Department of Justice and Community Safety. Landholder: refers to the Landholder or their delegate (e.g. farm manager). TfN: **Trust for Nature**

Responsibility	Responsible entity	Obligation arising from	Person who will undertake the work
Executing approval Condition 6 and 7 under EPBC Act approval 2017/8049 (i.e. providing the required environmental offsets)	DJCS	Statutory approval conditions for YJRP	DJSC or their representative Ecological consultant (preparation of **OMP**)
Implementation of OMP such as undertaking conservation and maintenance works in Offset area	T/G Land Holding Trust	TfN covenant on **Offset area**	Landholder or their contractor
Routine inspections of Offset area	T/G Land Holding Trust	TfN covenant on **Offset area**	Landholder or their contractor
Keeping records of conservation and maintenance works, and results of routine inspections in Offset area	T/G Land Holding Trust	TfN covenant on **Offset area**	Landholder or their contractor
Ecological monitoring of Offset area	DJCS	Statutory approval conditions for YJRP	Experienced grassland ecologist to be engaged by the Landholder/DJCS with the costs invoiced to DJCS
Auditing of compliance with the approval conditions for EPBC Act approval 2017/8049 (see Condition 17 and Condition 18 of that approval)	DJCS	Statutory approval conditions for YJRP	An independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999* Independent Audit and Audit Report Guidelines (2015).
Records and reports of works and routine inspections for Trust for Nature	T/G Land Holding Trust	TfN covenant on **Offset area**	Landholder or their contractor
Ecological monitoring reports	T/G Land Holding Trust	TfN covenant on **Offset area**	Experienced grassland ecologist to provide report to Landholder
Annual compliance reporting to DoEE (Condition 14 of EPBC Act approval 2017/8049)	DJCS	Statutory approval condition for YJRP	Landholder or their contractor to provide annual report to DJCS as per management action. DJCS to provide annual compliance report to DoEE (N.B. will include details of both the development site and Offset area).
Reporting non-compliance to DoEE (Condition 15 of EPBC Act approval 2017/8049)	DJCS	Statutory approval condition for YJRP	Landholder to inform **Trust for Nature**, DJCS and DoEE in the event of an **Incident**. **Incident** means any event which has the potential to, or does, impact on **protected matter(s)**. E.g. wildfire (bushfire) occurring in the **Offset area**; plant pest or disease outbreak affecting native grassland flora. Minor seasonal

Responsibility	Responsible entity	Obligation arising from	Person who will undertake the work
			issues like fluctuations in weed cover can be discussed with TfN in the course of routine works planning but does not meet the description of an **Incident**.
Review of OMP (in accordance with the adaptive management provisions of OMP)	T/G Land Holding Trust	TfN covenant on **Offset area**	Landholder in consultation with TfN
Providing advice on and monitoring compliance with Trust for Nature covenant	**Trust for Nature**	TfN covenant on **Offset area**	Staff members of **Trust for Nature**

1.6 Other offset requirements

The clearing of native vegetation associated with the YJRP was also assessed by the Department of Environment, Land, Water and Planning (DELWP) as part of planning scheme amendment Wyndham C222 approved by the Victorian Minister for Planning on 18 October 2018. Environmental offsets prescribed under the Victorian *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017) will also be required for the YJRP. Where possible, the environmental offsets provided in fulfilment of the approval conditions for EPBC Act referral 2017/8049 will also contribute to the offset requirements under Wyndham C222. Additional environmental offsets may be required to meet all the requirements of Wyndham C222, however, these would not be relevant to this **OMP** and are not mentioned further.

1.7 OMP commencement

The implementation of this **OMP** will begin on execution of the **Credit Trading Agreement** and release of the agreed funds to the Landholder. The funds due to the Landholder are for the purchase of the offsets and for the costs associated with the establishment tasks for the **Offset area** (Section 3.5). **Trust for Nature** will retain sufficient funds in trust to provide for the 10-year management of the **Offset area** as well as a contingency for unexpected events or costs.

The registration of the covenant will be completed as soon as possible thereafter noting that administrative requirements may mean that the registration of the covenant with the titles office (currently called Land Use Victoria) takes a further 12 months to be completed and signed-off by the Commonwealth Minister for the Environment. This registration process is an administrative process only and will not prevent the commencement of the **management actions** of the **OMP** once the **Credit Trading Agreement** is executed since the funds are non-refundable.

The **Credit Trading Agreement** was executed on DD / Month / YYYY and henceforth is the date on which this **OMP** commenced.

1.8 Financial disclaimer

Please note that any information provided in this **OMP** regarding financial arrangements is for information purposes only. This **OMP** is not designed to govern any financial arrangements regarding purchase, management or monitoring of the **Offset area**. The financial arrangements are governed by the **Trust for Nature** agreement and the **Credit Trading Agreement**.

2. Offset area description

In accordance with Condition 7.d.i. of EPBC referral 2017/8049, this section provides a description of the **Offset area** including location, size, condition, environmental values present and surrounding land uses. In accordance with Condition 7.d.ii. of EPBC referral 2017/8049, this section also describes the current ecological condition of the **NTGVVP** and **GSM habitat** using baseline data and other supporting evidence that documents the presence and baseline **Quality** of the **NTGVVP** and **GSM habitat**.

2.1 Environmental offsets requirements

The Offsets Assessment Guides for the approved impacts were confirmed as meeting the **EPBC Act Environmental Offsets Policy** on 6 September 2019. The resulting offset requirements were as follows:

- **NTGVVP**: 166.68 hectares
- **GSM habitat**: 188.18 hectares (with 166.68 hectares concurrent with the **NTGVVP**)

The DJCS will secure third party offsets at two locations on the Victorian Volcanic Plain. This **OMP** covers 86% of total requirements (144.35 hectares) of **NTGVVP** and concurrently occurring confirmed **GSM habitat**. The remainder of the offsets that cannot be provided under this **OMP** will be provided at a second location.

2.2 Description of the Offset area

2.2.1 Location and surrounding land uses

The **Offset area** is located at the property called '*Warrambeen*', 815 Gumley Road, Mount Mercer, Victoria (Figure 2). Warrambeen is approximately 60 kilometres west of development site, near the regional centre of Ballarat (Figure 2). Warrambeen is owned by Taylor Gumley Land Holding Trust as part of a larger farming enterprise of approximately 4000 hectares. The details of the land titles on which the **Offset area** is located are provided in Table 3.

The **Offset area** is located within a large paddock of 190 hectares with the directly adjoining land uses being agricultural land and other offset sites. The paddock is located in the centre of the Warrambeen such that roads or other means of public access are more than 1 kilometre from the **Offset area**. The paddock itself contains one existing offset site and is used currently for sheep grazing. Warrambeen supports additional environmental offsets in other parts of the property.

All informal easements have been excluded from the net **Offset area** and there are no formal easements within the net **Offset area**. The **Offset area** also excludes an unmade government road on the southern edge of the paddock. No future utilities or road easements can be applied to the **Offset area** as these are likely to conflict with the objectives of this **OMP**.

2.2.2 Size

The **Offset area** is 144.35 hectares of **NTGVVP** concurrently with confirmed **GSM habitat** (Figure 3). The **Offset area** therefore provides 86.6% of the prescribed offset obligation for EPBC referral 2017/8049. The offset will be provided as a single contiguous area of grassland (Figure 3).

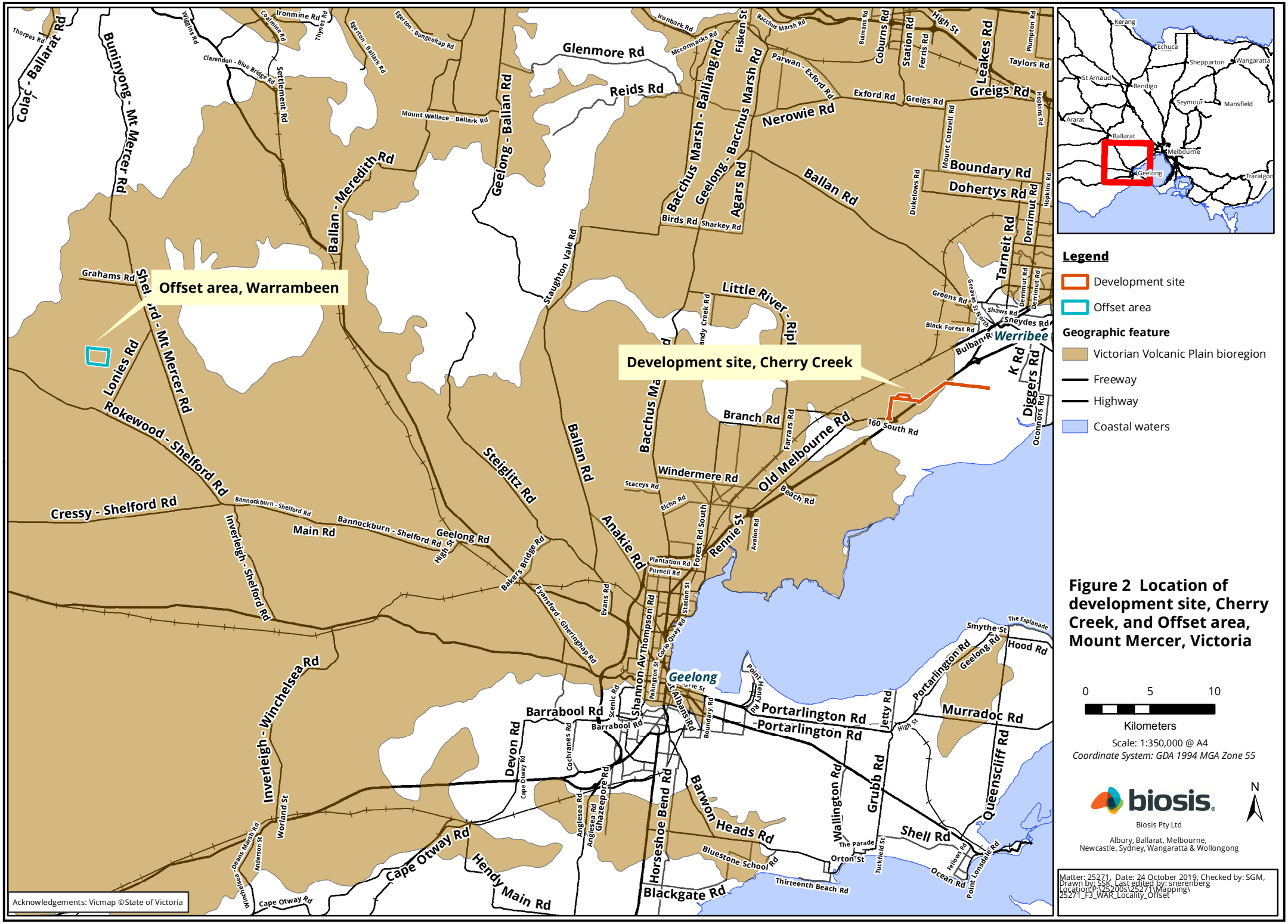


Figure 2 Location of development site, Cherry Creek, and Offset area, Mount Mercer, Victoria

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Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 25271, Date: 24 October 2019, Checked by: SGM, Drawn by: SSK, Last edited by: snerenberg
Location:P:\25200s\25271\Mapping\25271_F3_WAR_Locality_Offset

Table 3 Offset area and property details

Site details:	
Type of offset	Third party
Landholder of Offset area	Trustee for Taylor Gumley Land Holding Trust ABN 28 484 624 495
Landholder Contact	offsets@warrambeen.com
Location and address of Offset area	815 Gumley Road, Mount Mercer
Area of Offset area (ha)	144.35 ha
Allotment	TP16469T
Parcel identifier (SPI)	118\PP3485, 119\PP3485 & 120\PP3485
Local Government Area	Golden Plains
Security mechanism	**Trust for Nature** covenant registered on title
Bioregion	Victorian Volcanic Plain

2.2.3 General description of environmental values present

The **Offset area** has no known history of cultivation, significant pasture improvement or intensive fertilizer application. The surface rock and rocky rises remain intact as does a substantial cryptogam layer and soil crust.

A detailed description of the conservation values within the proposed **Offset area** is included in Biosis (2018). A total of 45 native and 23 introduced plant species were recorded from two inspections of the **Offset area** in 2018 (Biosis 2018). More native and weed species will be present but seasonal conditions and survey intensity typically preclude the detection of all species at any one time.

The **Offset area** supports many of the flora species that are characteristic of **NTGVVP** including: Kangaroo-grass *Themeda triandra*, Common Tussock-grass *Poa labillardierei*, Spear-grass *Austrostipa* spp., Wallaby-grass *Rytidosperma* spp., Lemon Beauty-heads *Calocephalus citreus*, Scaly Buttons *Leptorhynchos squamatus*, Blue Devil *Eryngium ovinum*, Small Scurf-pea *Cullen parvum*, and Common Woodruff *Asperula conferta* (Biosis 2018).

The **Offset area** is known to support at least two threatened flora species (Biosis 2018):

- Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* (Critically Endangered under the EPBC Act).
- Small Scurf-pea *Cullen parvum* (Endangered in Victoria).

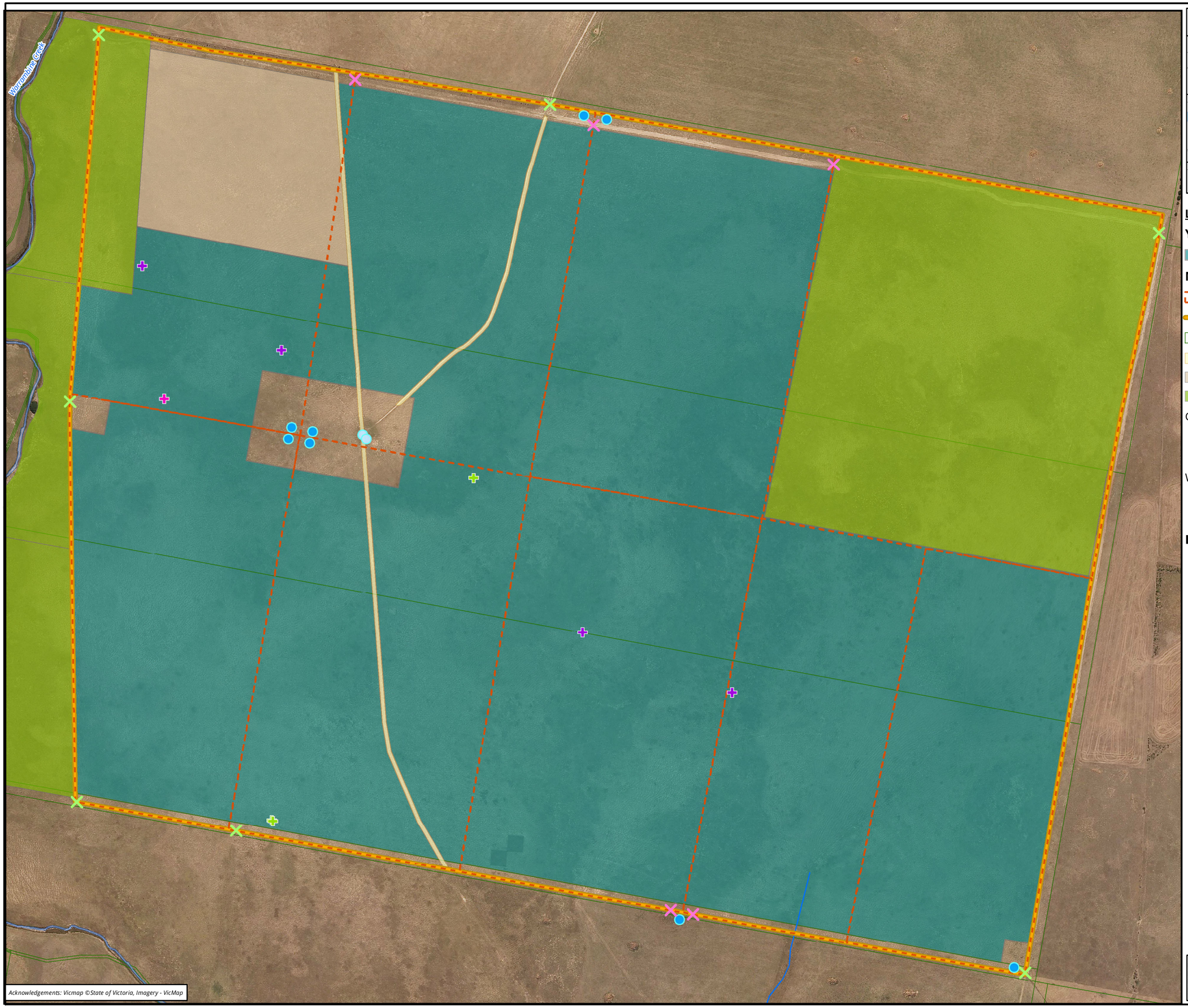
Although weeds are present, the overall vegetation and habitat structure of the grasslands is provided by the native perennial tussock grasses characteristic of **NTGVVP**. Low-threat annual weeds were the most obvious type of weed present such as Wild Oats *Avena* spp., Quaking-grass *Briza* spp., Squirrel-tail Fescue *Vulpia myuros* and Narrow-leaf Clover *Trifolium angustifolium*. High threat perennial grasses Brown-top Bent *Agrostis capillaris* and Toowoomba Canary-grass *Phalaris aquatica* were present but these were not dominating the tussock cover of the grassland and were assessed to be a levels low enough to be managed effectively. The noxious broad-leaved weed, Spear Thistle *Cirsium vulgare*, was present in varying amounts throughout the **Offset area** but other broad-leaved perennial weeds were relatively rare.

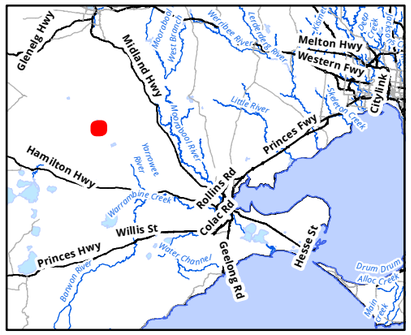
Woody weeds were relatively rare and were considered at levels low enough to be controlled to negligible levels. All woody weeds were species that are readily recognised by the Landholder or contractor including the large shrubs: African Box-thorn *Lycium ferocissimum*, Sweet Briar *Rosa rubiginosa* and Cherry Plum *Prunus cerasifera*.

Because the **Offset area** is embedded within a larger patch of **NTGVVP**, the landscape values of the **Offset area** also add to its conservation value. **NTGVVP** has been cleared from most of the Victorian Volcanic Plain and usually occurs in small, isolated patches. In contrast, the **Offset area** occurs within a patch with a total area of over 300 hectares, when the adjoining paddocks are included.

Targeted surveys for **GSM** were undertaken by Biosis during the 2018/19 summer survey season. The **GSM** surveys were undertaken using the field methods stipulated in the Commonwealth EPBC Act Policy Statement 3.12 (DEWHA 2009) for approximately 100 hectares of the total **Offset area**.

A total of 86 male **GSM** were recorded flying within the area surveyed. Female moths, which are more difficult to detect, were not observed during the surveys. The **GSM** individuals were distributed throughout the area surveyed as well as on adjoining paddocks (Figure 3). The adjoining paddock also supports a large population of **GSM** and recorded sightings of **GSM** within the **Offset area** date back to 2009 (Biosis 2018).





Legend

YJRP Offset area

- NTGVVP / GSM habitat (144.36 ha)

Management details:

- Grazing cells (proposed)
- Existing Fence
- Cadastral boundary
- Excluded easements (6 m wide)
- Additional area not under covenant
- Existing offsets

Gates (not to scale)

- Exisiting
- New

Watering Points - troughs (not to scale)

- Existing
- New (outside offset area)

Listed flora species:

- Pimelea spinescens ssp. spinescens - Spiny Rice-flower (EPBC Act)
- Cullen parvum - Small Scurf-pea (FFG Act)
- Cullen tenax - Tough Scurf-pea (FFG Act)

Figure 3 Offset area (144.36 ha), Warrambeen, Victoria. External data provided by Warrambeen Trading Co.

0 90 180 270

Meters
Scale: 1:5,500 @ A3
Coordinate System: GDA 1994 MGA Zone 54

N

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Matter: 25271,
Date: 24 January 2020,
Checked by: SGM, Drawn by: SSK, Last edited by: snerenberg
Location: P:\25200s\25271\Mapping\
25271_F3_WARRAM_OffsetArea_Final.mxd

2.3 Current condition

The vegetation condition of the **Offset area** was assessed using the Habitat Hectares method (Parkes et al. 2003) and the conservation values of the **NTGVVP** were assessed against those provided in the listing advice (TSSC 2008). The suitability and **Quality** of **GSM habitat** was assessed against the descriptions provided in (DEWHA 2009). The condition assessments were used in conjunction with consultation with DoEE to calculate the **Quality** score used to calculate the required offsets.

2.3.1 NTGVVP current condition

The native vegetation within the **Offset area** received a score of 63 out of 100 (Habitat Hectares method, as assessed against the Plains Grassland benchmark, Table 4). This is a high score for native vegetation that has been subject to agricultural disturbance and gives a **Quality** score of 6.3 out of 10. There are opportunities to improve **Quality** through increased weed control and maintenance of favourable recruitment conditions through biomass management. The assessed against the conservation values in the listing advice provides additional evidence that the **Quality** of the **Offset area** is higher than the **Quality** of the development site, for example, because it supports threatened flora species.

Appendix 4 provides the explanation of the **NTGVVP Quality** scoring method.

Table 4 Habitat Hectares results, Warrambeen

EVC Name (#):			Plains Grassland (EVC 132-61)
		Score out of:	Score:
Site Condition	Lack of Weeds	15	6
	Understorey	25	15
	Recruitment	10	10
	Organic Matter	5	5
	Site Score (standardised x1.36)		**49.1**
Landscape Value	Patch Size	10	8
	Neighbourhood	10	2
	Distance to Core	5	4
	Landscape Score		**14**
Total Habitat Score		**100**	**63.1**

The current condition of NTGVVP was also assessed against the conservation values in the listing advice for the ecological community (Table 5). This assessment was done for both the **Offset area** and the development site to demonstrate that the **Offset area** is of higher conservation value than the development site (Table 5).

Table 5 The conservation value of NTGVVP (TSSC 2008) at development site and Offset area

Conservation value:	Development site	Offset area - Warrambeen
A high native plant species richness *note that the impact site and Offset area were both surveyed in autumn. Targeted surveys for spring flowering flora were only done at the impact site.	No. The site is low native diversity, modified grassland with 22 native species recorded from a survey* of 67 hectares (EHP 2017). The areas of **NTGVVP** in better condition are dominated by Spear Grass *Austrostipa* spp. and Wallaby Grass *Rytidosperma* spp. but herbs are scarce and are those that are tolerant of disturbance and found commonly in areas grazed by livestock. Kangaroo Grass *Themeda triandra* has negligible cover and *does not* provide the main vegetation structure.	Yes. The site has high diversity with 44 native species recorded during the assessment.* Areas of **NTGVVP** are in good condition with areas dominated by Kangaroo Grass *Themeda triandra* and supports a range of native herbs indicative of higher conservation value grassland including Chocolate Lily *Arthropodium strictum*, Lemon Beauty-heads *Calocephalus citreus,* and Scaly Buttons *Leptorhynchos squamatus* as well as three threatened species that were recorded Incidentally.
Large patch size	Yes. While no definition of 'large' is given, the patch is embedded in a landscape context of greater than 500 hectares of farmland, some of which is native grassland of varying condition.	Yes. While no definition of 'large' is given, the patch is embedded in a landscape context of greater than 3000 hectares of farmland, much of which is native grassland of varying condition.
Minimal weed invasion	Variable. Weed invasion varies throughout the patch with the highest cover in any one area being 40% cover (EHP 2017). More than half of all species recorded were weeds (44 weed species compared to 22 native species).	Variable. Weed invasion varies throughout the patch with the highest cover in any one area being 30%. Only one-third of all species recorded were weeds (22 weed species compared to 44 native species).
Presence of threatened plant and/or animal species	Flora - No. No threatened plant species were detected during targeted surveys.	Flora - Yes. One EPBC listed flora species Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* and two species FFG Act listed in Victoria, Small Scurf-pea *Cullen parvum* and Tough Scurf-pea *Cullen tenax* were recorded. A further 6 protected flora species under the *Flora and Fauna Guarantee Act 1988* were recorded (noting this status typically only infers protection on private land).
	Fauna - Yes. **GSM** is recorded.	Fauna - Yes. **GSM** is also recorded.
Presence of natural exposed rock platforms and outcrops	Minimal. Basalt surface and embedded rock is present throughout the site but surface rock removal has occurred in the past.	Yes. Rocky rises with undisturbed rock formations occur throughout the site as well as basalt surface rock and embedded rock away from the rises.
Presence of mosses, lichens or a soil crust on the soil surface.	Minimal. The natural surface crust has been disturbed by a long history of livestock grazing but mosses and lichens are still present with modified cover and structure.	Yes. The natural surface crust is present with mosses and lichens found throughout.

2.3.2 GSM habitat current condition

The **Offset area** supports a single contiguous area of high conservation value **NTGVVP** that is also confirmed **GSM habitat** and so was assigned a single **Quality** score. The **Quality** of 6/10 reflects the relatively intact condition of the vegetation but a moderately low stocking rate of **GSM** was recorded during targeted surveys in 2018/19. **GSM habitat Quality** can be improved by maintaining and increasing the cover of native grasses and maintaining an open grassland structure in time for the **GSM** breeding season.

Tables 6 provides the **Quality** scoring for the Warrambeen **GSM** offset. Appendix 4 provides the explanation of the **GSM habitat Quality** scoring method.

Table 6 Warrambeen GSM habitat Quality score

Parameter	Score	Justification
Site context	2/3	The **Offset area** is larger than 10 hectares in a landscape context of other large **GSM** offset sites. The **Offset area** is approximately rectangular noting that it also adjoins other **Offset area**s. The **Offset area** is essentially flat although rocky basalt geology creates minor topographic relief if viewed from ground level. This places the **Offset area** in the 2 out of 3 category.
Site condition	3/3	The vegetation in this category is dominated by high conservation value native vegetation (VQA site condition score of 49 out of 75) dominated by native grasses throughout including Kangaroo Grass *Themeda triandra* and Wallaby Grass *Rytidosperma* spp. as well as a high diversity of herbs. The **Offset area** also supports threatened plant species, including Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*. There are ample inter-tussock spaces with the **Offset area** getting the highest possible score for this attribute in the VQA assessment (10 out of 10). This places the survey area within the 3/3 category.
Species stocking rate	1/4	A total of 86 **GSM** were recorded from the **Offset area**. The total **Offset area** surveyed was 100 hectares. This gives a stocking rate of 0.86 moths per hectare. This places the survey area within the 1/4 category.
Quality score	6/10	A score of 6 out of 10 indicates that the **Offset area** has relatively intact conservation values in its current condition and represents habitat that is highly favourable to the species. There are opportunities to improve **Quality** through increased weed control and maintenance of favourable biomass levels.

2.3.3 Follow up inspection September 2019

To support the preparation of this **OMP**, a follow-up inspection of the **Offset area** was undertaken during spring 2019 (25 September – 26 September 2019). The aim of the inspection was to confirm the exact shape of the boundary that would be used to define the offset but it also allowed views of the **Offset area** during a more favourable season since previous inspections had been undertaken in autumn. The final layout of the **Offset area** is shown in Figure 3. The vegetation condition observed during the follow up inspection showed the benefit of strategic grazing for the grassland vegetation. The **Offset area** had been grazed over winter with stock removed in early September. As a result, the biomass was at suitable levels of **GSM** breeding compared with the autumn inspections. Several more native herb species were observed including the culturally important Yam Daisy (Murnong) *Microseris scapigera* that was observed in atypically high numbers.

2.4 Suitability of Offset area to provide a conservation gain

Under Section 7.6 of the **EPBC Act Environmental Offsets Policy** (DSEWPaC 2012), *environmental offsets must deliver a conservation gain for the impacted **protected matter**, and that conservation gain must be new, or additional to what is already required by a duty of care or to any environmental planning laws at any level of*

government. The following sections confirm that the proposed **Offset area** meets this requirement having no existing environmental offsets, on-title protections or other proposed conservation protections. In addition, the **Offset area** has current permitted land uses under the Golden Plains Planning Scheme that are also recognised threats to **NTGVVP** and **GSM habitat** as described below. Under these conditions, it was assessed that the risk of loss of **NTGVVP** or **GSM habitat** from the **Offset area** was 10%.

2.4.1 Current permitted land uses

The property is zoned Farming Zone (FZ) within the Golden Plains Shire Planning Scheme, which controls the use of the land. The purpose of the FZ is to provide for the use of land for agriculture. Uses for which a permit is *not* required include:

- Agriculture
- Cattle feedlot
- Domestic animal husbandry
- Dwelling
- Grazing animal production
- Poultry farm
- Timber production at least 40 hectares in size.

Under the Farming Zone, there are no permit requirements for the following agricultural activities that can lead to the decline or loss of native plant species and/or encourage the proliferation of weeds, which are known threats to **NTGVVP** and **GSM habitat**:

- Fertiliser application.
- Over-sowing with introduced pasture grasses or clover.
- Over-grazing or grazing with larger livestock that cause more damage to grasslands (especially horses).
- Biomass accumulation and loss of inter-tussock spaces.
- Selling the land to a new owner who may undertake the above activities.

In the event that the above activities were undertaken and the land declined in native grass cover to less than 25% of the perennial vegetation cover, the land would no longer met the definition of a patch of native vegetation (DELWP 2017). If a patch of native vegetation was no longer present, then there would be no planning permit requirement for removal of native vegetation (and associated environmental offsets) to facilitate further develop the land, for example, through de-rocking and cultivation.

2.4.2 Exemptions for minor native vegetation removal

Clause 52.17 of the Golden Plains Planning Scheme controls the removal of native vegetation via a planning permit and avoid, minimise and offset process. In addition to threats from existing uses above, clause 52.17-7 provides a table of exemptions where no planning permit is required to remove native vegetation for certain specified activities. These activities include the following that could lead to incremental loss of condition or extent of **NTGVVP** and **GSM habitat**:

- Operation or maintenance of an existing fence.
- Removal of dead vegetation.
- Fire protection, including periodic fuel reduction burning or construction of firebreaks and firefighting access tracks.
- Grazing by domestic stock.
- Pruning of up to 1/3 of the foliage of individual plants.

- Treatment of pest animal burrows or weed infestations.
- Geothermal energy/Mineral/Stone exploration or extraction.
- Minor Utility installation.

These activities can be undertaken without a permit to remove native vegetation and therefore there is no requirement to provide environmental offsets under state legislation.

2.4.3 Existing offset arrangements

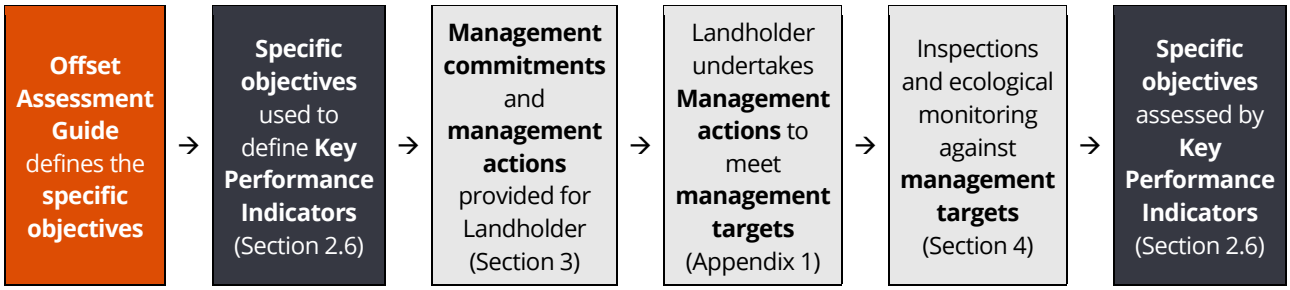
A title search has been completed and the **Offset area** is not affected by any conservation related encumbrances. As shown in Figure 3, there is one existing environmental offset within the same paddock as the **Offset area** but it does not overlap with the **Offset area**. The **Offset area** therefore has not been allocated for the provision of any other offsets, either under the **EPBC Act Environmental Offsets Policy** or for provision of offsets under any current or past Victorian policy.

2.5 Specific objectives

This section presents the **specific objectives** to demonstrate **NTGVVP** and **GSM habitat Quality** improvement over the period of the **OMP**'s implementation, as required to fulfil Condition 7.d.iv. of EPBC Act approval 2017/8049. The specific objectives arise from the Offsets Assessment Guide and are used to determine the overall improvements required to be achieved at the end of 10 years. The specific objectives are broader scale objectives than the management commitments and management actions that are specified in Section 3.

Figure 4 below shows how the **specific objectives** relate to the **management commitments**, **management actions**, and management targets.

Figure 4 Specific objectives and their relationship to the management commitments



2.6 Specific objectives and key performance indicators

Table 7 below describes the **specific objectives** for the **Offset area** that result from the inputs into and the outputs from the Offsets Assessment Guide (a.k.a offsets calculator). Achieving the **specific objectives** will therefore ensure that an environmental offset that meets the requirements of the conditions of approval and the **EPBC Act Environmental Offsets Policy** will be provided. The **Offset area** as a whole will be assessed against **key performance indicators** that will determine if the **specific objectives** have been met (Table 7). The **key performance indicators** use technical terminology and so are broken down into **management targets** in for the Landholder to implement on the ground in Section 3.

Table 7 Offset area management specific objectives and Key performance indicators

Offset Assessment Guide	Specific objective	Key performance indicators (measureable through ecological monitoring)
Start area: **144.35 ha NTGVVP and GSM habitat**	**Offset area protection (security):** Provide permanent protection for the conservation values of the Offset area with a conservation covenant.	• TfN agreement registered on relevant land titles
Risk of loss : **90%* confidence that the risk of loss decreases from 10%* to 1%* risk of loss** **Time over which loss is averted:** **20 years****	**Offset area protection (threat abatement):** permanently exclude agricultural production except as directed by this OMP. **Risk management:** minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.	• No loss of NTGVVP or GSM habitat or preventable weed introductions over 20 year time horizon • No unauthorised access or unapproved works within offset area • Understorey score maintained at a minimum of 15 (out of 25)
Gain: **85%* confidence Quality can be improved from 6* to 7* (out of 10)** **Time to ecological benefit:** **10* years**	**Offset area improvement:** Landholder commits to implementing the intensive 10-year program of management actions, routine inspections and facilitating annual ecological monitoring in accordance with the OMP. **Risk management:** minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.	• Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results • Lack of Weeds score increases from 6 to at least 9 (out of 15) • New weeds eliminated, emerging weed problems controlled to <1% cover, new pest animals eliminated • Understorey score maintained at 15 (out of 25) or improved to 20 (out of 25) • Bare ground score maintained at 10 (out of 10) • Organic litter score maintained at 5 (out of 5) • No active rabbit warrens or fox dens, minimal evidence of pest animal impacts • Tussock cover always sufficient to provide fauna habitat after ecological burns • Ecological monitoring undertaken in accordance with OMP • Reporting undertaken in accordance with OMP • Emergency management undertaken in accordance with OMP
Time over which loss is averted^: **20 years****	**Offset area maintenance:** Landholder commits to implementing the management commitments to maintain the improvement achieved in the first 10 years.	• Habitat hectares score achieved at the end of Year 10 is maintained over next 10 years (to achieve 20 year time horizon) • OMP adapted to changing circumstances or ineffective management actions

*input used in approved Offset Assessment Guide **Maximum value permitted to be used in Offset Assessment Guide

^No directly relevant input or output. 20 year time horizon assumed to be the most logical time period for maintenance to be applied

2.7 Measuring improvement in Quality

For both **NTGVVP** and **GSM habitat**, the required improvement is from **Quality** score 6 to **Quality** score 7. The following two sections explain how the baseline score of 6 was calculated and how improvements in **Quality** are to be measured.

2.7.1 NTGVVP

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average **Quality** for the whole area. Habitat Hectares is easily converted to a score out of 10 as shown in Appendix 4. The NTGVVP **Quality** scoring method was used to obtain the **Quality** score of the **Offset area** in the Offsets Assessment Guide and should be replicated to determine the final **Quality** score.

Since the Habitat Hectares method uses categories (which are converted to numeric scores) there is a limited number of ways in which the increase in **Quality** can be attained within the Habitat Hectares scoring system:

- The Landscape score is not influenced by on-site **management actions** and so is not expected to change of the 10-year management period (Table 8).
- Recruitment and Organic matter were already scored at their maximum possible scores,10 (out of 10) and 5 (out of 5) respectively, so **management actions** will maintain their condition.
- Lack of Weeds was scored 6 (out of 15) with possible improvements being 9, 11, 13 or 15 (out of 15). The maximum score (15 out of 15) requires there to be <5% weed cover with the elimination of all high threat weeds. This is not a practical target in a highly modified landscape because the surrounding landscape provides a constant source of wind-borne and animal-borne weed seeds. The minimum improvement target is therefore set at 9 (out of 15). The minimum target requires average cover of weeds to be reduced from the current <38% with the target to be <25%, with less than 50% of the weeds being high threat. The sub-groups of weeds will have lower targets within the overall target e.g. all woody weeds to be <1%.
- The Understory score is already relatively high at 15 (out of 25), with possible improvement categories being 20 (out of 25) or 25 (out of 25). Improvement in the number of understorey species will come from lower weed cover providing more opportunities for recruitment of understorey species that may presently be at quantities too low to be detected. The re-introduction of fire has potential to stimulate soil-stored seed to germinate if done with optimal seasonal conditions for recruitment, which could also improve the Understory score. It is recognised that many flora species are only visible for short amounts of time in response to seasonal conditions and their absence in any particular survey does not indicate their decline from the **Offset area**. The Understorey target will be set to maintain the 15/25 score (minimum requirement). An improvement 20 (out of 25) is the best improvement that can practically be expected. A perfect score of 25 (out of 25) may be possible to achieve but it would require the presence of Large Herbs (herbs >50cm tall), which, while the species are present, may not reach sufficient size under regular biomass management.

The Habitat Hectares score that can be expected to be achieved at the end of the 10-Year management period are shown in Table 8 below. Note that the confidence in achieving the best possible score is too low for this to be the required amount of improvement and still meet the confidence requirements.

Table 8 Vegetation condition baseline and required improvement

Plains Grassland (EVC 132)			Score			
Max. score for each component:			**Starting condition**	Minimum improvement required	**Preferred improvement**	Best improvement that can be expected
Site Condition	Lack of Weeds	15	6 (25 to 50% cover of weeds, with less than 50% of them high threat)	9 (5 to 25% cover of weeds, with less than 50% of them high threat)	11 (less than 5% cover of weeds, more than 50% high threat)	13 (< 5% cover of weeds, with less than 50% of them high threat)
	Understorey	25	15	15	15	20
	Recruitment	10	10	10	10	10
	Organic Matter	5	5	5	5	5
	Site Score (standardised x1.36)		49.1	53.04	55.76	65.28
Landscape Value	Patch Size	10	8	8	8	8
	Neighbourhood	10	2	2	2	2
	Distance to Core	5	4	4	4	4
	Landscape Score		14	14	14	14
HABITAT SCORE		100	**63.1**	67.04	**69.76**	79.28
Quality (rounded)		10	**6/10**	7/10	**7/10**	8/10

2.7.2 Golden Sun Moth habitat

Quality improvement will be measured using the **NTGVVP** results for site score described above and the results of targeted surveys for **GSM**.

The scoring methods used to obtain the **Quality** score of the **Offset area** in the Offsets Assessment Guide is shown in Appendix 4 and should be replicated to determine the final **Quality** score. As for **NTGVVP**, there is a limited number of options for recording an improvement in **GSM habitat Quality** under the 10 point system:

- Site context is not influenced by on-site **management actions** and so is not expected to change of the 10-year management period (Table 9).
- Site condition has already been allocated a maximum score of 3 (out of 3) since the **Offset area** is high conservation value native vegetation with a site score greater than 46/75. While the target for site condition is set to maintenance of the 3 (out of 3) score, it is expected that the removal of weeds and subsequent opportunity for growth and recruitment of native grasses will favour **GSM**. However, it will not be possible to detect this change in the scoring system used.
- The expected improvement comes from the increase in **GSM** individuals detected during **GSM** surveys. This is because the **management actions** will produce increased cover of **GSM** food plants and maintain an open grassland structure, with suitable inter-tussock spaces. In addition, increases in the **GSM** population in the adjoining paddock to the **Offset area** have been detected as part of monitoring for a different offset site. Note however, that **GSM** populations fluctuate naturally in response to seasonal conditions outside the Landholder's control.

Table 9 GSM habitat Quality scoring system as advised by DoEE (pers. comm. 2019)

Parameter	Starting score (Justification)	Expected improvement score
Site context (max. 3 points)	2/3 (**Offset area** is larger than 10 hectares but does not meet the definition of slightly sloped (3° or less) and north-facing)	2/3 (N/A management actions are not expected to influence the site context)
Site condition (max. 3 points)	3/3 (VQA site condition score of 49 out of 75)	3/3 (It is expected that the cover of food plants will increase but won't be reflected score)
Species stocking rate (max. 4 points)	1/4 (86 **GSM** were recorded from a survey area of 100 hectares giving a stocking rate of 0.86 moths per hectare)	2/4 (It is expected that the GSM breeding population will increase to greater than 5 males per hectares as food plants increase)
Total (out of 10)	**6/10**	**7/10**

2.8 Limitations and uncertainty

It is impossible to eliminate all uncertainty from natural systems, however, this **OMP** has been formulated using the best available information at the time. The information used includes the results of site inspections in 2018 and 2019, consultation with the Landholder, and the experience of the authors in grassland management and research. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate. The **OMP** has been subject to external review and quality assurance by TfN and the Landholder as part of the process to register the TfN covenant.

Management action results

The **Offset area** already supports high conservation value **NTGVVP**, which provides certainty that conservation values are already present within the **Offset area** on which **management actions** can improve. The **OMP** includes a reasonable expectation that weed control combined with strategic grazing will reduce weed cover and impede weed seed production, which in turn, will provide increased recruitment, growth and seed production opportunities for the native grasses and herbs still in place. There is therefore a reasonable expectation that the **management actions** will result in an increase in the abundance and cover of native flora species. Since the dominant native grasses present are also **GSM** food plants, this management strategy along with management of biomass accumulation is expected to improve **GSM habitat** condition.

Recruitment and growth of native species occurs in response to seasonal conditions so there is a possibility that the recruitment and growth of native species will be slower than expected or may be inhibited altogether in the case of prolonged drought conditions. Such a situation would influence the condition score of the **NTGVVP** and **GSM habitat** but would be outside the control of the Landholder. Contingencies for these events are dealt with under the adaptive management section of this **OMP**.

The results of the **management actions** themselves are also influenced by external factors that cannot be controlled including: annual variation in weather conditions, human-induced climate change, and fluctuations in pest animals and weeds. Contingencies for these events are dealt with under the adaptive management section of this **OMP**. Especially with unprecedented events expected under human-induced climate change, allowance must be made for the influence of external factors with regard to the assessing the outcomes achieved where in all other respects the **OMP** has been adhered to satisfactorily.

NTGVVP condition

It is acknowledged that grassland condition varies with micro-topography (gilgais, rocky rises etc.) and it is not expected that grassland condition will be uniform across all monitoring plots but all plots should show improvement from the Year 1 surveys. If average **Quality** of the **Offset area** has improved by 1 point after 10 years, the **key performance indicators** will be considered to be met.

GSM population

Native flora and fauna are adapted to variable seasonal conditions and many display boom and bust cycles of reproduction. As such, it may not be possible to differentiate between a bust cycle and a decrease in **GSM** numbers due to **management actions** in any one particular year. The overall trend in **GSM** numbers should be referred to when assessing the success of the **Offset area** after 10 years.

3. Management commitments and actions

This section presents the specific **management commitments, management actions**, and timeframes for implementation, to be carried out to meet **specific objectives** to improve the **Quality** of the **NTGVVP** and **GSM habitat** within the **Offset area**, as required to fulfil Condition 7.d.v. of EPBC Act approval 2017/8049. The detailed schedule of **management commitments, management actions** and **management targets** is provided in Appendix 1.

The **OMP** aims to achieve gains in the **Quality** score of **NTGVVP** and **GSM habitat** through on-ground actions undertaken by the Landholder and with a high degree of certainty of success. As a result, the **management actions** are designed to be straightforward, practicable and achievable within the existing land management context.

The specific **management actions** of the **OMP** have two distinct stages for improvement and then maintenance of **NTGVVP** and **GSM habitat Quality** as follows:

- An intensive, 10-year program of **management actions** to be implemented from the commencement of the **OMP**. The **management actions** are directed at achieving an improvement in the ecological condition of the **Offset area** equivalent to a 1 point increase in **Quality**.
- A set of in-perpetuity land **management commitments** that will ensure that the improvement achieved in the first 10 years of the **OMP** is maintained over time.

These stages are described in the sections that follow and are supported by schedules of actions at the end of this document.

The prescribed **management actions** are in accordance with the *DELWP Output Delivery Standards For The Delivery Of Environmental Activities* (DELWP 2015).

3.1 Management commitments

The **management commitments** are the over-arching land use commitments made by the Landholder with regard to the in-perpetuity management of the **Offset area**. The **management commitments** contribute to fulfilling the **specific objectives** for the **Offset area** and apply as long as the conservation covenant is registered on-title. The **management commitments** also direct what on-ground actions will be undertaken during the 10 Year intensive management and in-perpetuity management periods.

The following commitments have been reviewed and agreed to by the current landholder. These commitments will be placed on title by the attachment of the **OMP** to the **Trust for Nature** covenant. Most commitments will apply immediately from the start of the **OMP** management period and continue in-perpetuity. In addition to the commitments applicable immediately, the grassland condition achieved as a result of the 10 year period of management, will be required to be maintained, in perpetuity.

The in-perpetuity **management commitments** of the **OMP** are as follows:

1. **Retain all native vegetation:**
    1.1 *Permanently exclude all activities that would result in direct mechanical removal of native vegetation (excavation, geological exploration, ploughing of fire breaks, cultivation etc). Direct-driving of posts to mark out the **Offset area**, monitoring plots or install low-impact fencing is permitted to the minimum extent necessary.*

1.2 *Permanently exclude all activities that would knowingly introduce new weeds, weed seeds or other non-indigenous vegetation into the **Offset area**. Examples include: over-sowing with pasture seeds or other pasture improvement; using hay, silage or other supplementary feed from outside **Offset area** that may contain viable weed seeds; planting of tree belts. It is acknowledged that not all weed invasions are within the control of the landholder.*

1.3 *Exclude all broad-acre herbicide application use for purposes not related to weed control for conservation as specified in this **OMP** (e.g. maintaining fence lines or other easements, creating fire breaks).*

1.4 *Exclude installation of additional farm infrastructure except as generally in accordance with Figure 3 (e.g. yards, higher impact fencing are not allowed). Stock watering points will be outside the **Offset area** as described in section 3.4. If further watering points or low-impact fencing are needed to facilitate conservation grazing, these will be installed only after consultation with **Trust for Nature** or other relevant regulator at the time.*

2. Protect native herb diversity and native grassland tussock structure:

2.1 *Permanently exclude all fertilizer application.*

2.2 *Permanently exclude set-stocking of sheep.*

2.3 *Permanently exclude all cattle and horse grazing.*

2.4 *Sheep grazing is permitted if it* complies *with the requirements detailed in this **OMP**.*

2.5 *Grazing of any other domestic livestock not already listed will only be considered after consultation with **Trust for Nature** and where there is clear evidence that it would be of greater benefit to the conservation of **NTGVVP** and **GSM habitat** than the sheep grazing described in this **OMP**.*

3. Implement management actions as detailed in this OMP:

3.1 *Secure **Offset area** for conservation via **Trust for Nature** conservation covenant registered on-title.*

3.2 *Years 1 to 10: implement works according to the **OMP** to achieve a 1 point gain in **Quality** for **NTGVVP** and **GSM habitat**. The annual works plan must address:*

- *Fencing, signage & access*
- *Adaptive management*
- *Woody weeds*
- *Herbaceous weeds*
- *Pest animals*
- *New or emerging threats*
- *Grazing for biomass / weed control*
- *Ecological burning (if trialled and successful)*
- *Inspections, monitoring and reporting*
- *Emergency management*

3.3 *Years 11+: Maintain an annual works plan for the ongoing maintenance of the condition (Habitat Hectares score) of the **NTGVVP** and **GSM** that was achieved at the end of Year 10. The annual works plan must incorporate methods to ensure that management actions continue to adapt to current conditions for weeds, pest animals, and biomass control as well as:*

- *Maintain fencing and signage.*
- *Continued protection of herb diversity and native tussock grass structure.*
- *Woody weeds maintained at <1% cover with no adult plants*
- *Cover of herbaceous weeds does not increase beyond levels achieved at Year 10*
- *Pest animals do not increase beyond levels achieved at Year 10*

- *Biomass is maintained to achieve >20 to 40% bare ground*

3.4 Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency.

The implementation of these commitments provides the reasonable expectation that the **Offset area** will meet the **specific objectives** of **NTGVVP** and **GSM habitat Quality** improvement over the period of the **OMP**'s implementation.

3.2 Offset area management strategy

The key threats to the **Offset area** derive from the existing permitted uses associated with normal farming practices and the uncertainty created by a change in Landholder. The existing use rights are detailed in Section 2.1.4 and the associated threats are summarised as: inappropriate grazing regimes, pasture improvement, and fertiliser application.

Other threats to the **Offset area** derive from natural processes that must be managed with on-going works. In particular, expansion of the cover of existing high threat weeds, invasion of new high threat weeds, an explosion in pest animal numbers, and the excessive accumulation of dead plant material through the over-growth of ground-layer plants (referred to generically throughout as 'biomass').

The broad objective of the **management actions** is to produce a decrease in the abundance of perennial weeds and maintain conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs, including native grasses that are known food plants for **GSM**. The management of any other parts of the paddock that are not within the **Offset area** are to be managed in a manner sympathetic to this broad objective.

Currently weeds and biomass are managed through grazing by sheep. Kangaroo grazing also currently contributes to biomass management but cannot be controlled by the Landholder. It is proposed that sheep grazing continue under a modified regime designed to provide the most benefit to conservation of the ecological values of the **Offset area**. This modified regime is referred to as 'rotational cell grazing' in this **OMP** although other names such as 'time controlled grazing' are also applied to similar activities, which are used for improved management of native grassland. The term 'pulse grazing' (also referred to as 'crash grazing') is a more generic term used to describe grazing that occurs at high intensity for a short period of time, with or without a specific rotational grazing system in place. In addition to sheep grazing, an intensive weed and pest management program will be implemented for the first 10-years of the **OMP**.

The **management actions** each have a target to be achieved by the end of the 10-year management period. The **management actions** and their targets apply to the entire **Offset area**. However, it is acknowledged that topographic variation (e.g. gilgais and rock rises) over the extent of the **Offset area** will produce variation in condition of the **Offset area**. This variation will be captured in the placement of the permanent monitoring plots and each target will be measured as an average across the whole **Offset area**. The results of the individual **management actions** will together provide the improvement in **Quality** required under the **management commitments**.

The modified grazing regime and weed control is likely to meet the required biomass and weed control management targets in this **OMP** even in the absence of ecological burning. Ecological burning is recognised to provide other benefits to in native grasslands aside from biomass and weed control (nutrient cycling and seed germination) so guidelines have been developed to guide re-introducing fire on a trial basis. If the trial is deemed successful and feasible, then ecological burning can be introduced more widely at the discretion of the Landholder in consultation with TfN and the consulting ecologist.

3.3 Offset area protection (security)

Condition 6 of the approval conditions for EPBC Act referral 2017/8049 states that to provide for the conservation and enhancement of **NTGVVP** and **GSM habitat**, the approval holder (DJCS) must provide evidence that a conservation covenant for the **Offset area** has been registered on-title.

To fulfil this approval condition, at the commencement of this **OMP**, the **Offset area** will be secured in-perpetuity via a conservation covenant registered on-title under Section 3A *Victorian Conservation Trust Act 1972*. The statutory body that regulates the *Victorian Conservation Trust Act 1972* is **Trust for Nature** and the covenant is known as a **Trust for Nature** covenant.

A **Trust for Nature** covenant has standard provisions, which bind the owner to managing the land for conservation purposes. In addition, this **OMP** will be registered on-title as an attachment to the covenant. As a result, the **OMP** will be binding on the current and any future owners of the **Offset area**. Details of the security arrangement are shown in Table 10 below.

Table 10 On-title conservation covenant arrangements

Details of security mechanism	Date or other details
Type of security:	Covenant under part Section 3A Victorian Conservation Trust Act 1972
Trust for Nature covenant registered on-title:	DD / MM / 20YY
Commencement date for on-title protection:	Upon the on-title registration of the covenant
Commencement date for OMP management actions to improve offset Quality:	Upon the on-title registration of the covenant
Expiry date for OMP management actions to improve offset Quality:	10 years after the on-title registration of the covenant
Expiry date for maintenance of offset Quality at end of 10 management period	Nil - see in-perpetuity commitments in Section 3.1
Review of OMP in response to event or changing conditions	As required

3.4 Offset area protection (threat abatement)

The following actions will be undertaken by the landholder or their contractor to establish the **Offset area** as a conservation area (Appendix 1). The actions are once-off tasks that are required to set up the **Offset area**. These tasks are considered separately from the yearly management works that will be required after the **Offset area** is established.

3.4.1 Boundary fencing

Warrambeen has existing permanent boundary fencing able to exclude neighbouring domestic livestock from the property. The property boundary is located over a kilometre from the **Offset area** and as such is not considered of immediate influence on the **Offset area**. Should the Landholder require guidance on stock-proofing of boundary fences, they can refer to *Output Delivery Standards For The Delivery Of Environmental Activities* (DELWP 2015).

The paddock within which the offset is located is already fenced with low-impact 8-wire plain wire fencing or 4 wire electric fencing. Additional fencing around **Offset area** (Figure 3) is not required as it is proposed that grazing within the broader paddock will be managed in in the same manner as the **Offset area**.

In the event that existing land-use rights need to be fully exercised in the parts of the paddock not under an offset agreement, stock-proof fencing between the farmed areas and the **Offset area** will be required. Fencing should meet the minimum standard set by DELWP detailed in *Output Delivery Standards For The Delivery Of Environmental Activities* (DELWP 2015).

In the event of the **Offset area** being affected by a rapidly increased rabbit population that cannot be controlled to an adequate level (based on advice from TfN) then the **Offset area** fencing will need to be upgraded to a rabbit proof standard (DELWP 2015).

3.4.2 Permanent fencing to aid conservation management

To aid the conversion from production grazing to conservation grazing, additional low-impact internal fences will be installed within the existing paddock. The fencing is to be installed generally in accordance with the plan shown in Figure 3. The fencing plan in Figure 3 may be modified to accommodate on-ground constraints during Year 1 (e.g. rocky rises impede fence installation). An updated plan showing the "as built" layout of the fencing must be provided in the Year 1 annual report.

The objective of the new permanent fencing is to divide the paddock into smaller management units of approximately 30 hectares. This will have advantages for managing the grassland.

- The grazing regime can be managed with a rotational grazing system, which has been shown to have benefits for the management of native grasslands. The rotational grazing system combined with the smaller management units mean that the units or cells can be grazed more intensely but for a shorter amount of time. At the time of writing the **OMP** the proposed grazing method is 600 sheep per 30 hectare unit to achieve a stocking density of 50 dry sheep equivalent (DSE) for a period of 2 to 3 weeks. This stocking rate and grazing duration is to be adapted to seasonal conditions under the adaptive management arrangements of this **OMP**.
- Grazing at high intensity means that the sheep are more likely to eat both palatable and unpalatable species, resulting in more even grazing pressure, allowing weeds to be managed more effectively.
- The rotations allow the grassland more time to recover between grazing periods which can be managed to provide competitive advantage to desirable species such as native tussock grasses.

The following requirements for the installation of fencing have been discussed with the Landholder and agreed:

- All fence posts (strainer posts and stays) are to be direct-driven into the ground. Concrete footings are not allowed within the **Offset area**.
- New gates are to be as wide as possible to avoid disturbance associated with the funnelling of sheep through a confined space. Gates are to remain closed while a grazing cell is stocked to avoid disturbance associated with repeated movements of livestock through the gates.
- Fencing will use plain wire or electric wire only. Barbed wire is not permitted as it is a hazard to wildlife.
- Strainer posts and stays will be the minimum number needed to contain sheep within the grazing cell for the period of the grazing rotation. There is no requirement for internal fencing of the paddock to be completely stock-proof.

3.4.3 Stock watering points

Each grazing cell will require a water supply to water the sheep while they area grazing. There is an existing stock watering point (WP) in the centre of the paddock, which has two troughs supplied by the water supply pipeline for the property. The area around the existing WP is the preferred location for the majority of WPs. The existing WPs have been excised from the **Offset area** to allow for the trough configuration to be amended to supply more paddocks (Figure 3).

Indicative locations for additional WPs are shown in Figure 3. Additional troughs can be installed where they meet the following conditions:

- Are installed to the minimum number/size necessary to allow conservation management by rotational cell grazing.
- Located outside of the mapped **Offset area.**
- Are unlikely to cause new stock camp type damage within the **Offset area.**
- **Trust for Nature** or consulting ecologist is consulted where there is uncertainty about the impacts of proposed watering points.

The location of the WPs is also constrained by topography and the location of the existing water supply pipeline for the property. The finalised configuration of stock WPs is to be included on the "as built" plan included in the Year 1 annual report.

3.4.4 Temporary fencing to aid conservation management

To aid conservation management of the **Offset area**, additional temporary fences can be used within the **Offset area**. Temporary fencing is fencing that is not intended to be in place longer than the duration of the grazing season.

In particular, temporary livestock fencing will be established and maintained around the boundary of any burnt area within the **Offset area** for at least 6 months post-burn to prevent stock access and damage to regenerating vegetation from grazing.

Temporary livestock fencing can be established to delineate smaller cells for higher intensity grazing if this is required.

The temporary fencing must have negligible impacts to native vegetation associated with the placement and removal of that fencing.

Fencing will use plain wire or electric wire only. Barbed wire is not permitted as it is a hazard to wildlife.

3.4.5 Signage and access control

Direct-driven posts or other low-impact permanent marker, will be installed at the commencement of the **OMP** to clearly identify the boundary of the **Offset area**. This is required for auditing, monitoring and management purposes. Posts will be located in accordance with advice from a qualified ecologist to ensure impacts to native vegetation are avoided.

The **Offset area** remains private property and access or disturbance to the **Offset area** by unauthorised persons is prohibited. The existing access gates and security arrangement is adequate however signage on the **Offset area** gates is required.

Signs will be placed on the gates to the paddock in which the **Offset area** is located. The signs will alert farm workers to the protected status of the paddock and that works are strictly limited to the **management actions** in this **OMP**. At a minimum, the signs will state to the effect: "Conservation Area – Access not permitted unless strictly authorised by the manager".

No external signage identifying the property as an offset site is proposed in this **OMP** but could be considered by the Landholder at their discretion. Conservation-related signage has potential to inadvertently attract undesirable impacts.

Monitoring of access will be conducted on an ongoing basis with fencing repaired or upgraded as required.

3.5 Offset area improvement (Year 1 to Year 10)

In accordance with Condition 7.d.v. this section provides the specific **management actions**, and timeframes for implementation, to be carried out to meet **specific objectives** to improve the **Quality** of the **NTGVVP** and **GSM habitat** within the **Offset area**. The detailed schedule of **management commitments, management actions** and **management targets** is provided in Appendix 1.

3.5.1 Annual works plan

The annual works plan is the key process for implementing the principle of adaptive management used to minimise the risk of the **Offset area** being unsuccessful. Adaptive management is discussed in greater detail in section 3.6.4 and section 5. Prior to works towards the **management actions** being undertaken each year, the annual works plan (based on the schedule in Appendix 1) will be reviewed and updated in consultation with TfN. The updates will be based on the results of the **management actions** implemented the previous year and any new research or advice that may arise. To enable adaptive management, the review should identify which **management actions** in the previous year were successful in contributing to achieving the management target but also which actions were ineffective. The annual works plan will need to be updated based on what actions were effective and where relevant, to address any ineffective **management actions**.

If the **management actions** were ineffective, it will be necessary to determine the reason why they were ineffective. The most common reasons why a **management action** was ineffective include the following:

- Incorrect implementation (e.g. herbicides applied at the incorrect rate).
- Insufficient time has passed to determine effectiveness (The **management action** was not expected to work yet).
- There were seasonal conditions that rendered the **management action** ineffective (e.g. drought year).
- **Management action** produced an unexpected result (e.g. emergence of a new weed after ecological burning).

It may also be determined that the **management action** is generally not the most effective method for achieving the management target and would be better achieved using a different method. Where the **management action** is deemed to be generally not effective, the Landholder should discuss alternatives with **Trust for Nature**.

The annual works plan will also address any new or emerging issues, even if not anticipated in this **OMP** or not listed in the schedule in Appendix 1.

The Landholder should be consulted and sign-off on the annual works plan if it is prepared by their manager or other delegate.

3.5.2 Grazing for biomass / organic litter control

Biomass management is essential to maintain indigenous flora and fauna values throughout the **Offset area**. The term biomass describes the amount of living plant material in a grassland such as the **Offset area**. Once the biomass has died, it forms a layer of dried organic litter on the surface of the grassland. The amount of

biomass in one year therefore determines the amount of organic litter build up that carries over to the next year. Management of biomass and litter are therefore interrelated.

In the absence of a process to reduce biomass or the resultant litter, the dry conditions experienced in Australia mean that the organic litter builds up over time and threatens the condition of the grassland. Factors that influence the amount of biomass and organic matter include: seasonal conditions, presence/absence of fire, amount of grazing by herbivores, and the plant species present, with weeds generally growing faster and producing more biomass than native plant species. Biomass management is therefore required regardless of whether weed control is also required, however, controlling highly productive weeds can also assist in biomass management.

In native grasslands, biomass management is required to ensure that grasses do not dominate all the space in the grassland so that inter-tussock spaces are maintained. Where there are insufficient inter-tussock spaces, native grasses will shade out native herbs and prevent them from photosynthesising, flowering and seeding seed. Sufficient inter-tussock spaces are also required by **Golden Sun Moth**, a species that favours open grasslands for breeding. Biomass management is also a method of weed control as discussed in section 3.6.5. In this **OMP**, grazing will be the primary management method to manage biomass and organic litter and will therefore also contribute to maintaining species richness by helping to control weeds and maintain inter-tussock spaces.

The **management actions** for biomass management in this **OMP** will be the application of rotational grazing followed by a grazing exclusion period each year. The grazing exclusion period is required to allow native grasses and herbs to flower and set seed without grazing pressure from sheep. Grazing pressure from kangaroos cannot be controlled by the Landholder, however, it will need to be considered in drought conditions as the **Offset area** is likely to have higher grass cover than other parts of the landscape and so attract kangaroo grazing in dry periods. It is also acknowledged that there is a tension between optimal weed management using grazing and the grazing exclusion period, which may prevent grazing at the optimal time to manage some late growing weeds. This is discussed in section 3.6.5 with regard to control of Brown-top Bent *Agrostis capillaris*. The use of ecological burning for biomass control is discussed in section 3.7.

The management target for biomass/organic litter is to maintain the current level of inter-tussocks spaces to within the range of 20 to 40% bare ground and organic litter at 5 to 15% cover. Where there is a sustained build up in biomass over any one year, resulting in a reduction of inter-tussock space to an average of less than 25%, biomass will need to be actively reduced.

To inform the grazing strategy employed each season, biomass and organic litter will be surveyed using routine inspections by the Landholder in consultation with TfN. Ecological monitoring will also assess the effectiveness of the biomass control techniques applied and the need for any adjustments to the **management actions**.

3.5.3 Conversion to rotational grazing

Currently the **Offset area** is subject to typical intensity sheep grazing for the district (2 to 3 DSE per hectare) and is grazed to maintain sward vigour. Given the existing conservation values in the **Offset area** and the observations made during site inspections with regard to the low impacts from livestock and fencing, sheep grazing is seen as a reliable and relatively low risk **management action** for maintaining biomass and organic litter levels in the **Offset area**.

To increase the effectiveness of sheep grazing for managing biomass, organic litter and also weeds, the sheep grazing system will be upgraded to ensure it can be undertaken in a more finely controlled manner and in accordance with the annual works plan. Grazing will be implemented as a time-controlled rotational grazing system where small areas are subject to high intensity grazing for short periods of time (called pulse grazing or crash grazing). The rotational system provides benefits to both native plants and to weed control by

creating more even grazing pressure and giving plants longer to recover between grazes. Biomass control will be consistent with the standards for management of ecological grazing provided by DELWP (2015).

To ensure the conservation values of the grassland are protected there will be strict restrictions on the grazing activities that are allowed within the **Offset area**. Grazing of domestic livestock will be restricted to sheep only. Grazing by cattle and horses are specifically excluded in the in-perpetuity **management commitments** in this **OMP**. Grazing of any other domestic livestock not already excluded will only be considered after consultation with **Trust for Nature** and where there is clear evidence that it would be of greater benefit to the conservation of **NTGVVP** and **GSM habitat** than the sheep grazing described in this **OMP**.

The timing of grazing will be strictly controlled to allow native species to grow and set seed over the spring to mid-summer period (DELWP 2015). Sheep will be excluded from the start of spring to the middle of summer annually, in perpetuity. While the start of the spring growing season is best judged on the ground on a yearly basis, Table 11 provides targets to be met for ongoing management of grazing within the **Offset area**, including dates for the grazing exclusion period. The only exceptions to requirements specified for pulse grazing is to allow for an ecological burn or if additional strategic grazing is needed to address a specified weed problem. For ecological burns, a fire management plan produced to inform when grazing will be removed to allow for a build-up in biomass to establish a burn. For strategic grazing, see the adaptive management discussion in the paragraph below.

Each grazing rotation will occur over a short duration and allow for periods of grazing exclusion. The maximum length of continuous grazing is 3 weeks with a minimum 6 weeks rest between cycles. The rest period will need to be judged by the Landholder to ensure native grasses have recovered sufficiently prior to reintroducing sheep.

Grazing intensity needs to exceed the standard stocking rate to provide grazing pressure sufficient to ensure all plant species are grazed evenly in a short amount of time and to prevent selective browsing. The stocking rate will be dependent on the seasonal conditions and the amount of feed available in each grazing cell and so cannot be stipulated in this **OMP**.

Depending on seasonal conditions, at least three pulse grazing cycles will occur within the grazing period, one of which will occur immediately prior to the exclusion period (weather permitting).

Grazing will not occur in very wet conditions were pugging will cause unacceptable levels of damage to soil and grassland structure or result in more than 30% bare ground within the **Offset area**. The **Offset area** will need to be monitored during wet periods to prevent excessive soil damage in seasonally wet areas. Following any high rainfall events, stock will be removed immediately. Grazing will not occur in very dry conditions where grazing will destroy the tussock structure of the grassland and result in more than 30% bare ground within the **Offset area**.

Weed hygiene will be important to minimise the risk of sheep introducing new weed problems into the **Offset area**. Sheep moved into the **Offset area** will be selected and timed to minimise the potential for weed seed transport via mud, attachment to their fleece or within their faeces. Ideally, sheep will be shorn before entering the **Offset area**, and will otherwise be kept in paddocks with low weed levels. Sheep will be contained in a low weed area and allowed to shed weed seeds for at least 24 hours before entering the **Offset area**. Stock movements into the **Offset area** will be excluded within two days of rainfall and new stock brought onto the property will be excluded from use in in the **Offset area** until shorn.

3.5.4 Adaptive management of grazing

A grazing regime is made up of three factors that are known to influence plant growth: season, duration and intensity of grazing. Since rotational sheep grazing is the key **management actions** for biomass control,

organic matter control and weed control, the correct implementation and fine-tuning of the grazing regime will be essential to the success of the **Offset area**. Season of grazing will be controlled by the grazing exclusion period with a protocol put in place to allow strategic grazing where needed during the exclusion period. Duration and intensity of the grazing will be controlled by the Landholder and will be adapted to meet season conditions on an annual basis but also throughout the grazing period. Duration refers to both the length of grazing and the length of rest. Intensity refers to the stocking rate within individual grazing cells. Grazing should be adapted to meet seasonal conditions, to learn from the experience of previous years or in response to further research or information on grazing in **NTGVVP**. The Landholder is required to keep records of stocking rate and duration to ensure that the results of grazing can be adapted over time.

3.5.5 Grazing protocol for exclusion period strategic grazing

Management of biomass from excessive growth of weeds and to prevent weeds setting seed, may require strategic grazing to occur within the grazing exclusion period. Grazing within the exclusion period can occur under a limited set of circumstances in consultation with TfN. Grazing within the exclusion period will be limited to strategic crash grazing within the areas of the **Offset area** affected by a specified problem. Such strategic crash grazing will need to meet the following requirements:

- A risk assessment is made (based on the current seasonal conditions) to compare the benefits of the proposed grazing with the risks of not grazing, and the risks associated with undertaking the grazing.
- The crash graze is to be done for conservation purposes only. Reasonable reasons include unusual seasonal conditions resulting in unusual amounts of plant growth, specific weed management objectives.
- Under no circumstances can the crash graze be done for the primary purpose of benefiting agricultural production (e.g. commercial considerations or feed requirements).
- At no time should a change in grazing be undertaken where it poses a threat to the grassland (e.g. very wet conditions that could cause pugging).
- Prior to introducing the sheep, the Landholder is to document with photos and notes in writing as to the specific reason why the crash grazing is to be implemented. This should include information to show that a risk assessment at point 1 above has been done.
- This information is to be provided to TfN prior to introducing the sheep.
- If possible, the grazing strategy should be developed in consultation with TfN. It is acknowledged, however, that strategic grazing needs to be timed precisely so that TfN resourcing constraints may mean that a response is not received before the time when the grazing needs to occur. This should not preclude the **Landholder** from undertaking adaptive management if all other dot points above are complied with.

Further discussion of pulse grazing is provided in Section 3.6.6, especially with regard to targeting particular grassy weed species that may require grazing during the exclusion period.

Table 11 Requirements and limit of grazing activities within the Offset area

Requirement	Target
Grazing exclusion period (sheep grazing generally not permitted*)	30th September to 31st January annually* (4 months)
Rotational cell grazing period (sheep grazing generally permitted in accordance with this OMP)	1 February to 29th September (8 months)
Number of rotations	3 or more (dependant on conditions and final configuration of cells)

Requirement	Target
Minimum rest from grazing between pulse grazing	6 weeks
Maximum continuous pulse grazing	3 weeks (2 weeks or less preferred)
Biomass management thresholds	Total vegetation cover of approx. 70% (maintain within range of 60 to 80%)
Target inter-tussock space	Approx. 30% of total bare ground cover (maintain within range of 20 to 40%)

* As per adaptive management, strategic grazing may be allowed during this period for specific conservation related purposes.

3.5.6 Weed control

The management targets for weed control are shown in Table 12 below and further information is provided in the sections that follow.

The overall target for the weed control **management action** is a reduction from the current estimation of less than 38% to less than 25% cover. Within this management target, there are targets for individual types of weeds (Table 12). The weeds species within the **Offset area** were surveyed in 2018 and in the follow up inspection in 2019. The main weeds recorded were: annual grasses, Spear Thistle *Cirsium vulgare*, and the mat-forming (rhizomatous) grass Brown-top Bent *Agrostis capillaris*. Weeds that occurred in smaller amounts were woody weeds and the tussock-forming perennial pasture grasses Cocksfoot *Dactylis glomerata* and Toowoomba Canary-grass *Phalaris aquatica*. There were two individuals recorded of the noxious grassy weed Serrated Tussock *Nassella trichotoma.* See Table 12 and the sections below for more details.

Table 12 Management targets for weed control

Scientific Name	Common Name	Average cover 2018	Proposed control measures	Management Target for cover 2030
Woody weeds				
Lycium ferocissimum, Marrubium vulgare, Prunus cerasifera, Rosa rubiginosa	African Box-thorn, Horehound, Cherry Plum, Sweet Briar	<1% (all species combined)	Cut and paint or other appropriate application of appropriate herbicide. Mechanical removal only if low impact.	Eliminate all established adult plants, regeneration/ seedlings <1% Inspections at Year 10 should not detect any established plants**
Annual grasses				
***Vulpia* spp., *Briza* spp., *Bromus* spp., *Aira* spp., *Avena* spp.**	Fescue, Quaking-grass, Brome, Air-grass, Oats	20%	Time-controlled pulse grazing by sheep to prevent seed set and reduce biomass. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	10%
High herbaceous threat weeds				
Perennial tussock grasses: *Phalaris aquatica, Dactylis glomerata*	Toowoomba Canary-grass, Cocksfoot	2%	Time-controlled pulse grazing by sheep to prevent seed set and reduce biomass. Spot spraying appropriate herbicide (early spring).	<1%

Scientific Name	Common Name	Average cover 2018	Proposed control measures	Management Target for cover 2030
Perennial tussock grasses (declared noxious weeds): *Nassella trichotoma*	Serrated Tussock	<1%	Spot spraying appropriate herbicide (early spring). Management of ground cover to prevent excess recruitment opportunities	Elimination
Broad-leaved weeds: primarily *Cirsium vulgare*, with smaller quantities of *Carthamus lanatus, Hypochaeris radicat*	Primarily Spear Thistle, with smaller quantities of Saffron Thistle, Flatweed	5%	Spot Spraying appropriate herbicide (prevent flowering).	<3%
Perennial mat-forming grasses: *Agrostis capillaris*	Brown-top Bent	10%	Time-controlled pulse grazing by sheep to prevent seed set and reduce biomass (may require grazing within grazing exclusion period). Spot spraying appropriate herbicide (early spring). Potential trial of late crash grazing.	<10%
Total		< 38%		<25%

**It is expected that seedlings may re-establish from time to time due to the re-introduction of seeds by birds and other animals or re-sprouting of trunks after previous year's treatment.

Strategy for weed control

The weed control strategy is a multi-pronged approach that takes advantage of the ecological conditions of the **Offset area**. The weed control strategy focuses on ensuring that the ecological conditions stay favourable to native plant species while limiting the growth and reproduction of weed species as well as directly treating weed infestations. This strategy provides the native species with opportunities to recolonise the areas that were previously occupied by weeds once the weeds have been killed. The weed control strategy is similar to that used for well-managed native pastures making the weed control strategy practical and feasible within the agricultural context of the **Offset area**.

The weed control strategy aims to achieve the following outcomes:

- Maximise recruitment opportunities for native plants species by providing decreased competition from weeds for space, light, nutrients and water.
- Minimise recruitment and reduce recruitment conditions that favour weeds by:
  - *Maintaining sufficient (60% to 80%) ground cover. Insufficient ground cover, resulting in excess bare ground, from over-grazing, post-fire or drought provides increased opportunities for weed seeds to germinate and grow.*
  - *Minimising nutrient enrichment.*
  - *Directly killing weeds prior to seed set with herbicide or physical removal. Chemical free methods of weed control such as steam weeding or flame weeding can also be used.*
  - *Limiting the yearly growth of weeds to minimise the total space they occupy in the **Offset area** and to prevent excessive build-up of organic litter (i.e. dead grass) that can smother the growth of seedlings and other plants.*

- *Limiting the yearly growth of weeds at the correct time to also prevent seed set.*
- *Trialling the use of fire to encourage germination of soil stored weed seed and exhaust the soil weed seed bank.*

Note that while this **OMP** lists management targets for particular weed species, the target species are likely to change over time. The abundance of weeds will change in response to seasonal conditions, in response to grazing or in response to controlled burns (e.g. post-burn flush of broad-leaf weeds) and new weeds may emerge as a result of wind or animal-mediated seed dispersal or germination of soil-stored seed. The **management actions** for weed control must be adapted to meet the changing conditions. Weed cover and weed species will need to be monitored by both the Landholder and in yearly ecological monitoring with management adapted in response to the monitoring results. The document DELWP *Output Delivery Standards For The Delivery Of Environmental Activities* (DELWP 2015) provides information about acceptable weed control activities for conservation activities (N.B. this document supersedes the previous references to BushBroker Standards). However, for any new or emerging weeds or weeds requiring new management methods, TfN will be consulted for site-specific advice and approve the control techniques.

Woody weeds

Four species of woody weeds were recorded within the **Offset area** but all species were recorded as isolated plants only. The total cover of woody weeds was less than 1% of the **Offset area**. Woody weeds are considered easier to control that herbaceous weeds due to their larger size, slower growth/recruitment, and their occurrence as individual plants. The elimination of all established adult woody weeds is therefore considered practical within the 10 year management period. Woody weeds are generally spread by animals, including birds, that have ingested the fruit, which makes complete elimination of all woody weeds impractical. However, after the adults have been eliminated, weed control will focus on detection and treatment of new seedlings or any re-sprouting stumps that may occur following weed control. Woody weeds that are detected either Incidentally during site management or as part of monitoring activities, should be recorded with GPS and controlled and eliminated as soon as possible and before fruiting and seed set. Using this approach, the cover of woody weeds is to be maintained at negligible levels in-perpetuity.

Annual weeds

Annual weeds were recorded throughout the **Offset area** with an estimated average cover of 20%. Of the annual weeds, annual grasses are present throughout the **Offset area** including Fescue *Vulpia* spp., Quaking Grass *Briza* spp., Soft Brome *Bromus hordeaceus*, Hair Grass *Aira* spp. and Wild Oat *Avena* spp. while annual broad-leaved weeds like Cape Weed *Arctotheca calendula* and Heron's-bill *Erodium* spp. are concentrated around high traffic areas such as the stock watering point and tracks.

Given that the main structural components of the grassland are intact (native tussock grasses, herb diversity, intact rock layer), annual weeds are not considered a threat to the conservation values of the **Offset area**. However, uncontrolled growth of annual weeds can reduce the vegetation condition and Habitat Hectares score by decreasing the Lack of Weeds score, Recruitment score and Organic Litter score. Given this is the case, management will be directed at maintaining the annual weed cover at the existing level and minimising growth and reproduction using strategic grazing.

Active management using targeted grazing is expected to have an impact on the abundance of these species, however, seasonal conditions such as a wet winter followed by a late warm spring may produce growth rates in excess of what can be controlled with strategic grazing before the grazing exclusion period begins. The implementation of rotational cell grazing as described in section 3.6.2 will assist with managing annual weed growth in response to seasonal conditions. The Landholder may also choose to use temporary fencing to further reduce the size of grazing cells in this instance. The grazing provisions also allow for strategic grazing to be implemented during the grazing exclusion period under certain circumstances (section 3.6.4).

If grazing alone has not been able to constrain the spread of annual weeds, direct weed control methods should be applied. A range of non-chemical weed control methods have been developed that can be effective against annual weeds including steam weeding and flame weeding. If chemical weed control is proposed for annual weeds, its use should be evaluated against the risk of damage to non-target (native) plant species prior to application. The use of ecological burning to control weeds is discussed in section 3.7.

High threat herbaceous weeds (perennial tussock grasses, perennial broad-leaved weeds)

High threat herbaceous weeds are those that have potential to displace native species of the same type. For example, perennial grassy weeds like Serrated Tussock or Toowoomba Canary-grass have potential to replace native perennial tussocks grasses like Kangaroo Grass *Themeda triandra*. The overall management objective is to ensure that all high threat herbaceous weeds are controlled to ensure that there is no increase in their cover where they currently occur, no further spread of these weeds into new areas of the **Offset area**, and where possible, to reduce their cover and abundance.

The management targets for high threat weeds are set for weed species grouped according to growth form and status: Perennial tussock grasses, perennial tussock grasses that are declared noxious weeds, perennial mat-forming (rhizomatous) grasses, and perennial broad-leaved weeds (Table 12). The total cover of high threat herbaceous weeds is currently less than 18% within the **Offset area**, with details provided in Table 12. Each growth form of weed has been allocated specific management targets as detailed in Table 12. Overall, the **management actions** must result in a reduction of the cover of herbaceous weeds from less than 18% to less than 12%.

The control methods for high threat herbaceous weeds are discussed below with particular attention to Brown-Top Bent, regarding which the Landholder has already consulted TfN, who have confirmed that this species is known to be difficult to control in conservation settings. The principle method for controlling high threat perennial weeds will be strategic grazing in combination with spot-spraying of herbicide. As discussed above, strategic grazing will aim to reduce the vigour and reproduction of high threat herbaceous weeds, however, not all weed species will be palatable to sheep during the grazing period. For unpalatable species or species where grazing is no sufficient to prevent their spread, herbicide will also be used. Weed control will be a regular activity and undertaken generally in accordance with the schedule in Appendix 1. Grazing methods are discussed in more detail in section 3.6.2. The use of ecological burning to control weeds is discussed in section 3.7.

Use of herbicide

Spot-spraying involves applying herbicide using a small nozzle so that only the target plant is treated. All spot spraying must be completed in a manner that minimises non-target damage by following all manufacturer's directions regarding rainfall and wind speed on the day of application. There will be no spot spraying in close proximity to threatened flora without protective measures in place (i.e. physical shielding). Spot spraying will be undertaken regularly, particularly in spring and early summer, with a focus on killing weed plants prior to seed set.

There are also a number of chemical-free weed control methods that could be trialled including steam weeding and flame weeding. The Landholder does not have experience with these methods so it is not a requirement that they be used. If, in consultation with TfN, a trial of chemical-free weed control is considered worthwhile, this can be done within the requirements for adaptive management within this **OMP** since a move away from chemical usage would be considered to be of general benefit to the local environment.

The **Offset area** is 50 metres from Warrambine Creek at its most westerly extent but 1.6 kilometres from the eastern extent. A number of seasonal wetlands occur within the **Offset area** and its surrounds but there are no mapped drainage lines from the **Offset area** that form part of the catchment for Warrambine Creek. Any

runoff from the **Offset area** will be minimal overland flow due to the high cover of perennial vegetation. While there maybe localised surface water flows and pooling during high rainfall events resulting in ephemeral wetlands, herbicide is unlikely to be used during such rainfall events as it would be ineffective. Given the long history of herbicide use in the surrounding cropping areas, there is no specific runoff risk is identified for the application of herbicides to the **Offset area**.

Options for control of Brown-top Bent

Brown-top Bent *Agrostis capillaris* has several biological characteristics that make it more difficult to control. Firstly it is a weed of low fertility soils so that it directly competes with other native grass species that are likewise adapted to low fertility soils. Secondly, its rhizomatous growth form means that it can survive undetected until it flowers as well as making it harder to target with spot spraying of herbicide and is less favoured by sheep. For the **Offset area**, control of Brown-top Bent will require a combination of herbicide application and strategic grazing.

The manufacturer's instructions for use of glyphosate (RoundUp) state that herbicide application alone is insufficient to kill the species and follow up management is required involving full disturbance with a tyned implement 10-21 days after spraying and then re-seeding. Since this treatment is not possible within a conservation context, it is unlikely that herbicide alone will be effective.

Agriculture Victoria advises that for winter grazing, a change from set-stocking to rotational grazing will help to control Brown-top Bent by giving an advantage to more upright species such as tussock grasses. The control of Brown-top Bent will require the fine-tuning of the duration and stocking rate of the proposed rotational grazing system as well as the duration of each rest period. These adjustments fit within the requirements of the **OMP** to adapt management to seasonal growth conditions. More information can be found at the following link:

http://agriculture.vic.gov.au/agriculture/farm-management/pastures/developing-a-bent-grass-control-program

The species responds readily to summer rainfall and so growth may remain static in drought years but increase rapidly over summer in wet years. Agriculture Victoria advises that in a wet year, grazing may be required late in the year to control growth that can occur after summer rainfall. Grazing will be most effective if done in the early flowering stage but before seed set. http://agriculture.vic.gov.au/agriculture/farm-management/pastures/what-is-bent-grass

A late grazing strategy would involve grazing within the grazing exclusion period of this **OMP** and so would need to be done in consultation with **Trust for Nature**. In areas where Brown-top Bent cover is highest and if herbicide application has been ineffective, late crash grazing to control growth can be trialled. The trial is to be within the affected grazing cells only and only after confirming that no threatened flora or fauna species would be impacted negatively by the grazing. It is assumed that in years of high Brown-top Bent growth, the growth of native grasses will also be high and so will not suffer any long term effects from the grazing trial. Grazing cells where Brown-top Bent is already well controlled or absent should not be grazed during the trial. The trial should be done in consultation with TfN who can monitor the effects of late grazing on native species as well as Brown-top Bent. If successful, the grazing can be repeated under the same restrictions in subsequent years.

The use of ecological burning to control weeds is discussed in section 3.7.

New and emerging weed problems

A key **management action** will be to ensure procedures are in place that can detect any new weed species or emerging weed problems in time to take preventative action. The **management actions** are described in

Appendix 1. The requirements comprise routine inspections by the Landholder (on-going), visits from **Trust for Nature** (on-going) and annual ecological monitoring (first 10 years of **OMP**). Any new or emerging weed problems are to be recorded with GPS or clearly marked in the field and treated as soon as possible. Records are to be kept of any new or emerging weeds identified, the treatment applied and follow up inspections of the treated weeds. Where possible, new and emerging high threat weeds (noxious weeds or known environmental weeds) will be eradicated from the **Offset area**. However, if the weed is already established by the time it is detected and cannot be eradicated in must be controlled to less than 1% cover.

The surrounding landscape is the most likely source of new weeds so that it is advisable to have weed monitoring and treatment schedules for the rest of the property (although this cannot be enforced via the **OMP** or TfN covenant). This is likely to be a cost effective way to reduce weed loads in the **Offset area**. Public land can also be a source of weeds (e.g. council managed road reserves) and it would be prudent for the Landholder to alert the relevant authority to any weed problems on public land adjoining the property.

3.5.7 Pest animals

The *Catchment and Land Protection Act 1994* requires that Landholders must take all reasonable steps to prevent the spread of - and as far as possible eradicate - established pest animals on their land. In addition to this legal duty, the control of declared pest animals including rabbits and other pest herbivores is a requirement of this **OMP**. Grazing by pest herbivores is a known threat to native grasslands and must be controlled to avoid impacts on the conservation values the **Offset area**.

Within the **Offset area**, grazing by European Rabbits *Oryctolagus cuniculus* and European Hares *Lepus europeaus* was evident therefore pest animal control works are required to control the numbers of pest animals. No active rabbit warrens were observed within the **Offset area** so that pest animal control will need to include the surrounding landscape where this is acting as a source of pest animal grazing (Biosis 2018).

Rabbits and hares will be monitored and controlled throughout the year. Currently, populations are at low levels, so that rabbits and hares have the potential to be controlled by shooting alone. If rabbit activity is not controlled by shooting alone, use an integrated approach such as is described in *Output Delivery Standards For The Delivery Of Environmental Activities* (DELWP 2015). An integrated approach involves fumigation, hand collapsing of burrows and baiting.

Ripping of rabbit warrens within the **Offset area** is not permitted. If any warrens develop within the **Offset area**, they are to be treated by low impact measures such as fumigation or implosion. Remove any carcasses to prevent poisoning of native predators.

In the event of an explosion in the rabbit population, rabbit-proof fencing of the **Offset area** will need to be considered as control options for these pests.

Pest animal control within the **Offset area** will need to include works to eliminate any active warrens in the local area. As well as direct control of rabbit numbers, there should be control of potential harbour for rabbits including: shelter provided by shrubby weeds, rock piles and in rock walls. The Landowner should control all active rabbit warrens, shrubby environmental weeds (e.g. African Box-thorn, Sweet Briar) on their land within 500 m of the **Offset area** and remove any unnecessary stockpiles or rocks or other materials.

Other problem pest animals may include mice, cats and foxes that may find shelter in crops, rock formations and rock walls within and adjacent to the **Offset area**. The Landholder will select from the range of control techniques available and apply the most effective in the local conditions. Control works targeting these pest animals are not expected to have any negative impact on any MNES.

3.6 Use of fire for ecological management

The controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grasslands and can be effective at reducing weed cover, especially for species that are difficult to control. Periodic burning that is followed by spot spraying can be an important strategy for difficult to control weed species such as perennial grassy weeds or widespread annuals. Importantly, burning (c.f. grazing or slashing) allows greater access and efficiency for weed control and increased natural regeneration of indigenous plant species. While burning may enhance germination of native species, it can also promote weed species to germinate, however, stimulating the soil stored weed seed bank and then applying follow-up weed control is seen as positive as this allows this seed bank to be exhausted over time.

However, burning also has risks involved that must be managed carefully to avoid creating further problems. The reduction in biomass, increased open space, increased soil nutrients that can follow an ecological burn means that weeds often germinate in high numbers shortly after a burn. Because weeds generally grow faster than native species, if weeds are not controlled immediately after a burn, then there is a risk that weed cover will increase as a result of the burn. The timing of any burning also needs to consider the habitat requirements of **GSM** and therefore burning is prohibited from the beginning of the **GSM** flight season (typically about November) until the end of January.

3.6.1 Ecological burning trial

The **Offset area** has not been subject to regular burns in recent decades and as a result, the management requirements of the **Offset area** with regard to burning can only be inferred. The **Offset area** has two small grazing exclusion plots already installed and these were experimentally burnt 5 to 6 years ago. It would appear that follow up weed control was not undertaken an as a result, there is a higher cover of broad-leved weeds such as Plantain *Plantago lanceolata* and Flatweed *Hypochaeris radicata*. This would suggest that planned ecological burns can affect the species composition of the **Offset area** unless weed control post-burn is rigorously implemented.

If ecological burning is to be introduced into the **Offset area**, it is to be done initially on a trial basis in a small area to ensure that the Landholder can develop a practical and feasible approach to managing post-burn weed control. Since ecological burns are ideally low temperature and patchy, the weed control requirements of a larger burn will be consequently further complicated by the patchiness of the burn. The initial trial burn should not be more than 1% of the area of the offset (1.5 hectares in size) and should be done with the same conditions as would be required for a larger burn with respect to season and intensity. The burn area should be temporarily fenced to prevent grazing and post-burn germination of weeds should be closely monitored and treated until native species have regenerated (at least 6 months). Photos should be taken regularly to track the progress of the post-burn recovery. The results of the trial should be evaluated by the Landholder in consultation with TfN and the advising ecologist. If the post-burn weed management requirements are deemed feasible by the Landholder and TfN and the ecologist are satisfied with the results, ecological burning can be progressively introduced into other areas of the **Offset area**.

3.6.2 General ecological burning requirements

The following section provides guidelines for use of burning only for the purposed of ecological management of biomass and weed control only. Fuel hazard reduction burning is excluded from the **Offset area**. It should be noted that in some wet years burning may not be possible prior to seed set due to a combination conditions and restrictions.

A fire management plan is to be completed in consultation with TfN and/or the advising ecologist as part of the annual works plan. Any approved fire plan will be provided to TfN at least three weeks prior to any burning event identified within that plan.

Any ecological burns will be conducted during benign (low wind and mild temperature) weather conditions. Burning within the **Offset area** will be undertaken only with due consideration to relevant health and safety issues. Ecological burning should only occur outside the prescribed declared fire danger period for the region and therefore is unlikely to require a permit. However, the Country Fire Authority should be consulted if there is any doubt about the permit requirements to undertake planned burning. The Landholder is responsible for ensuring the requirements of this **OMP** are carried out only if compliant with all other government planning requirements and permits. Any planned burns will minimise the potential for fire to spread in an uncontrolled manner.

All parts of the **Offset area** are suitable for burning, however, the extent of the burn needs to determined based on what is feasible for follow up weed control (as determined by the trial burn). For weed control, selected areas of grassland may be burnt to tackle particular weed issues or to assist in the lowering of soil nitrogen and phosphorous, which would also assist in weed control works. For biomass control, selected areas of grassland will be those where biomass is approaching the upper limit allowed under this **OMP** (70 to 80% cover).

No area is to be burnt more frequently than every two years. After each burn, the Landholder will prepare maps identifying the fire history of the **Offset area** to ensure the time since an area was last burnt can be documented. If wildfire should happen to occur in the **Offset area**, this will also need to be recorded in the fire history.

At no time should the entire **Offset area** be burnt in a single season. The application of a mosaic burning regime is the preferred burn pattern and therefore any individual burn should not burn all vegetation within the **Offset area**. Nevertheless, the burns must be planned to meet the requirement to maintain adequate fauna habitat within the **Offset area**. Planned burns therefore will be restricted to no more than 50% of the **Offset area** within any 12 month period. Patchy burns are a desirable outcome and an array of small burnt and unburnt patches covering up to a hectare is an appropriate scale on which to gauge the success of the burn.

The extent, intensity and timing of burns must take into account the presence of threatened species, in particular **GSM**. Fire may kill individuals of **GSM**s during the warmer months of the year when they are active above the soil surface. Timing of burns should only be undertaken outside the **GSM** flight season (generally November to January) unless fires are conducted at a small and limited scale. Late spring burns can be implemented if less than 20% of the **Offset area** is impacted.

Burnt areas will be protected from grazing for at least 6 months to allow species regeneration and recruitment to occur. Temporary fencing should be erected around burn areas if grazing is to be implemented in the surrounding areas.

3.7 Understorey diversity and recruitment

The **Offset area** already support a relatively high number and diversity of native plant species. The **management actions** associated with plant diversity therefore aim to protect the existing plant diversity and encourage its growth and recruitment.

The main risks to understorey diversity in the **Offset area** once it is protect by the TfN covenant will be: over-grazing (either by sheep, other introduced herbivores or kangaroos), uncontrolled weed growth and the accumulation of biomass over a prolonged period (greater than a year). Since all three risks are addressed in the previous **management actions** no further mitigation measures are required to manage native plant diversity and recruitment.

There is currently no need to do any supplementary planting or revegetation within the **Offset area**. The Habitat Hectares assessment shows that the **Offset area** retains between 50 and 90% of the expected number of understorey lifeforms, and is generally not considered deficient in terms of the species diversity of the life-forms that are present. Missing or deficient elements are typically the large herbs, which is often a function of the growth stage of the plants present.

If the Landholder wished to undertake works for the reintroduction of native species now considered locally extinct, a risk assessment of the activity will need to done in consultation with TfN. The risk assessment will need to include the likelihood of:

- Introducing new weeds or plant diseases, which can be brought in on potting mix from nursery-grown seedlings;
- Disturbance to the **Offset area** by digging holes to plant seedlings; and
- Introduction of weed seeds in seed mixes or machinery.

3.8 Offset area maintenance (Year 11-onwards)

At the end of Year 10, ecological monitoring will determine the condition of the **NTGVVP** and **GSM habitat** using Habitat Hectares and the results of **GSM** surveys. The condition measured at the end of 10 years must be maintained in perpetuity to ensure that **NTGVVP** and **GSM** continue to be provided with a conservation benefit. The following ongoing **management action** will apply in-perpetuity and align with the **management commitments** listed in Section 3.1.

As the responsible authority for TfN covenant, it will be the responsibility of TfN to ensure the land under covenant continues to be managed in accordance with their requirements.

The Landholder agrees to undertake the following on-going **management actions** listed in the following table.

Table 13 Summary of on-going management actions (Year 11 onwards)

Management action	On-going requirement
Access and signage	• Routine inspections to check the condition of fencing and signs. • Maintaining the existing paddock fencing and signage including the arrangement of gates, unless otherwise authorised by TfN as appropriate.
Weeds	• Routine inspections to look for and detect any new and emerging weeds and eliminate to < 1% cover. • Ensuring that overall weed cover does not increase beyond the levels attained at the end of the 10-year management period either.
Pest animals	• Routine inspections to look for and detect pest animals, particularly rabbits, hares, foxes and cats; • Ensuring that size of the pest animal population does not increase beyond the levels attained at the end of the 10-year management period.
Biomass	• Manage biomass so that bare ground stays at its current level of 20 to 40% cover. • Manage organic litter to meet the EVC benchmark cover of 10%.
Grazing exclusion	• High intensity, short duration (known as 'crash' or 'pulse') grazing of sheep only. • Grazing excluded from 15th September to 31st January, under ideal conditions. • Use of strategic crash grazing can be considered during the grazing exclusion period under the specific circumstances described in section 3.6.4. • Ensuring the in-perpetuity exclusions in Section 3.1 continue to be apply.

3.9 Contractor requirements

Due to the sensitive nature of the working environment, contractors working with **Offset area** are required to be suitably qualified and experienced. All workers should be familiar with the restrictions association with working within a conservation area prior to starting works. This can be in the form of a site induction or supervision by the Landholder. Note that the contractor requirements apply to all of the establishment, improvement and on-going **management actions**.

3.9.1 Required qualifications

All management works are to be carried out by the Landholder (their delegate) or their contractor. All unsupervised contractors should be suitably qualified and experienced and familiar with the **Offset area**. For labourers being supervised by a suitably qualified contractor, the labourers should be carefully supervised until the Landholder or supervisor is satisfied that the contractor is suitably skilled at the required tasks.

All ecological monitoring of **NTGVVP** should be undertaken by a suitably qualified professional ecologist who has at least 3 years of experience in assessment of native grassland. All **GSM** surveys should be overseen by a suitably qualified ecologist who has experience in identifying **GSM** for field surveys.

DoEE defines **suitably qualified person** as follows:

- **Suitably qualified person** means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

3.9.2 Required independence

The suitably qualified ecologist undertaking the monitoring must have sufficient independence to objectively assess the results of management actions and therefore cannot be employed by the same contractor

engaged to implement the management actions. DoEE also has requirements for auditors to be independent. Please refer to the approval conditions for EPBC Act referral 2017/8049 for auditor requirements.

3.9.3 Site inductions

For contractors that are unfamiliar with the **Offset area**, the Landholder (or delegate) should provide site inductions to ensure that any contractors undertaking management works within the **Offset area** are aware of the allowed activities and work methods. Site inductions should include the following key information:

- The **Offset area** is a conservation area that is protected by federal legislation.
- There are fines associated with damage to the grasslands.
- A work order with specific tasks or a list of works permitted in the **Offset area**.
- A list of works prohibited in the **Offset area**.
- Weed hygiene protocols to avoid introducing new weeds on boots, vehicles, plant or equipment.
- All vegetation within the **Offset area** is protected (other than weeds). Protected vegetation includes native grasses and wildflowers, sedges and rushes, mosses and lichen.
- Surface rocks should not be disturbed as these provide habitat for native reptiles.
- Works should have a minimal impact on the grassland and efforts should be made to avoid leaving wheel ruts due to driving in wet conditions or otherwise disturbing the grassland.
- The emergency management and reporting procedures for **Incident**s. Note to contractors that possible or actual damage to the grasslands counts as an **Incident** along with weather-related, bushfire, accidents or medical emergencies.

3.9.4 Contracts

For engagement of new contractors, the Request for Tender or Request for Quote should include a requirement to comply with the relevant provisions in the **OMP**. The Landholder should request details of the contractor's experience with undertaking works in native grasslands. The services contract should include requirements for compliance with the relevant provisions on the **OMP** or include requirements to comply with all instructions regarding protection of native plants and animals on site.

4. Monitoring actions

This section presents the nature, timing and frequency of monitoring to determine the success of **management actions** against **key performance indicators**, as required to fulfil Condition 7.d.vii. of EPBC Act approval 2017/8049. The detailed schedule of **monitoring actions** is provided in Appendix 1.

Surveillance of the **Offset area** is an integral component of the regular **management actions**. Routine inspections and ecological monitoring are separate activities in the **OMP** but both are important for early identification of changes, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the **OMP**. Routine inspections include observations by the Landholder during normal activities within the **Offset area** and broader property and which are important for maintaining a record over the entire year that is not possible during annual ecological monitoring events. Ecological monitoring is undertaken by qualified ecologists who will collect data from repeat surveys of permanent monitoring plots to assess the overall improvement in **Quality** over time.

4.1 Routine inspections undertaken by landholder

The progress of management works will be surveyed and recorded by the Landholder on a regular basis. Most of these records are normally kept in the course of land management activities but the requirement to keep these records has been formalised in this **OMP** for the **Offset area** specifically.

The Landholder will provide a progress report to TfN and DoEE on an annual basis. The report will utilize the compiled records of observations and management works as described below.

4.1.1 Records of management works

The Landholder must keep a diary of any **management actions**/works undertaken within the **Offset area**. The works will include weed control, pest animal control, fence maintenance and stocking rates and duration of grazing. These records of all **management actions** must be kept to provide evidence of the implementation of the **OMP**.

4.1.2 Records of routine inspections

The Landholder is to undertake regular site inspections in accordance with the schedule in Appendix 1 (at a minimum once every 3 months, with additional requirements to inspect grazing results during the grazing period, Appendix 1). During the site inspections the Landholder is to record general observations including on fence condition, weed levels and biomass levels and well as the location and management requirements of any problems observed during the inspections.

As part of these notes, the Landholder must record any observations that could influence or initiate a management response. It is helpful to allocate a timeframe to undertake the identified management response. E.g. “seedlings of a new woody weed seen in the middle of the **Offset area** today. Will spot spray these with glyphosate by the end of the week”. The Landholder should also record any new or emerging weed problems or if any weed species have been eradicated. These details provide valuable information on the management of the **Offset area** and contribute to the records that detail the commitment of the Landholder to the **OMP**.

Some specific requirements are detailed in Table 14 below.

Table 14 Routine inspection requirements each quarter

Management action	Routine inspection requirement
Fence condition	Surveys of the paddock boundary fence must be conducted quarterly, and when visiting the **Offset area** to do other monitoring or **management actions**. Any damage to the fence that may allow vehicles or stock to enter outside of the parameters outlined in this **OMP** must be repaired immediately.
Weed monitoring	Once a year in spring, the entire **Offset area** should be surveyed for woody weeds, by walking and / or driving throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the **Offset area** will likely require at least six hours of survey. All infestations or individual woody weeds will be mapped with a GPS, and the locations will be supplied to the weed management contractor/Landholder for treatment. Subsequent surveys will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire **Offset area** for new infestations. While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, (estimated to the nearest 5%). Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/Landholder for treatment.
Pulse grazing inspections	To inform the annual works plan, the **Offset area** should be inspected to determine biomass and pulse grazing requirements for the coming season. During the grazing period, the Landholder will inspect the grazing cells to evaluate grazing effectiveness at reducing biomass and weed levels, and to determine grazing duration. Records are to be kept on grazing intensity (stocking rate) and duration during the grazing period each year.
Pest animal monitoring	Signs of pest animals (rabbits, hares and foxes) will be recorded when visiting the **Offset area**. In particular, the locations of any active rabbit warrens must be mapped using GPS, and the locations supplied to the pest animal management contractor/Landholder for treatment. Subsequent monitoring will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the **Offset area**.

4.2 Routine visits and oversight provided by Trust for Nature

More general supervision/monitoring of the grassland will be undertaken by TfN to ensure the grasslands response to **management actions** produce the desired outcome outlined by this OMP.

On an annual basis, TfN will liaise with the Landholder regarding the development of an annual works plan in accordance with management actions in Appendix 1. TfN will visit the **Offset area** a minimum of four times over the 10 year management period (of years 1, 3, 7 and 10). This level of monitoring is the minimum that TfN can commit to as advised in their review of a previous draft of the OMP. TfN can commit to at least one site visit to be undertaken in spring with the other visits undertaken throughout the year, although spring is the best time to assess grassland condition. Further site visits can be requested by the Landholder as needed to address specific management problems or to discuss the progress of the **Offset area**. During Years 11 to 20, TfN will visit the **Offset area** a minimum of once every five years. Further site visits can be requested by the Landholder as needed during Years 11 to 20.

On an annual basis, the Landholder provides an annual report to TfN, which is in the form of a template based on the schedule of management actions in Appendix 1. TfN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period or funds are withheld until the works are completed to a satisfactory standard. After the 10 year management period has been completed, TfN has

a statutory responsibility to ensure compliance with the TFN covenant. Since the OMP is attached to the covenant, TfN also provides oversight of the OMP.

4.3 Ecological monitoring undertaken by qualified ecologists

Suitably qualified ecologists as defined in section 3.9 must be engaged to undertake ecological monitoring on a regular basis according the schedule in Appendix 1. The monitoring will include assessments that require expert skills such as Habitat Hectares assessment that cannot be undertaken by the Landholder.

4.3.1 Control plots

To determine if **management actions** have been effective, it is necessary to have a baseline and a control against which to compare the treatment areas. Monitoring done without control plots can only record change over time but does not provide a way to link the **management actions** to the changes recorded. To address this problem, the Landholder will allow some small exclusion plots to be installed prior to any **management actions** being undertaken. There are already two exclusion plots, however, these have been treated with fire and so are not comparable to the rest of the paddock. An exclusion plot will be installed by a suitably qualified ecologist in half of the grazing cells (4 control plots). These will be 20 metres x 20 metres and fenced with chicken wire to prevent herbivore grazing as the existing plots show this has been sufficient to exclude most grazing. No weed control works will be undertaken in these plots. The plots can be removed at the end of the 10 years of management if required.

4.3.2 NTGVVP condition

Ecological monitoring of the condition of **NTGVVP** will be undertaken annually in spring, ideally at the peak flowering time for native grasses. The first monitoring event should occur in 2019 prior to introduction of conservation management. This will provide a baseline or "before" measure against which the results of future **management actions** can be compared.

The monitoring will consist of the following components:

- General site inspection and average Habitat hectare assessment. The walkover will take at least 8 hours and make notes on woody weed abundance, evidence of biomass management, herbaceous weed cover for target weed species and general condition (evidence of pests, new weeds etc). This assessment will document the general overall condition of the **Offset area** and the ability of management works to maintain the condition of **NTGVVP**.
- Permanent monitoring points will be established throughout the **Offset area**, stratified by weed cover and topography. There will be 3 to 4 plots in each grazing cell, producing a total 20 plots (4 controls and 16 treatment plots). The plots will be a square 20 m by 20 m in size to allow for the detection of herb diversity during the monitoring. The plots will be clearly marked and their location accurately recorded using GPS.
- The following data will be collected from each plot and the control plots. It is estimated an hour will be required to collect these data from each plot:
  - *List of native and introduced species.*
  - *Total vegetation cover (%)*
  - *Total cover of native perennial vegetation (%)*
  - *Total cover of native herbs (%)*
  - *Total cover of perennial weeds (%)*
  - *Total cover of annual weeds (%)*
  - *Cover of bare ground (%)*
  - *Cover of organic litter (%)*

  - *Average height of vegetation (cm).*
  - *Habitat Hectares score.*
- A photo of each plot will also serve as permanent photo points. Using the NE corner of the plot for the photo point, a photo will be taken facing the four points of the compass (N, S, E & W).

Information will be collated as part of the annual reporting requirements (Section 4.4).

4.3.3 Golden Sun Moth monitoring

Monitoring during the flight season for **Golden Sun Moth** is necessary to determine the size of the flying male **GSM** population over time.

Baseline surveys of the **GSM** population were undertaken in the summer of 2018/19. It is recommended that **GSM** surveys be undertaken after one year of management has been achieved and then every second year thereafter for the duration of the 10 year management period. It is unlikely that **management actions** to encourage increased growth of **GSM** food plant species will have an immediate effect on **GSM** numbers, therefore, surveys every second year are considered sufficient to monitor the health of the **GSM** population. **GSM** surveys area therefore required in the following summers:

- 2020/21
- 2022/23
- 2024/25
- 2026/27
- 2028/29

Monitoring will record the number of individuals observed from set monitoring transects. Note that the **Offset area** is too large to be surveyed in one day using only two people. A team of 6 people is likely to be needed to survey the entire **Offset area** in one day using 50 metre wide transects. If the full surveys are not feasible, the surveys should be done in each grazing cell but 100 metre transects are used instead of 50 metres. The chosen method must be repeated exactly the same for each of the four visits done in a survey year (i.e. it is not acceptable to assess a quarter of the **Offset area** once in order to survey the whole **Offset area** in four visits).

Monitoring for **GSM** will be undertaken in accordance with the requirements of DEWHA (2009) with regard to survey season and weather conditions on the day of survey. As **GSM** are known to occur at this site no reference sites are required. The Landholder is likely best placed to watch for when the flight season has started but other **GSM** sites within the district can also be used. A monitoring event requires four visits to the **Offset area** on four days approximately one week apart. Surveys will take place when conditions are suitable for male flight (generally >20oC, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs. Tracks will be recorded using a GPS receiving device and a waypoint taken for each location where **GSM** are observed. Notes on habitat condition including cover of food plants and inter-tussock spaces will also be recorded.

The results of these surveys will be compared to the original baseline surveys (2018 /19 flight season) and those of the previous monitoring event.

Any observations of **GSM** during monitoring for vegetation condition and during inspections by the Landholder or TfN will also be recorded.

4.3.4 Monitoring report

Once monitoring is complete, a monitoring report with the following information will be provided:

- Assessment of condition improvement of **NTGVVP**

- Results of **GSM** surveys (every second year).
- Advice on planned burning and weed/biomass control approach for the coming year.

The monitoring report is to be provided to the Landholder, DJCS and TfN. It will be the responsibility of DJCS to supply the ecological monitoring reports to DoEE as required under their annual compliance report (Approval condition 14).

4.3.5 Independent audits

Under Approval Condition 17, the approval holder (DJCS) must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the Minister. In addition, as the approval holder, DJCS is responsible for ensuring the implementation and effectiveness of the **OMP**.

If required, audits will be conducted by an independent ecologist appointed by DJCS at the following stages:

- At the end of the first year of site management - this is to ensure that initial **management actions** are conducted to the satisfaction of the approval holder and DoEE, including implementing the legal security mechanism, ensuring the property is securely fenced, and that other initial **management actions** have commenced.
- At the end of the fourth year of site management – this will involve a review of four annual monitoring and management reports, as well as an independent assessment of the condition of **GSM habitat** within the **Offset area**.
- At the end of the eighth year of site management – as per the four year audit.
- Following the completion of the 10 year management period – to be a final audit of the implementation and effectiveness of the **OMP**.

Additional audits may be triggered as a result of a review of the OMP or following an environmental **Incident** resulting in significant change to site conditions, as identified in the risk assessment.

4.4 Reporting

Under Approval Condition 15, the approval holder (DJCS) must submit an annual compliance report to DoEE for the period of the approval. The detailed schedule of **reporting** is provided in Appendix 1.

As part of this reporting, the Landholder will prepare an Annual Report to address progress against the commitments set out in this **OMP**. Annual Reports will provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the **management commitments** and completion criteria for the **Offset area**. Reports will be submitted prior to the anniversary date of the execution of the **OMP** to allow time for compliance to be assessed.

The annual report will include:

- Details of **management actions** undertaken within the reporting period.
- Results of at least four routine inspections, including fence condition, weeds, pest animals, and biomass accumulation.
- Details of compliance or non-compliance with the schedule of **management actions** (Appendix 1).
- Details of compliance or non-compliance with management targets (Appendix 1).
- Details of any **incidents** or new and emerging management issues, with required corrective action.
- Any triggers exceeded and which corrective actions were implemented.
- Details of ecological monitoring results including photos from photo points and **GSM** survey results in relevant years.

The reporting schedule is detailed in Appendix 1.

5. Risk assessment and emergency management

5.1 Risk assessment

Table 15 on the following pages uses the DoEE risk framework to assess the risk of the KPIs not being met. The risk of the KPIs not being met is assessed by comparing two scenarios: a situation with an approved OMP and a situation without an approved OMP. This is done by identifying a hazard based on each KPI. The risk assessment then provides a summary of how the management actions provide control measures for each of the hazards identified. This allows the risk of the offset failing to meet the KPI's to be reduced. The risk assessment also details the residual risk after the control measures in the OMP are put in place. A strategy for addressing the residual risk is provided in the last column.

The likelihood and consequence classification is summarised in Appendix 2.

5.2 Emergency management

There is residual risk posed by emergency event such as wildfire, floods or unexpected pest outbreak. These events present a risk of damage to the **Offset area**, because emergency activities may involve any of the following:

- Extreme change in conditions requiring rapid adaptation of **management actions** and/or **management targets** (e.g. rapid change from unburnt to burnt in the case of wildfire).
- Emergency works such as earthworks to plough or excavate firebreaks.
- New threats previously absent to the **Offset area** (e.g. new weeds brought in during emergency works).
- Previously controlled threats becoming more prevalent (e.g. rapid increase in existing weed cover).
- Unauthorised access, livestock grazing or trespass (i.e. as a result of fences being destroyed).

While the likelihood of an emergency management scenario occurring over the life of the OMP is rare, the consequences could be Major and resulting in a risk assessment of Medium. The risk assessment of Medium is based on the impacts that emergency management actions can have on the protected matters, especially ploughing of fire breaks.

5.3 Emergency Contacts and procedures

Should any emergency occur, the relevant contacts (listed below) must be notified as soon as possible.

- In the event of a life-threatening emergency, the relevant emergency services should be contacted immediately. Emergency services must be advised of the conservation protections to avoid inadvertent damage (e.g. ploughing fire breaks, use of chemical fire suppressants).
- DJCS is required to notify DoEE of any incident within 10 days so that the Landholder must notify DJCS and DoEE within this timeframe.
- The Landholder's delegate must notify the Landholder within 12 hours and the Landholder must notify TfN within 24 hours.

5.4 Emergency contact details

- Bushfire or other life-threatening emergency: Phone **000**, ask for fire brigade
- Non-emergency criminal activity (illegal dumping, trespass): Phone Victoria Police **131 444**
- Department of the Environment and Energy (DoEE): Phone **1800 803 772**
- **Trust for Nature**: Offset advisor phone **(03) 8631 5888**
- Landholder: James Taylor

5.5 Review of OMP

This **OMP** includes an adaptive management framework so that a review of the **OMP** will only be necessary under the following circumstances:

- A major **incident** that makes a significant change to the character or condition of the **Offset area** requiring updates to management targets or KPIs (most likely wildfire, Table 15).
- The Landholder / TFN identifies a beneficial permanent management change such as might arise from new research or on-ground observations and requiring updates to permitted activities or management actions.

If a review required by the Landholder or after a major **incident**, this will be undertaken by the Landholder in consultation with TfN and DoEE.

If a review is required by DoEE as part of the conditions of approval, the review will be undertaken by DJCS.

Table 15 Risk assessment of potential hazards as defined by Key Performance Indicators

Potential hazards as defined by Key Performance Indicators (KPIs)	Likeli-hood	Consequ-ence	Risk Level	Management action # (see Appendix 1)	Hazard Control Methods	Likeli-hood	Consequ-ence	Risk Level	Residual risks	Management strategy for residual risks
	Without OMP					With OMP				
Failure to register TfN agreement on relevant land titles	Highly Likely	Major	Severe	1, 15	• Statutory approval condition for YJRP • DoEE post-approvals team to regulate execution of approval conditions • Bond agreement with TFN ensures funds held in trust until agreement in place	Rare	High	Low	The risk assessment of low is based on the Offset area being secured using a TfN covenant. The funds for the Offset area are only release by TfN after the Credit Trading Agreement has been finalised. This provides a strong financial incentive for both the Landholder and approval holder to ensure the security mechanism is placed on title.	If the TfN covenant is not registered on title, TfN will hold the funds in trust until a TfN agreement is registered.
Failure to implement the OMP to the required standard. (NOTE: for the other risks in the table, when assessing the risk, it is assumed that the OMP has been implemented to the required standard.)	Likely	High	High	5, 6, 14, 15	Checks and balances in place to ensure OMP is implemented to the required standard: • TfN review of annual report from landholder each year. • Release of annual funding from TfN only when satisfied works have been undertaken in accordance with the OMP • Ecological monitoring undertaken yearly during 10 year period • TfN to visit offset area a minimum of four times during 10 year period • TfN to visit offset area every 5 years after Year 10 • Independent audits undertaken as directed by DoEE • The TfN covenant binds the current and future Landholder to both the standard restrictions in the TfN covenant and to the requirements described in this OMP	Rare	High	Low	The risk assessment of low is based on the oversight provided by TfN. TfN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period.	In the event that the landholder fails to undertake the management actions in accordance with the OMP, TfN will withhold funds until the works are completed to a satisfactory standard.
Loss of NTGVVP or GSM habitat over 20 year time horizon	Likely	High	High	2, 3, 15	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TfN covenant	Rare	Moderate	Low	The risk assessment of low is based on the resourcing being provided to the offset area. That is, Biosis has observed that for grassland reserves throughout Melbourne and Victoria, loss of NTGVVP is usually attributable to insufficient funding to provide for the intensity of management required to address the labile nature of native grasslands. Where there is insufficient intensity of management, this has led to invasion of perennial grassy weeds such as Chilean Needle-grass, which dominate the tussock structure. Since the offset area has a dedicated manager (the Landholder), regular monitoring, and sufficient funding available to undertake the required works, it is expected that only exceptional climatic conditions or an emergency event would to lead to a loss of NTGVVP or GSM.	Emergency management provisions are provided in the OMP. Incident reporting procedures of the OMP will also apply - TfN and the consulting ecologist will be consulted for advice, DoEE will be informed and the OMP will be reviewed by the landholder.
Preventable weed introductions over 20 year time horizon	Likely	High	High	2, 3, 15	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TfN covenant	Unlikely	Moderate	Low	The risk assessment of low is based on the monitoring and oversight of the offset area such that any introduction of new weeds will be detected early and management actions undertaken to rectify the problem. N.B. This risk addresses preventable weed introductions only (such as weed seeds brought in on vehicles or machinery) so that the source of the introduction can be traced and prevented in future. Non-human mediated introduction of weeds by fauna or wind-blown seed are addressed in "new or emerging threats".	Preventable weed introductions over 20 year time horizon will be addressed using the adaptive management provisions in the OMP and in consultation with TfN. The management actions in Appendix 1 detail the process by which to address new or emerging threats.
Unauthorised access or works within offset area	Possible	Major	High	3, 4, 15	• OMP provides a schedule of management actions to control access and authorise works within offset area	Unlikely	Moderate	Low	The risk assessment of low is based on the Offset area being fully fenced and not accessible by the public or easily trespassed upon due to its distance from the road so that contravention of the covenant by malicious	Since unauthorised access would most likely be a result of trespass, this will be referred to police and will be addressed using the emergency

									damage to the Offset area is Low risk. Signage and site induction will ensure that any workers will be aware of the activities allowed in the offset area.	management provisions in the OMP. Where unauthorised access or works within offset area result in an incident, the incident reporting procedures in the OMP will be followed.
Management actions fail to adapt to seasonal conditions or monitoring/routine inspection results.	Likely	High	High	5, 15	• Landholder to prepare annual works plan in consultation with TfN and incorporating monitoring results and information from routine inspections.	Rare	High	Low	The risk assessment of low is based on the adaptive management provisions in the OMP being designed to allow the landholder to ensure there are no adverse impacts from management during unfavourable conditions such as drought. Should management actions fail to keep pace with changing conditions, the most likely cause will be extreme seasonal conditions or weather events.	Routine inspections will be used to track seasonal conditions and/or emerging threats. The annual works plan will address the management actions required for the coming season. TfN will be consulted where management actions do not appear to be effective and their advice sought on how to address any problems. For extreme events, the emergency management provisions will apply instead.
Failure to improve Lack of Weeds score from 6 to at least 9 (out of 15) or Lack of Weeds score declines.	Likely	High	High	7, 8, 11, (12, 13)	• Management actions provide multiple methods of weed control that can be implemented in response to changing conditions. • OMP provides an adaptive management strategy to allow the landholder to respond to changing the weed levels. • Management actions for weed control compatible with other management targets. • Options for weed control in OMP are: - Rotational cell grazing - Herbicide application - Non-chemical weed control methods - Optional ecological burning trial and implementation	Unlikely	High	Medium	This risk assessment of medium is based on the difficulty of controlling weed invasions once a particular weed species is well established. The circumstances when this could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. In such cases, review of the OMP would be warranted to address the failure to improve the Lack of Weeds score.	In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to eliminate new weeds, emerging weed problems not controlled to <1% cover, failure to eliminate new pest animals	Possible	High	Medium	6, 10, 15	• Management actions provide process to Identify and control or eliminate new or emerging threats complimented by oversight by TfN	Rare	High	Low	This risk assessment of low is based on early detection of new or emerging threats leading to effective control or elimination of the threat.	The management actions in Appendix 1 detail the process by which to address new or emerging threats. Where new or emerging threats are not treated promptly and allowed to proliferate, this will be considered a failure to implement the OMP to the required standard and addressed by TfN as above.
Failure to maintain Understorey score at 15 (out of 25) or score declines	Possible	Critical	Severe	2, 3, 4, 7, 8, 9, 10, 11 (12, 13), 14, 15	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation all of which are designed to protect native herb diversity. • OMP provides detailed schedule of management actions all of which consider the need to protect native herb diversity. • Oversight provided by TfN and ecological monitoring annually will record and track vegetation condition.	Unlikely	High	Medium	This risk assessment of medium is based on the difficulty of re-establishing herb diversity once it declines. The circumstances when this could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. In such cases, review of the OMP would be warranted to address the failure to improve the Understorey score.	The management actions in Appendix 1 provide a detailed strategy to manage NTGVVP condition. In the event that the management actions even in accordance with the OMP fail to maintain the Understorey score in any one year, TfN and the consulting ecologist will be consulted for advice, DoEE will be informed and the OMP will be reviewed by the landholder.
Failure to maintain Recruitment score at 10 (out of 10)	Likely	Moderate	Medium	• 8, 11 (12, 13)	• OMP provides two options for biomass control, rotational cell grazing with exclusion period and ecological burning trial and implementation. • OMP provides an adaptive management strategy to allow the landholder to respond to changing the biomass levels.	Unlikely	Moderate	Low	The risk assessment of low is based on biomass being relatively easy to manage and rectify and therefore space for recruitment is also relatively easy to manage.	The management actions in Appendix 1 provide a detailed strategy to manage NTGVVP condition. In the event that the management actions even in accordance with the OMP fail to maintain Recruitment score in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to

					• anagement actions for biomass control compatible with other management targets.					improve the Recruitment score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to maintain Organic litter score at 5 (out of 5)	Likely	Moderate	Medium	8, 11 (12, 13)	• OMP provides two options for biomass control, rotational cell grazing with exclusion period and ecological burning trial and implementation. • OMP provides an adaptive management strategy to allow the landholder to respond to changing the biomass levels. • Management actions for biomass control compatible with other management targets.	Unlikely	Moderate	Low	The risk assessment of low is based on biomass being relatively easy to manage and rectify and therefore space for organic matter is also relatively easy to manage.	The management actions in Appendix 1 provide a detailed strategy to manage NTGVVP condition. In the event that the management actions even in accordance with the OMP fail to maintain organic litter score in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to improve the organic litter score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to eliminate active rabbit warrens or fox dens, evidence of pest animal impacts present	Possible	Moderate	Medium	9	• Offset area already has a low density of pest animals. • OMP provides process for monitoring and treating pest animal populations. • Oversight provided by TfN and ecological monitoring annually will record and track evidence of pest animal impacts.	Unlikely	Moderate	Low	The risk assessment of low is based on pest animals and their impacts being relatively easy to detect and monitor and is undertaken as part of farm management in the rest of the property as well.	The management actions in Appendix 1 provide a detailed strategy to manage pest animals. In the event that the management actions even in accordance with the OMP fail to maintain pest animal numbers in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to manage pest numbers in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to maintain Tussock cover sufficient to provide fauna habitat after ecological burns	Possible	Major	High	(12, 13)	OMP provides clear guidelines for ecological burning requirements. Burn plans will be developed as part of annual works plan in consultation with TfN. Ecological monitoring will track weed levels post-burn.	Rare	Major	Medium	This risk assessment of medium is based on the large scale on which a burn would have to occur for this target not to be met (i.e. more than 50% of the offset area to be burnt in any one year). The most likely cause of a large-scale burn would be escape of a controlled burn, which would be a rare occurrence.	For an escaped burn, the emergency provisions and incident reporting of the OMP will apply. TfN and the consulting ecologist will be consulted for advice, DoEE will be informed and the OMP will be reviewed by the landholder,
Failure to undertake ecological monitoring in accordance with OMP	Highly Likely	Moderate	High	14	Ecological monitoring remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP	Unlikely	Minor	Low	The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological monitoring is undertaken and the oversight provided by TfN. DJCS has agreed to be responsible for engaging an ecologist to undertake monitoring each year during the 10 year management period.	In the event that the ecological monitoring is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next monitoring season (annually for NTGVVP or alternate years for GSM surveys).
Failure to undertake reporting in accordance with OMP	Highly Likely	Moderate	High	16	Ecological monitoring report remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP	Unlikely	Minor	Low	The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological reporting is provided and the oversight provided by TfN.	In the event that reporting is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next reporting season (annually for landholder annual report and NTGVVP or alternate years for GSM surveys).
Failure to undertake emergency management in accordance with OMP	Possible	Major	High	17	OMP provides emergency management procedure. Offset area will have signage to alert emergency services to conservation values within offset area.	Rare	Major	Medium	The risk assessment of medium is based on the large impacts that emergency management actions can have on native vegetation, especially ploughing of fire breaks. However, the frequency of emergency events is expected to be rare and the risk has been reduced compared to the current conditions of no OMP.	Failure to implement the emergency provisions of the OMP will likely result in an incident and the incident reporting provisions of the OMP will apply. TfN and the consulting ecologist will be consulted for advice, DoEE will be informed and the OMP will be reviewed by the landholder if the offset area is affected.
Failure to maintain habitat hectares score achieved at	N/A	N/A	N/A	18	The TfN covenant binds the current (and future) Landholder to the standard	Possible	High	Medium	This risk assessment of medium is based on the difficulty of improving conditions once they start to	The annual works plan will address the management actions required for

the end of Year 10 from Year 11 to Year 20 (to achieve 20 year time horizon)					restrictions in the TfN covenant and to the requirements described in this OMP TfN to visit offset area every 5 years after Year 10 Adaptive management procedure ensures management can response to changing conditions over time.				decline when compared to simply maintaining conditions. Failure to maintain the habitat hectares score would likely be derived from one of two sources: unpredictable extreme event or insufficient inputs to maintain the NTGVVP condition, both of which have been addressed above.	the coming season including routine monitoring. As part of development of the annual works plan, TfN will be consulted where management actions do not appear to be effective and their advice sought on how to address any problems. TfN will visit the offset area at least twice over the Year 11 to Year 20 period and require annual reports to be submitted for review to ensure compliance continues. For extreme events, the emergency management provisions will apply.
Failure to review OMP when circumstances change or management actions become ineffective	N/A	N/A	N/A	19	OMP allows both the landholder and the approval holder to review the OMP and make changes as needed. TfN will provide advice on management to landholder in the event management actions become ineffective.	Unlikely	Moderate	Low	The risk assessment is low because failure to review the OMP after a change of circumstances/due to ineffective management actions would be a failure to implement the OMP to the required standard, which is addressed above.	The OMP provides the details of how and when the OMP is to be reviewed and updated.

N/A = Not applicable, the KPI is only possible if the OMP is in place.

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Appendices

Appendix 1 Schedule of management actions

Table A1 Schedule of management actions and management targets

Legend to table:

Start management action	Progress towards target	Achieve target	Maintain result	As needed	Undertaken by external party

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	**Register the Offset area on title**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to register TfN covenant on title	TfN covenant registered on title in accordance with Section 3A Victorian Conservation Trust Act 1972 Covenant to cover 144.35 ha											
		Landholder to provide copies of title to DJCS within 2 weeks of registration being completed												
		DJCS to provide title to DoEE within 4 weeks of registration												
2	**Implement management commitments to change land management and protect native vegetation in OMP and TfN covenant**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to ensure all excluded activities no longer occur within 860 paddock	Permanently exclude all activities involving mechanical disturbance (excavation, geological exploration, ploughing of fire breaks, cultivation etc.).											
			All posts to be direct driven											
			Permanently exclude all activities that would knowingly introduce new weeds/weed seeds, e.g. over-sowing or other pasture improvement using hay, silage or feed that could contain viable weed seeds planting of tree belts.											
			Exclude all broad-acre herbicide use except in accordance with OMP. No creating fence lines or firebreaks with spraying.											
			No farm infrastructure except in accordance with OMP (e.g. no yards, barbed wire fencing etc)											
			Stock watering points to be installed outside the offset area, to the minimum number necessary.											
			Approval is obtained from TfN for any new farm infrastructure not in accordance with OMP											
			All workers are aware of activities that are not permitted in offset area											
			No unauthorised access or unapproved works within offset area											
			Weed hygiene protocol developed for sheep, workers, vehicles, plant and equipment											
3	**Implement permanent changes to grazing**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to ensure all grazing is in accordance with OMP	Permanently exclude all fertilizer application.											
			Permanently exclude all cattle and horse grazing.											
			All sheep grazing to be in accordance with OMP, see section bellow											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
			Grazing of any other domestic livestock not already listed will only be considered after consultation with **Trust for Nature**											
4	**Prevent uncontrolled livestock grazing and unauthorised access. Install fencing for rotational cell grazing.**													
	Prior to commencement of Year 1 grazing period	Landholder to ensure all fencing and signage is installed and maintained in accordance with OMP	Fencing installed on boundary or within Offset area must meet the following requirements : • Direct-driven posts only, no concrete footings • New gates are as wide as possible • Plain or electric wire only • Minimum number of strainer posts											
			The existing paddock fencing is already stock-proof and no further upgrades are needed. Refer to DELWP (2015) for stock-proof fencing standards if new stock-proof fences are needed											
			Install watering points outside of offset area. Installation must not use excavation within offset area, have the minimum number of troughs possible, not create new stock camp impacts.											
			Install signage on gates to restrict access into paddock. E.g. “Conservation Area – Access not permitted unless strictly authorised by the manager”.											
			Use low impact method to mark boundary off offset area where it is not marked by fencing											
			Undertake regular repairs to prevent uncontrolled sheep grazing or access											
			New infrastructure is checked routinely to ensure it remains low impact											
			Fencing, gates and signage maintained to prevent accidental access by livestock or people											
5	**Prepare and implement annual works plan**													
	Annually, prior to commencement of each grazing period	Landholder to prepare annual works plan in consultation with TfN and incorporating monitoring results and information from routine inspections.	Review results from routine inspections and monitoring, determine management requirements for coming season in timely manner											
		Landholder to ensure overall progress/results are reviewed at least once per year.	Identify areas for improvement, incidents or changing conditions											
		Landholder to ensure works plan adapts to seasonal conditions and/or new or emerging threats	Prepare annual works plan based on review											
			Identify suitably qualified staff or suitably qualified contractors to undertake works. All work to be undertaken by/supervised by suitably qualified individuals											
			Provide site induction to new staff or contractors											
			Seek advice from TfN, CMA, ecologist or other contractor, if necessary											
6	**Routine inspections and records of works**													
	Minimum of once per quarter (4 times per year)	Landholder to ensure routine inspections record are undertaken at regular intervals	Undertake routine inspections of Offset area at least once every three months											
		Landholder to records are kept of all routine inspections	Identify any maintenance requirements for external paddock fencing, internal fencing, signage and watering points. Note if additional impacts from livestock movements become apparent around gates, fencelines or watering point.											
		Landholder to records are kept of all works undertaken in the offset area	Records are kept of any maintenance requirements and timeline for repair.											
			Records are kept of all routine inspections											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
			Use GPS to record any weed infestations to target for treatment, new or unknown weeds/pests or weeds/pests that appear to be increasing											
			Record any pest sightings or evidence of pest activity											
			Use GPS to record the location of active rabbit warrens or fox dens											
7	**Control woody weeds**													
	July–Nov or as detailed in the annual works plan	Landholder to ensure annual works plan details target species, methods and timing of woody weed control	Search offset area and use GPS to record location of woody weeds (at least once per year). Record any areas to target for herbaceous weed control at the same time.											
		Landholder to ensure woody weeds are controlled using minimal impact methods and in accordance with OMP	Treat woody weeds using appropriate herbicide at correct time of year and to prevent fruiting and seeding. Refer to manufacturer's instructions or seek advice from TfN or weed contractor if needed.											
		Landholder to ensure woody weed mapping is undertaken at least once per year.	Treat woody weeds with methods that have minimal impact on native species											
		Landholder to ensure woody weed control starts in Year 1 and the management target is met by Year 2 and then maintained.	Avoid off target damage to native species											
			Target: • Eliminate all established adult plants by end of Year 2											
			• After Year 2, continue treat woody weed seedlings/resprouting stumps to achieve the management target of <1% cover of woody weed seedlings at end of Year 10											
8	**Control herbaceous weeds**													
	July–Nov or as detailed in the annual works plan	Landholder to ensure annual works plan details target species, methods and timing of herbaceous weed control	Determine target weed species/groups for each season, determine treatment method (grazing/herbicide/combination/other)											
		Landholer to ensure herbaceous weeds are controlled using minimal impact methods and in accordance with OMP	Determine number of spot spraying/chemical free weed control events required and record in annual works plan											
		Landholder to ensure herbaceous weeds control starts in Year 1 and management target is met by the end of Year 10	For spot spraying, determine appropriate herbicide/rate and record in annual works plan											
			For grazing, determine seasonal requirements and record in annual works plan											
			Treat herbaceous weeds with appropriate method at appropriate season according to annual works plan.											
			Avoid off target damage to native species											
			Overall target (also applies for grazing and ecological burns): • Weed cover reduced to <25%											
			Targets for types of weeds (also applies for grazing and ecological burns): • Woody weeds: <1% (see Management Action 7 above)											
			• Annual grasses: 10%											
			• Perennial mat-forming grasses: <10%											
			• Broad-leave high threat weeds <3%											
			• Perennial tussock grasses: <1%											
			• Perennial tussock grasses (declared noxious): eliminated											
9	**Control pest animals (e.g. rabbits, hares, foxes)**													
	Feb–Apr, Sep–Nov or in accordance with annual works plan	Landholder to ensure annual works plan details target species, methods and timing of pest animal control	Determine pest animal control requirements and record in annual works plan. A minimum requirement is quarterly spotlighting searches.											
		Landholder to ensure pest animals are controlled using minimal impact methods and in accordance with OMP	Treat pests with appropriate method at appropriate season, record results in accordance with annual works plan. A											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
		Landholder to ensure pest animal control starts in Year 1 and management target is met by the end of Year 10	Treatment methods will be in accordance with OMP and will not cause damage to the grassland. E.g. no ripping of rabbit warrens. Refer to DELWP (2015) for details on low-impact methods											
			Rabbit warrens fumigated within three weeks of detection.											
			Record any incidental sightings											
			Management target: • By end of Year 2, no active rabbit warrens within offset area, minimal surface harbour in the form of woody weeds											
			• By end of year 10 there should be no fresh ground disturbance by pest animals (particularly rabbits) observed in the offset area or active rabbit warrens or fox dens.											
10	**Identify and control or eliminate new or emerging threats**													
	Routine monitoring, treatment as needed	Landholder to ensure routine inspections record any new or emerging threats.	Routine inspections undertaken according to OMP and all new and emerging threats are identified early.											
		Landholder to ensure incidental sightings of any new or emerging threats are recorded.	Identify correct treatment and treat infestation appropriately											
		Landholder to ensure appropriate treatment methods is identified and implemented where new threat is identified	For unknown weeds/pests, consult appropriately qualified person to establish identity											
			If possible, identify source of new infestation, change procedures to prevent further infestations if within control of Landholder											
			For unknown weeds/pests, consult appropriately qualified person to establish identity											
			Adaptive management used to update procedures in response to new or changing conditions											
			If not already established (not reproducing in the site) threat should be eliminated.											
			If already established, threat should be minimised to <1% cover											
			Target to be achieved from Year 1 onwards: • New weeds eliminated, emerging weed problems controlled to <1% cover, new pest animals eliminated											
11	**Use rotational cell grazing for biomass/weed control**													
	Exclude grazing from 30th September to 31st January each year	Landholder to ensure rotational cell sheep grazing is in accordance with OMP at all times: Total vegetation cover of approx. 70% (maintain within range of 60 to 80%)	Annual works plan prepared prior to grazing period each year. Determine feed availability/target weed species and adapt grazing strategy to seasonal conditions, record strategy in annual works plan											
	Rotational cell grazing between 1 February to 30th September each year (grazing adapted to seasonal conditions within these dates)	Landholder to consult with TfN periodically to discuss effectiveness of grazing strategy	Use rotation cell grazing during grazing period to graze target weeds before seed set											
	Maximum grazing duration: 3 weeks	Landholder to ensure stocking rate and grazing duration are recorded	Record to be kept of stocking rate and grazing duration and compared with results of grazing in annual review											
	Minimum rest period: 6 weeks	Landholder to inspect results of grazing on regular basis (at least 6 times during grazing period and twice during exclusion period)	If needed, use strategic pulse grazing during exclusion period to control a specified weed problem in consultation with TfN											
			Adaptive management used to update procedures in response to new or changing conditions											
			Targets to be maintained from Year 1 onwards:											
			• Inter-tussock space is maintained at 20 to 40%											
			• Organic litter is maintained at 5 to 15%											
			Targets for weed cover to be achieve at end of Year 1 (as above)											
12	**Ecological burning trial****				**									
	Sep-Oct or March - May (or as specified in the burn plan)	Landholder to develop trial burn plan in consultation with TfN and where necessary, CFA or ecological consultant	Determine appropriate location for ecological burning trial in consultation with TfN / ecologist and record in annual works plan											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
		Landholder to ensure all ecological burns are in accordance with the OMP	Undertake burning trial of up to 1.5 hectares, followed by 6 to 12 months grazing exclusion and follow up weed control											
		Landholder responsible for determining feasibility of larger burn in consultation with TfN based on results of trial	Data collected to determine that weed cover does not increase in burnt areas compared to unburnt areas											
			Review results of burning trial against management targets for ecological burn below and discuss feasibility with Trust for Nature and ecologist											
			Feasibility is determined for follow up weed control and grazing exclusion requirements prior to undertaking further ecological burning											
13	**Ecological burning^^**					^^								
	Sep-Oct or March - May (or as specified in the burn plan)	Landholder to develop burn plan in consultation with TfN and where necessary, CFA or ecological consultant	Determine appropriate location for ecological burning in consultation with TfN and/or ecologist and develop burn plan in accordance with OMP. Record burn plan in annual works plan											
		Landholder to ensure all ecological burns are in accordance with the OMP	Undertake burn in accordance with burn plan, followed by 6 to 12 months grazing exclusion and follow up weed control											
		Landholder to ensure all ecological burns are in accordance with the OMP	Undertake burning outside of declared fire danger period, followed by 6 to 12 months grazing exclusion and follow up weed control											
			Record burn area with GPS, record approximate coverage of burn within total burn area											
			Ecological monitoring to include review of burnt areas even if outside of control plots											
			Targets to be maintained from Year 1 onwards:											
			• No part of offset area burnt more than once every 2 years • No more than 50% of offset area targeted for burning in any single year / At least 50% of offset area remains unburnt at any one time											
			• Burns are undertaken in accordance with OMP											
			• Weed cover does not increase in burnt areas compared to unburnt areas											
			• Inter-tussock space is maintained at 20 to 40%											
			• Organic litter is maintained at 5 to 15%											
			Target for weed cover to be achieve at end of Year 10 (as above)											
14	**Ecological monitoring**													
	NTGVVP: Oct-early Dec GSM: flight season Nov-early Jan	Landholder to facilitate access to offset area for ecologists undertaking monitoring	Ecologist to establish monitoring plots and undertake baseline surveys in Year 0											
		Landholder to ensure any permanent markers of monitoring plots are not accidentally removed	Ecologist to undertake annual NTGVVP surveys in mid-late spring, data collected consistently to determine improvement in NTGVVP and GSM habitat, identify problems early, identify opportunities for adaptive management											
		DJCS to engage and fund ecological monitoring in accordance with the schedule in the OMP	Ecologist to review results of planned burns and provide advice on burn planning (as needed). Data collected to determine weed cover does not increase in burnt areas compared to unburnt areas											
			Ecologist to undertake GSM surveys during flight season at end of Years 1,3,5,7,9. Data collected consistently to determine improvement in GSM breeding population		**(summer 2020/21)**		**(summer 2022/23)**		**(summer 2024/25)**		**(summer 2026/27)**		**(summer 2028/29)**	
15	**Trust for Nature routine inspections**													
	Years 1, 3, 7 and 10 with at least one visit in spring	TfN will visit the Offset area a minimum of four times over the 10 year management period	Provide advice to landholder, ensure covenant is compliant											
16	**Reporting**													
	Ecological monitoring report - 15th January Landholder annual report - anniversary of OMP	Ecologist to prepare report and supply to Landholder and DJCS prior to start of grazing period each year	Ecologist to prepare report on ecological monitoring and planned burn advice as detailed above.											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
		Landholder to supply annual report to DJCS and TfN	Landholder to prepare annual report on based on records of works undertaken and routine inspections.											
		DJCS to supply all reports to DoEE in fulfilment of approval conditions	Report must demonstrate progress of offset area has been tracked regularly each year over the 10 year management period											
17	**Emergency management**													
	Immediately as needed	Landholder to report any incidents that could threaten NTGVVP or GSM to TfN with 24 hours	Identify and respond to emergency events according to Warrambeen emergency management plan											
		Landholder to report any incidents that could threaten NTGVVP or GSM to DJCS and DoEE within 5 days	Report any incidents that could threaten NTGVVP or GSM to TfN with 24 hours (03) 8631 5888											
			Report any incidents that could threaten NTGVVP or GSM to DJCS and DoEE within 5 days post.approvals@environment.gov.au											
18	**Years 11+: Maintain an annual works plan as above for the ongoing maintenance of the condition**													**Start in Year 11**
	Year 11 onwards	Landholder to maintain condition achieved at the end of Year 10	Develop annual works plan to ensure management actions continue to adapt to current conditions for weeds, pest animals and biomass control.											
		Landholder to consult with TfN periodically to discuss effectiveness of on-going management	• Maintain fencing and signage.											
			• Continued protection of herb diversity and native tussock grass structure.											
			• Woody weeds maintained at <1% cover with no adult plants											
			• Cover of herbaceous weeds does not increase beyond levels achieved at Year 10											
			• Pest animals do not increase beyond levels achieved at Year 10											
			• Biomass is maintained to achieve >20 to 40% bare ground											
			Seek advice from TfN, CMA, ecologist or other contractor, if necessary											
19	**Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency.**													
	As needed	Landholder to Identify any incidents or ineffective management actions and revise OMP where these can't be addressed within adaptive management provisions	Revise OMP to address changed circumstances (e.g. wildfire), ineffective management actions or new research											
		DJCS to respond to any plan review request from DoEE	Apply to DoEE post-approvals to update OMP											
			Ensure OMP remains affective over time											

Appendix 2 DoEE Risk matrix

A4.1 Risk Framework

		Consequence				
		Minor	Moderate	High	Major	Critical
Likelihood	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

A4.2 Likelihood

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after **management actions** have been put in place/are being implemented	
Highly Likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely
Rare	May occur in exceptional circumstances

A4.3 Consequence

Qualitative measure of consequences (what will be the consequence / result if the issue does occur)	
Minor	Minor **Incident** of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive effort
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Appendix 3 Flora species recorded in 2018

Notes to tables:

EPBC Act: CR - Critically Endangered EN - Endangered VU - Vulnerable PMST – Protected Matters Search Tool	**DEPI 2014a:** e - endangered v - vulnerable r - rare k - poorly known
FFG Act: L - listed as threatened under FFG Act P - protected under the FFG Act (public land only)	**Noxious weed status:** SP - State prohibited species RP - Regionally prohibited species RC - Regionally controlled species R - Restricted species # - Native species outside natural range

A3.1 Flora species recorded from the Offset area

Note that this list is for information purposes only, it is not an exhaustive list of all species that currently occur within the **Offset area** or may occur in the future. Weed monitoring should include the possibility of new species entering the **Offset area** that are not listed in the table below.

Table A3.1 Flora species recorded from the study area

Status	Scientific Name	Common Name
Indigenous species		
	Acaena echinata	Sheep's Burr
	Anthosachne scabra s.s.	Common Wheat-grass
	Arthropodium strictum s.s.	Chocolate Lily
	Asperula conferta	Common Woodruff

Status	Scientific Name	Common Name
	Austrostipa spp.	Spear Grass
P	*Calocephalus citreus*	Lemon Beauty-heads
	Carex inversa	Knob Sedge
P	*Cheilanthes austrotenuifolia*	Green Rock-fern
P	*Chrysocephalum* sp. 1	Plains Everlasting
	Convolvulus angustissimus subsp. *angustissimus*	Blushing Bindweed
k	*Convolvulus angustissimus* subsp. *omnigracilis*	Slender Bindweed
L, P, e	*Cullen parvum*	Small Scurf-pea
	Dichondra repens	Kidney-weed
	Drosera aberrans	Scented Sundew
	Eryngium ovinum	Blue Devil
P	*Euchiton japonicus* s.s.	Creeping Cudweed
	Geranium retrorsum s.s.	Grassland Crane's-bill
	Goodenia pinnatifida	Cut-leaf Goodenia
	Hydrocotyle sibthorpioides	Shining Pennywort
	Juncus sp. (subgenus Genuini)	Rush
	Juncus subsecundus	Finger Rush
P	*Leptorhynchos squamatus*	Scaly Buttons
	Lobelia pratioides	Poison Lobelia
	Lomandra filiformis	Wattle Mat-rush
	Melicytus dentatus s.s.	Tree Violet
	Microlaena stipoides var. *stipoides*	Weeping Grass
	Oxalis perennans	Grassland Wood-sorrel
	Pauridia glabella var. *glabella*	Tiny Star
CR, L, P, e	*Pimelea spinescens* subsp. *spinescens*	Spiny Rice-flower
	Plantago gaudichaudii	Narrow Plantain
	Poa labillardierei	Common Tussock-grass
	Poa morrisii	Soft Tussock-grass
	Poa rodwayi	Velvet Tussock-grass
	Poa sieberiana	Grey Tussock-grass
	Rumex brownii	Slender Dock
	Rumex dumosus	Wiry Dock
	Rytidosperma spp.	Wallaby Grass
	Schoenus apogon	Common Bog-sedge

Status	Scientific Name	Common Name
P	*Solenogyne dominii*	Smooth Solenogyne
	Themeda triandra	Kangaroo Grass
	Tricoryne elatior	Yellow Rush-lily
	Veronica gracilis	Slender Speedwell
	Wahlenbergia communis s.s.	Tufted Bluebell
	Wahlenbergia luteola	Bronze Bluebell
	Wahlenbergia multicaulis	Branching Bluebell
Introduced species		
	Acetosella vulgaris	Sheep Sorrel
	Agrostis capillaris	Brown-top Bent
	Arctotheca calendula	Cape Weed
	Briza maxima	Large Quaking-grass
	Bromus hordeaceus subsp. *hordeaceus*	Soft Brome
RR	*Carthamus lanatus*	Saffron Thistle
RR	*Cirsium vulgare*	Spear Thistle
	Cynosurus echinatus	Rough Dog's-tail
	Dactylis glomerata	Cocksfoot
	Erodium botrys	Big Heron's-bill
	Hypochaeris radicata	Flatweed
	Leontodon taraxacoides subsp. *taraxacoides*	Hairy Hawkbit
RC	*Lycium ferocissimum*	African Box-thorn
RC	*Marrubium vulgare*	Horehound
RC	*Nassella trichotoma*	Serrated Tussock
	Phalaris aquatica	Toowoomba Canary-grass
	Plantago coronopus	Buck's-horn Plantain
	Prunus cerasifera	Cherry Plum
RC	*Rosa rubiginosa*	Sweet Briar
	Rumex crispus	Curled Dock
	Trifolium angustifolium var. *angustifolium*	Narrow-leaf Clover
	Trifolium subterraneum	Subterranean Clover
	Vulpia spp.	Fescue
RC	*Xanthium spinosum*	Bathurst Burr

Appendix 4 Quality scoring methods

NTGVVP

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average **Quality** for the whole area. Habitat Hectares is easily converted to a score out of 10 as shown in the Table below. The NTGVVP **Quality** scoring method was used to obtain the **Quality** score of the **Offset area** in the Offsets Assessment Guide and should be replicated to determine the final **Quality** score. Where the score is a decimal, it is rounded to the nearest whole number for entry into the Offsets Assessment Guide. Scores with a decimal place value of less than 0.5 are rounded down, scores with a decimal place value of 0.5 or above are rounded up.

Table A5.1 Habitat Hectares score conversion to Quality score out of 10

Parameter	COMPonents measured	Max. Habitat Hectares score	Equivalent Quality score
Site context	Number of species, cover and diversity of lifeforms Percentage of weed cover moderated by percentage of high threat weed cover Percentage of recruitment area scaled by herb diversity Percentage cover of organic litter scaled to litter type (native/non-native)	75/100	7.5/10
Site condition & stocking rate equivalent	Size of patch Neighbourhood measured as percentage of surrounding area Distance to large areas of native vegetation (>50 ha)	25/100	2.5/10
Total score		100/100	10/10

GSM habitat

Quality improvement will be measured using the **NTGVVP** results for site score described above and the results of targeted surveys for **GSM**.

The scoring methods used to obtain the **Quality** score of the **Offset area** in the Offsets Assessment Guide is shown in Table xx and should be replicated to determine the final **Quality** score.

TableA5.2 GSM habitat Quality scoring system as advised by DoEE (pers. comm. 2019)

Parameter	Scoring system
Site context (max. 3 points)	• 0/3 = Habitat patch[1] size <0.25 ha.[2] • 1/3 = Habitat patch size more than 0.25 ha and up to 10 ha.[2] • 2/3 = Habitat patch size more than 10 ha, shaped appropriately[3] to reduce edge effects.[2] • 3/3 = Habitat patch size more than 10 ha, shaped appropriately to reduce edge effects, slightly sloped (3° or less) and north-facing, minimal shading.
Site condition (max. 3 points)	• 0/3 = dominated by introduced vegetation that is not a known food source. • 1/3 = dominated by poor condition native vegetation (VQA site condition score up to 30/75) including <20% cover known food source, or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate[4] is less than 20 moths per hectare. • 2/3 = dominated by moderate condition native vegetation (VQA site condition score 31-45/75) including between 20% and 40% cover known food source with limited inter-tussock space (<5%), or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate[4] is greater than 20 moths per hectare. • 3/3 = dominated by high conservation value native vegetation (VQA site condition score 46+/75) including >40% cover known food source and appropriate inter-tussock space.
Species stocking rate4,5 (max. 4 points)	• 0/4 = species not present • 1/4 = 0-5 males per hectare • 2/4 = >5-20 males per hectare • 3/4 = >20-50 males per hectare • 4/4 = >50 males per hectare
Total (out of 10)	

[1]A patch is considered to be an area of **GSM habitat** separated from other areas of suitable habitat by >200m of unsuitable habitat, or barriers to flight (e.g. buildings, solid fences). A habitat patch should not be defined by administrative boundaries such as farm fencing, title or lot boundaries if habitat is continuous on either side of the boundary. According to the guidelines, if the amount of **GSM habitat** adjoining the site of the action cannot be determined, the area of habitat will be considered to be the same as that identified within the site.

[2]Add 1 point (up to a maximum of 3) where a patch is an occupied linkage between 2 populations.

[3]Assessed on a case by case basis.

[4]Stocking rate (measured as males per hectare) calculated as: total number of males recorded across four surveys in one flight season divided by area of habitat surveyed (with survey area confirmed with GPS tracks). It is not expected that results can be extrapolated across unsurveyed areas unless justification is given (e.g. the surveyed area is a sub-sample of the total area). Stocking rate calculations to be rounded up if required.

[5]It is expected that impact and offset sites to be surveyed on four occasions during the flying season and the survey results to be summed (consistent with survey guidelines). Justification will need to be provided to the Department to support proceeding in the absence of suitable survey effort.

For clarity, if lower survey effort than four complete surveys is accepted, the Department will consider:

- For impact sites: the highest recorded density is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 15 males/ha).
- For offset sites: the lowest record is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 5 males/ha).

For either type of site, if one survey records 5 males/ha, then assumed total of four surveys is 20 males/ha.

Appendix 5 Glossary of terms

Benchmark*

A standard vegetation –quality reference point, dependent on vegetation type, which is applied in Habitat hectare assessments. Represents the average characteristics of a mature and apparently long undisturbed state of the same vegetation type.

Biodiversity*

The variety of all life forms, the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part.

Bioregion*

Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values. A landscape based approach to classifying the land surface using a range of environmental attributes such as climate, geomorphology, lithology and vegetation.

BushBroker

A program coordinated by DELWP to match parties that require native vegetation offsets with third party suppliers of native vegetation offsets.

Ecological vegetation class (EVC)*

A native vegetation type classified on the basis of a combination of its floristic, life form, environmental and ecological characteristics.

EPBC Act

Environmental Protection and Biodiversity Conservation Act 1999

Gain

Predicted improvement in the contribution to Victoria's biodiversity achieved from an offset, calculated by combining site gain with the strategic biodiversity score or habitat importance score of the site. Gain is measured with biodiversity equivalence scores or units.

Habitat hectares*

Combined measure of condition and extent of native vegetation. This measure is obtained by multiplying the site's condition score (measured between 0 and 1) with the area of the site (in hectares).

Habitat score*

The score assigned to a habitat zone that indicates the quality of the vegetation relative to the ecological vegetation class benchmark – sum of the site condition score and landscape context score, usually expressed as a percentage or on a scale of 0 to 1.

Habitat zone*

A discrete area of native vegetation consisting of a single vegetation type (EVC) within an assumed similar quality. This is the base spatial unit for conducting a Habitat hectare assessment. Separate *Vegetation Quality Assessments* (or Habitat hectare assessments) are conducted for each habitat zone within the designated assessment area.

Indigenous vegetation*

The type of native vegetation that would have normally been expected to occur on the site prior to European settlement.

Offset*

Protection and management (including revegetation) of native vegetation at a site to generate a gain in the contribution that native vegetation makes to Victoria's biodiversity. An offset is used to compensate for the loss to Victoria's biodiversity from the removal of native vegetation.

Offset Management Plan (OMP)

A document which sets out the requirements for establishment, protection and management of an offset site.

Site

An area of land that contains contiguous patches of native vegetation or scattered trees, within the same ownership.

Site gain

Predicted improvement in the condition, or the condition and extent, of native vegetation at a site (measured in Habitat hectares) generated by the landowner committing to active management and increased security.

Recruitment*

The production of new generations of plants, either by allowing natural ecological processes to occur (regeneration etc.), by facilitating such processes such as regeneration to occur, or by actively revegetating (replanting, reseeding). See Revegetation.

Remnant vegetation*

Native vegetation that is established or has regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance such as some clearing or cultivation (or even the activities of the nineteenth century gold rushes) but do not include man-made structures such as dam walls and quarry floors.

Understorey*

Understorey is all vegetation other than mature canopy trees – includes immature trees, shrubs, grasses, herbs, mosses, lichens and soil crust. It does not include dead plant material that is not attached to a living plant. More information on understorey life forms is set out in the Vegetation Quality Assessment Manual (DSE 2004).