

A wide-angle landscape photograph showing a vast, flat field of dry, golden-brown grass. In the distance, a line of trees is visible against a pale, overcast sky. A large, rounded hill or mound is partially visible in the upper left background. The bottom of the image is overlaid with a teal and green graphic design consisting of curved shapes and white lines.

210 – 238 Maidstone Street Industrial Subdivision:
Offset Management Plan for the external offset
at Terrinallum South, 833 Pura Road, Darlington

Final Plan

Prepared for Maidstone Street Joint Venture

13 October 2015

AUSTRALIAN CAPITAL TERRITORY
Canberra

Floor 1, Unit 3, 38 Essington Street
Mitchell ACT 2911

Phone: (02) 6102 1200

Email: canberra@biosis.com.au

NEW SOUTH WALES
Newcastle

39 Platt Street
Waratah NSW 2298

Phone: (02) 4968 4901

Email: newcastle@biosis.com.au

Sydney

Unit 14, 17-27 Power Avenue
Alexandria NSW 2015

Phone: (02) 9101 8700

Email: sydney@biosis.com.au

Wollongong

8 Tate Street
Wollongong NSW 2500

Phone: (02) 4201 1090

Email: wollongong@biosis.com.au

TASMANIA
Hobart

Unit 2/2 Gore Street
South Hobart TAS 7004

Phone: (03) 8686 4800

Email: tasmania@biosis.com.au

QUEENSLAND
Brisbane

Suite 4 First Floor, 72 Wickham Street
Fortitude Valley QLD 4006

Phone: (07) 3831 7400

Email: brisbane@biosis.com.au

VICTORIA
Ballarat

506 Macarthur Street
Ballarat VIC 3350

Phone: (03) 5304 4250

Email: ballarat@biosis.com.au

Melbourne (Head Office)

38 Bertie Street
Port Melbourne VIC 3207

Phone: (03) 8686 4800

Fax: (03) 9646 9242

Email: melbourne@biosis.com.au

Wangaratta

16 Templeton Street (PO Box 943)
Wangaratta VIC 3677

Phone: (03) 5721 9453

Email: wangaratta@biosis.com.au

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Prepared by: Steve Mueck

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Maidstone Street Offset Plan

Planning Permit Number (ID): PA1224236 A (Hobsons Bay Planning Scheme)

Proponent: Maidstone Street Joint Venture

Address: 774 Toorak Road Glen Iris, Victoria, 3146

Landowner and Permit Holder Statement

Permit Holder

Print Name:

Signature:

Date: 2015

Landowner of Offset Site(s)

Print Name: Tom Lewis Calvert and Kate Alexandra Calvert

Signature:

Date: / /2015

Referral Authority Statement

The native vegetation credits described in this plan provide an offset for the removal of native vegetation specified in this plan to the satisfaction of the Department of Environment, Land, Water and Planning.

Print Name:

Position:

Department of Environment, Land, Water and Planning

Date: / /2015

Referral Authority Statement

The Natural Temperate Grassland of the Victorian Volcanic Plain and occupied habitat for Golden Sun Moth described in this plan provides an offset for the removal of these Matters of National Environmental Significance specified in the approval for Referral EPBC 2011/1167 to the satisfaction of the Minister administering the EPBC Act.

Print Name:

Position:

Department of the Environment

Date: / /2015

Responsible Authority Approval

This Offset Plan has been approved by City of Hobsons Bay. This Offset Plan is now endorsed and forms part of Planning Permit No: PA1224236 A

Print Name:

Position:

Responsible Authority: City of Hobsons Bay

Signature:

Date: / / 2015

Date of Commencement:

No modification variation or amendment of this Offset Plan agreed upon by the parties shall be of any force or effect unless such modification, variation or amendment is in writing and has been executed by all parties.

This plan comes into effect as of _____ 2015.

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Summary

Biosis Pty. Ltd. was commissioned by Maidstone Street Joint Venture to prepare an Offset Management Plan (OMP) for a section of Terrinallum South, a pastoral property at 833 Pura Road, Darlington in western Victoria. The section assessed was part of the land referred to in Certificate of Title Volume 8434 Folio 127 (the offset area). The property is currently owned by Tom Lewis Calvert and Kate Alexandra Calvert.

The offset area meets the quantity and quality requirements for offsets prescribed in association with approval EPBC 2011/6057 issued by Department of the Environment (DoE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Planning Permit PA1224236 A issued by Hobsons Bay City Council. These offsets include:

- 12.35 ha of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP);
- Habitat for and a confirmed population of Golden Sun Moth (GSM); and
- an Allocated Credit Extract issued by the Department of Environment, Land, Water and Planning (DELWP) Native Vegetation Credit Register amounting to an external offset of 3.39 habitat hectares

Specifically this plan addresses the approval under the EPBC Act for the industrial and commercial development at 210–238 Maidstone Street Altona as outlined under referral 2011/6057. Under the conditions of approval, Condition 3a is relevant to the offsets provided. This condition reads as follows:

At least 3 months prior to the commencement of construction, the person taking the action must submit to the minister for approval a biodiversity offset package that must address the following:

a. Ensure that at least 12.35 ha of land corresponding to NTGVVP and that provides habitat for the GSM, including confirmed presence of GSM, of equal or higher quality to that identified in Condition 1, is protected and managed in perpetuity (known as the Offset Area).

The conditions provided under this approval and the relevant sections of this plan that address these conditions are outlined in **Table A** below.

Table A: Condition of approval under Referral 2011/6057 and relevant sections of the plan that address these conditions.

Condition	Relevant Section of this OMP
1	Section 2.2, Table 1
2	Section 2.4, Table 2
3a	Section 2.4, Table 2 and the OMP as a whole
3a	Section 2.4.1
3a	Section 2.4.1 and Figure 3

This OMP requires that some land use rights are relinquished and that management actions have the primary objective aimed at the conservation and improvement of defined areas of NTGVVP. The management outline in this plan considers key management issues identified for this EPBC Act listed community.

The offset area will be protected with a Trust for Nature covenant under the *Victorian Conservation Trust Act 1972*.

This OMP details the management actions to achieve the habitat improvement gains required over a ten year period. Gains generated by the protection and management of the offset area are summarised in the table below. These are described in more detail throughout the OMP.

The responsibility of vegetation management works lies with the offset land owner with assistance from Trust for Nature (Victoria) (TfN).

The land owner will report annually over the initial 10 year management period to TfN regarding the progress of management works and will liaise with TfN to develop annual works plans for each coming year.

A qualified ecologist will be engaged by the land owner to monitor the implementation of the offset management plan and to produce a report on the condition of the offset management site to be provided to the TfN at the end of years 2, 5 and 10.

As a primary function of the offset area is to provide an offset under the EPBC Act Environmental Offsets Policy for impacts to GSM, monitoring of the occurrence of this species within the offset site is required, with monitoring reports submitted to both TfN and DoE. As the species is known to occur at the offset site and active management is expected to improve the condition of this habitat, monitoring the population of GSM during the first flight season after the commencement of this OMP and then in years 4 and 10 is considered appropriate.

Trust for Nature will review any ecological monitoring and management work reports and provide feedback to the land owner with regard to their performance of meeting the requirements of the OMP.

The offset site will be permanently protected and the quality of the site maintained by the land owner in perpetuity, to the standards reached at the end of the 10 year management period covered by this OMP. The condition of the offset site at the end of the ten year period outlined by this OMP will be described in a report prepared by a qualified ecologist. This report will include recommendations for the ongoing management of the offset site.

Funding for implementation of the management actions outlined in this OMP has been agreed between the land owner and Maidstone Street Joint Venture. Funding will be held by the TfN and paid to the land owner over the 10 year management period as per the land owner agreement. This will include agreed funding for anticipated ongoing management required to maintain the offset site in perpetuity, beyond the initial 10 year management period.

Summary Table

Management issues	Actions
Ongoing offset security	<ul style="list-style-type: none"> • Covenant under the <i>Victorian Conservation Trust Act 1972</i>.
Survey and monitoring	<ul style="list-style-type: none"> • Ecological monitoring of vegetation condition by a qualified ecologist (Section 3.7) in years 2, 5 and 10. • Supervision and monitoring of site management by the Trust for Nature (Section 3.7). • Monitoring and reporting on GSM population at commencement (year 0) and then in years 1, 2, 4 and 10 (Section 3.8). • Results of GSM monitoring surveys will be compared to baseline survey data collected during the first monitoring event.
Grazing	<ul style="list-style-type: none"> • Maintaining inter-tussock spaces through prescribed biomass control works predominantly through the use of pulse grazing (Section 3.5.4). • Sheep grazing regime using high number of sheep over a short period with the objective of managing total plant biomass. Exclude all domestic stock grazing between October 1st and January 15th (Section 3.5.4). • The permanent removal of existing rights to graze any domestic stock with the exception of sheep and cattle. Grazing by horses, goats and other domestic stock will be excluded by the covenant (Section 3.5.4).
Fire	<ul style="list-style-type: none"> • Undertake ecological burning, if and when appropriate, to reduce biomass and promote species diversity of grassland forbs, as described in this plan and in accordance with required safety procedures and assessment (Section 3.5.4). No burns can be carried out between 1 October and 15 January to avoid impacts to GSM.
Soil disturbance	<ul style="list-style-type: none"> • Control pest animals such as rabbits, hares and foxes to a standard exceeding existing legal requirements (Section 3.5.3). • Restrict site access by maintenance of fencing and gates (Section 3.5.1). (note the control provided by fencing of the broader paddock is acceptable, given the other constraints of this omp can be met).
Exotic plant invasion / Herbicide application	<ul style="list-style-type: none"> • Undertake weed control works to prevent any expansion of grassy and herbaceous weed cover. All woody weeds will be eliminated (<1% cover) (Section 3.5.2, Table 3); • Engage a qualified vegetation management contractor with experience in grassland vegetation to use herbicide for weed control where required. Exclude herbicide application outside of these works. • Target the control of existing high threat weeds as well as any future high threat weeds which may colonise the site (Table 3).
Fertiliser addition	<ul style="list-style-type: none"> • Prevent application of any fertiliser and prevent exotic pasture improvement activities (Section 3.3 and 3.4).

1. Introduction

1.1 Project Background

Biosis Pty Ltd was commissioned by Maidstone Street Joint Venture to prepare an Offset Management Plan (OMP) for land to be protected and managed as an external offset for the development of an industrial subdivision at 210–238 Maidstone Street, Altona, Victoria (Figure 1).

The approval for this industrial subdivision under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Referral 2011/6057) identifies a requirement to protect 12.35 ha of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) which supports a known population of Golden Sun Moth *Synemon plana* (GSM).

A Planning Permit issued by the City of Hobsons Bay is also current for the industrial subdivision (PA1224236 A). This permit identifies an offset requirement to provide a gain in the condition of the ecological vegetation class (EVC) Plains Grassland (EVC 132) equivalent to 3.39 habitat hectares of Very High conservation significance.

Both the Planning permit and the EPBC Act approval require on-site offsets for NTGVVP and GSM in the form of the retention and management of a 1.73 ha conservation reserve.

The required external offsets were identified at Terrinallum South, a pastoral property at 833 Pura Road, Darlington in western Victoria (Figure 2). The section identified was part of the land referred to in Certificate of Title Volume 8434 Folio 127 (the offset area, Figure 3). The property is currently owned by Tom Lewis Calvert and Kate Alexandra Calvert. This 12.35 ha external offset area can provide both the habitat hectare offsets and the EPBC Act requirements concurrently.

An ecological assessment of the relevant section of Terrinallum South, including a habitat hectare assessment, is documented by Biosis (2015). That report identifies the condition and extent of native vegetation, including areas of NTGVVP (Figure 3). The presence of GSM was confirmed by surveys completed by Plume Ecology (2015) and the observations of the land owner (Tom Calvert pers. comm.).

Management of the external offset area will involve the protection and active ecological management of 12.35 ha of high quality remnants of Plains Grassland (EVC 132) which also correspond to the EPBC Act listed community NTGVVP (Figure 3).

Terrinallum South is within the Victorian Volcanic Plain (VVP) bioregion (www.delwp.vic.gov.au).

1.2 Objectives

The objectives of this plan are to:

- Identify 12.35 ha within Terrinallum South (parts of Lots 1, 2 & 10 of TP320279C at 833 Pura Road, Darlington) that is nominated as an offset site under the EPBC Act, and:
 - Provide an offset plan to the satisfaction of Department of the Environment (DoE) and Trust for Nature (TfN);
 - To contribute a vegetation 'gain' in accordance with the principles of Victoria's Native Vegetation Management Framework (NRE 2002);

- To contribute a vegetation 'gain' that is consistent with the appropriate management of GSM habitat (Biosis Research 2011);
- To contribute a gain in the protection of habitat for GSM in a manner consistent with the EPBC Act Environmental Offsets Policy; and
- Identify the necessary management actions to protect and improve the quality of NTGWV and fauna (GSM) habitat within the offset site.

2. Part A: Offset Suitability

2.1 Clearing Site Details

Landowner of clearing site	Maidstone Street Joint Venture Pty Ltd
Location and address of clearing site	210 – 238 Maidstone Street Altona 3018
Local Government Area	City of Hobsons Bay
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
Permit applicant	Maidstone Street Joint Venture Pty Ltd
Planning Permit Number (ID)	PA1224236 A
Date Approved	/2015

2.2 Vegetation Approved for Removal

Vegetation removal has been approved under Permit PA1224236 A. Vegetation proposed for removal is described in the biodiversity assessment prepared by BL&A (2012) and provided below in Table 1. A total of 3.48 ha (1.97 habitat hectares) of native vegetation have been approved for clearing.

2.3 Offset Targets

Vegetation offset requirements are documented by the approval for EPBC 2011/6057 and Planning Permit PA1224236 A.

Offsets external to the development site prescribed under the EPBC Act amount to the protection and management of 12.35 ha of NTGVVP which also provides GSM habitat with the confirmed presence of GSM.

Offsets external to the development site prescribed under Planning Permit PA1224236 A amount to the protection and management of an area of Plains Grassland (EVC 132) which would generate an offset (DSE 2006) amounting to 3.39 habitat hectares (hha).

Note that where a site satisfies the criteria for offsets prescribed under both state and federal legislation then one site can provide those offsets concurrently.

This plan outlines the location of the prescribed external offset site, the condition of the native vegetation to be protected, the management actions required to be implemented and the condition targets for that vegetation at the end of the ten year management period.

Table 1: Summary of proposed losses of native vegetation at 210 – 238 Maidstone Street

Habitat Zone		1		
EVC #: Name		Plains Grassland 132		
		Max Score	Score	
Site Condition	Large Old Trees	10	na	
	Canopy Cover	5	na	
	Lack of Weeds	15	9	
	Understorey	25	15	
	Recruitment	10	6	
	Organic Matter	5	5	
	Logs	5	na	
	Total Site Score		35	
	Standardised Site Score (x75/55)		47.72	
Landscape Value	Patch Size	10	6	
	Neighbourhood	10	2	
	Distance to Core	5	1	
	Total Landscape Score		9	
HABITAT SCORE		100	57	
Habitat points = #/100		1	0.57	
Habitat Zone area (ha)			3.48	
Habitat Hectares (Hha)			1.97*	
Number of Spiny Rice-flower present			3	

* Note to Table: Numbers are only rounded in the result of the final calculation

2.4 Description of the Terrinallum South Offset Site

The external offset area (12.35 ha) is located in parts of Lots 1, 2 & 10 of TP320279C, 833 Pura Road, Darlington. The site is located approximately 6 km north of Darlington and approximately 25 km north east of Mortlake (Figure 2). It encompasses 12.35 ha of private land and is currently zoned for farming and is not covered by any overlays relating to biodiversity or inundation. The land is managed by Tom Lewis Calvert and Kate Alexandra Calvert who also hold broader areas of farmland in this area. The site is currently used for grazing domestic stock.

The offset area assessed is part of a broader, approximately 200 ha parcel (Figure 3). This parcel is largely dominated by Plains Grassland (EVC 132) and Plains Grassy Wetland (EVC 125) in relatively uniform condition. Both EVCs are endangered within the Victorian Volcanic Plain (VVP) bioregion. Areas of Plains Grassland and Plains Grassy Wetland also fit the definition criteria of the EPBC Act listed threatened community Natural Temperate Grassland of the VVP. The broader paddock is fenced to control stock movements between the balance of Terrinallum South and other adjacent properties.

The proposed offset area (the area subject to this OMP) occurs in the south of this broader parcel of land (Figure 3). The offset area consists of two parcels of land. The eastern portion supports one habitat zone (HZ1) while the western portion supports two habitat zones. All three zones will be managed to provide the

external offsets prescribed for development of the Maidstone Street industrial subdivision (Referral 2011/6057, PA1224236 A).

A detailed description of the flora and habitat hectare values within the proposed offset area is included in Biosis (2015) which identifies a total of 27 indigenous and 23 introduced plant species. This species list is included in Appendix 1. More indigenous and weed species are likely to be present as seasonal conditions and survey intensity typically prevent the detection of all species present within a defined area.

While this report focuses on the nominated offset area, past inspections by other consultants indicate that the paddock also supports a variety of native vegetation communities (EHP undated and BL&A 2013).

The study area has never been cultivated or subject to pasture improvement or intensive fertiliser application. However, at present pasture improvement activities and fertiliser application remain existing rights for this land.

NTGVVP

A description of the NTGVVP present within the proposed offset area (Figure 3) is as follows:

Habitat Zone 1 was characterised by a dense ground cover of Kangaroo Grass with lesser occurrences of Grey Tussock-grass *Poa sieberiana*, wallaby-grasses *Rytidosperma* spp., spear-grasses *Austrostipa* spp. and to a lesser extent Common Tussock-grass *Poa labillardierei*. The forb component of the grassland was species poor but typical grassland species such as Grassland Wood-sorrel *Oxalis perennans*, Lemon Beauty-heads *Calocephalus citreus*, Blue Devil *Eryngium ovinum* and Tufted Bluebell *Wahlenbergia communis* were present. Seasonally visible species such as Chocolate Lily *Arthropodium strictum* were not detected during this survey however their presence was confirmed by the landowner (Tom Calvert pers. comm.). A scattered population of Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* was recorded from this zone.

Habitat Zone 2: This area was low lying with moderate to strong gilgai structure and grey soils. The area was previously mapped as Plains Grassland with an area of Creekline Tussock Grassland running along a narrow constructed drain. Due to the low lying nature of this part of the grassland, Common Tussock Grass was more abundant. However, between these tussocks, Kangaroo Grass was still extensive and some forb species typical of wetter grasslands, including Prickfoot *Eryngium vesiculosum* and Varied Raspwort *Haloragis heterophylla*, were recorded. A scattered population of Spiny Rice-flower was recorded from this zone.

Habitat Zone 3: This area was slightly higher in elevation compared to zones 1 and 2 and included a gentle rocky slope leading down to Habitat Zone 2. This zone was more degraded in comparison to the lower lying areas of Plains Grassland however it still met the definitions of both a patch of native vegetation and NTGVVP. This area was previously mapped as Plains Grassland with a large area of Stony Knoll Shrubland mapped to the west of the proposed offset area. This area was similar in floristic composition to Habitat Zone 1 although the cover of Kangaroo Grass was lower and high threat weeds such as Toowoomba Canary-grass *Phalaris aquatica* and Spear Thistle *Cirsium vulgare* were more abundant.

The habitat scores for the three habitat zones identified are presented in Table 2.

2.4.1 Other Threatened species

Listed threatened or rare (for flora species) in Victoria are defined as those species recorded on a DELWP Advisory List (DEPI 2014) or otherwise listed under the EPBC Act.

The broader 200 ha parcel is known to support a number of threatened flora and fauna (BLA 2013) including:

- Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* (Critically Endangered in Australia)
- Fragrant Leek Orchid *Prasophyllum suaveolens* (Endangered in Australia)
- Brackish Plains Buttercup *Ranunculus diminutus* (Rare in Victoria)

- Purple Blown Grass *Lachnagrostis punicea* subsp. *punicea* (Rare in Victoria)
- Small Milkwort *Comesperma polygaloides* (Vulnerable in Victoria)
- Pale Swamp Everlasting *Coronidium gunianum* (Vulnerable in Victoria)
- Derrinallum Billy-buttons *Craspedia* sp. 2 (Endangered in Victoria)
- Salt-lake Tussock-grass *Poa sallacustris* (Vulnerable in Australia)
- Plains Yam Daisy *Microseris scapigera* (Endangered in Victoria)

The locations for Spiny Rice-flower recorded by Biosis (2015) are presented in Figure 3.

Table 2: Habitat hectares of native vegetation within the external offset area

Site ID			1	2	3	
Habitat Zone ID			A	A	A	
EVC Name			Plains Grassland	Plains Grassland	Plains Grassland	
		Max Score	Score	Score	Score	Total
Site Condition	Large Old Trees	10	NA	NA	NA	
	Canopy Cover	5	NA	NA	NA	
	Lack of Weeds	15	6	6	6	
	Understorey	25	15	15	15	
	Recruitment	10	6	6	6	
	Organic Matter	5	4	4	4	
	Logs	5	NA	NA	NA	
	Standardiser	1.36				
	Total Site Score			42.16	42.16	42.16
Landscape Value	Patch Size	10	8	8	8	
	Neighbourhood	10	4	4	4	
	Distance to Core	5	5	5	5	
	Total Landscape Score			17	17	17
HABITAT SCORE		100	59.16	59.16	59.16	
Habitat points = #/100		1	0.592	0.592	0.592	
Habitat Zone area (ha)			3.634	3.323	5.394	12.351
Habitat hectares (Hha)			2.15	1.97	3.19	7.31

The occurrence of Golden Sun Moth *Synemon plana* within the study area is documented by Plume Ecology (2015). The targeted surveys documented by that report identified 493 sightings of GSM within the broader 200 ha paddock supporting the offset site including one record from within the offset site. The lack of more records within the offset site relates to the surveys being targeted to land to the north of the offset site rather than the presence of unsuitable habitat.

2.5 Like for Like Criteria

The offset site is located in the VVP Bioregion and is part of a large consolidated area of Plains Grassland (EVC 132). The proposed habitat hectare offsets are of the same or greater than the conservation significance as the loss zones and meet all the like-for-like criteria as specified in Appendix 4, Table 6, pp.54-55 of Victoria's Native Vegetation Management: A Framework for Action (NRE 2002).

This includes requirements relating to the offset EVC (both the loss and gain related to EVC 132), conservation significance (the patches of native vegetation from both the loss and gain site are of Very High conservation significance), condition thresholds of the offset vegetation (the vegetation of the offset site has a habitat score (59/100) more than 90% of the habitat score for the vegetation approved for clearing (57/100)).

Both the approved clearing and the offset site are within the Victorian Volcanic Plain bioregion.

2.6 Gains Available within the Offset Site – 833 Pura Road, Darlington

The extent and condition of native vegetation within the proposed offset site is documented in Table 2. As all habitat zones identified achieved the same habitat score a single gain score was calculated. The output from the DELWP net gain calculator is provided in Appendix 2. The calculations assume the application of a registered on-title agreement to protect the offset site which provides a security gain of 10%.

The 12.35 ha external offset site has the potential to generate 4.27 habitat hectares (hha) of Very High conservation significance Plains Grassland (EVC 132) within the Victorian Volcanic Plain bioregion.

2.7 Allocation of Native Vegetation Gains

The Terrinallum South offset site has the ability to generate a gain of 4.27 hha. This is greater than the prescribed offset of 3.39 hha identified under Planning Permit PA1224236 A. Maidstone Street Joint Venture proposes to have the offset site registered on the Native Vegetation Credit Register to the extent where it provides the gain of 3.39 hha prescribed by the planning permit.

3. Part B: Offset Implementation – 833 Pura Road, Darlington

3.1 Offset Site Details

Landowner of offset site	Tom Lewis Calvert and Kate Alexandra Calvert
Type of offset (onsite, 3rd party)	3rd party
Location and address of offset site	833 Pura Road, Darlington 3271
Area of offset site (ha)	12.35 ha
Offset site number (if applicable)	Not Applicable
Volume	8434
Folio	127
Parish	Jellalabad
Allotment	Parts of Lots 1, 2 & 10
Local Government Area	Moyne Shire
Responsible Authority	Department of Environment, Land, Water and Planning
Bioregion	Victorian Volcanic Plain

3.2 Strategy for Offset Site

The offset site is to be secured and managed for the purposes of conservation in perpetuity. This offset area is a smaller component of a larger area of native grassland which will be managed in a sympathetic manner on a voluntary basis. While it is the current land owner's objective to seek more formal agreements to protect the balance of this area of native grassland there is no requirement for such an outcome.

3.3 Offset Security and Management Responsibility

Who is liable/responsible for meeting offset requirements?	Maidstone Street Joint Venture Pty Ltd
Type of security	Covenant under the <i>Victorian Conservation Trust Act 1972</i>
Date 10-year offset management to commence	___/___/2015
Date 10-year offset management expires	___/___/2025
Date agreement registered on-title	___/___/2015
Offset site management responsibility (i.e. Landowner)	Tom Lewis Calvert and Kate Alexandra Calvert
Offset Monitoring Responsibility (i.e. Responsible Authority)	Trust for Nature

An offset site must be protected in perpetuity to qualify as an offset site. The offset area (Figure 3) within the Pura Road property will be secured in-perpetuity through a TfN covenant. The encumbrance registered on title will require the landholder to manage the land in accordance with this OMP for 10 years.

3.4 Ongoing Land-use Commitments

The offset site will be managed for an improvement in quality over 10 years. After this period of management, the land will be required to be maintained in the condition achieved as a result of that management, in perpetuity. The deed will specifically state the in-perpetuity land-use commitments across the site are to:

- Retain and manage all native vegetation as directed by this offset management plan;
- Exclude domestic stock except as permitted by the Trust for Nature covenant;
- Exclude the use of stock food such as hay or grain that is sourced from outside the offset area;
- Eliminate any woody weeds (to <1% cover) and ensure that the cover of other high threat weeds does not increase beyond levels achieved at Year 10 of management;
- Ensure that pest animals are controlled to the level attained at the completion of Year 10 of management.
- Exclude pasture improvement and fertilizer application;
- Control the accumulation of ground cover biomass through either the controlled grazing of sheep/cattle or the controlled application of fire: and
- Maintain a progressive annual works plan which caters to current conditions and prescribes ongoing management with maintenance of the native grassland community as its primary objective.

Implementation of this management plan is the overall responsibility of the land owner (Tom and Kate Calvert). However, direct management responsibility may be delegated to a designated site manager and/or managing ecologist. The land owner is responsible for engaging a qualified ecologist to conduct monitoring (Section 3.7) with reports submitted by the landowner to TfN, Maidstone Street Joint Venture (MSJV), DoE and as appropriate to DELWP. Management actions by the land owner will be overseen by the TfN as part of the legal protection over the site.

TfN is responsible for:

- Undertaking site inspections at least 4 times over the 10 year management period and provide input into the annual works program.
- Review of ecological monitoring reports including an assessment of targets achieved.
- Reporting to DELWP (as required).

Implementation of the management plan will be monitored by the TfN. TfN will verify that the actions have been carried out appropriately.

Implementation of the plan will begin upon registration of the covenant.

Implementation of the legal protection to improve site security yields a security gain of 10% of the current habitat score for the offset site (DSE 2007). This has been incorporated in the offset credits outlined in Section 2.5.

Funding for implementation of this OMP has been agreed between the land owner and MSJV. Where appropriate or otherwise agreed, funding will be held by the TfN and paid to the land owner over the 10 year management period as per a land owner agreement. This will include agreed funding for anticipated ongoing management required to maintain the offset site in perpetuity, beyond the initial 10 year management period.

3.5 Management Actions

The main threats to this native grassland include the existing permitted uses associated with normal farming practices such as inappropriate grazing regimes, pasture improvement and fertiliser application. Other threats include the expansion of the existing high threat weed populations, weed invasion in general, the potential for impacts by pest animals (i.e. rabbits) and the accumulation of ground cover biomass. Currently the ground cover biomass is managed through grazing by domestic stock (predominantly sheep but there are no current restrictions on what domestic stock may be grazed on site) and this is proposed to continue as a strictly controlled management practice. In addition, ecological burning guidelines have been developed and may be utilised at the discretion of the land owner in consultation with TfN.

Currently the site is not actively managed for biodiversity values and is utilised for domestic stock grazing.

The prescribed management actions outlined below are intended to achieve a conservation outcome which improves and maintains the viability of the offset site, and generates the habitat gains identified in Appendix 2. This will be achieved through active ecological management (maintenance and improvement) and permanent protection of the offset site. This OMP details the prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area identified in Figure 3.

Offsets will be achieved by:

- Maintaining the existing fencing within the broader 200 ha parcel, and limiting access to the existing access gates unless otherwise authorised by the TfN.
- Weed control through active management;
 - Eliminating all woody environmental weeds
 - Controlling high threat weeds with a view to the aims specified.
 - Controlling perennial grassy weed cover.
 - Controlling broadleaf weed cover.
- Managing organic litter (must not exceed the EVC benchmark cover of 10%);
- Biomass control through high intensity pulse grazing of domestic stock (predominantly using sheep) with grazing excluded from 1st October to 15th January inclusive (The use of cattle will not be used for ecological grazing, except where sheep are unsuitable for the initial knockdown in high biomass areas/areas containing weeds not palatable to sheep);
- Ecological burning (50% of the offset area may be burnt at least four times within the 10 year management period e.g. years 1, 4, 7 and 10. No area is to be burnt more than once every two years) (note that biomass management through ecological burning is not a compulsory component of this OMP);
- Controlling pest animals, particularly rabbits, hares, foxes and cats; and
- Managing native species understorey diversity and recruitment.

3.5.1 Fencing, information and access control

Permanent fencing able to exclude domestic stock already exists around the boundary of the broader 200 ha parcel. Additional fencing around the 12.35 ha offset area is not required as it is proposed that grazing within the entire paddock will be managed in accordance with the prescriptions outlined within this offset

management plan. Temporary fencing may be used within the offset area where negligible impacts to native vegetation associated with the placement and removal of that fencing occurs.

Additional permanent fencing is also not recommended for the following reasons: 1) to avoid the need for establishing stock water access points which will displace native vegetation, 2) to avoid funnelling of traffic through access gates and associated disturbance to soil and 3) to discourage trampling of native vegetation by stock along fence boundaries. Instead, sheep will be allowed to graze the offset area as part of the broader existing paddock structure, with limitations described in the following text.

Posts marking the boundary of the offset site will be set up to clearly identify the area for monitoring and management purposes. Posts will be located in accordance with advice from a qualified ecologist to ensure impacts to native vegetation are avoided.

Stock will be excluded from any burnt area within the offset site for at least 6 months post-burn to prevent damage to regenerating vegetation from grazing. Exclusion may involve the establishment of temporary stock fencing.

The offset area remains private property and access or disturbance to the offset site by unauthorised persons is prohibited. The existing access and security (locked gates) arrangement is adequate to service the access requirements for management of this offset area.

If existing land-use rights are to be fully exercised in the remainder of the 200 ha parcel, fencing to exclude stock from the offset site will be required.

No additional signs identifying the property as an offset site are proposed. Explicit signage may inadvertently attract undesirable impacts. However signs identifying the property as a protected area of native vegetation will be considered by the owner.

Actions

- Maintain existing fencing to control access by domestic stock to the broader 200 ha parcel and repair promptly if damage occurs.
- Exclude domestic stock from grazing any burnt area immediately prior to burning or immediately after wildfire. All domestic stock to be excluded from grazing a burnt area for a minimum of 6 months.
- Establish posts to mark the boundary of the offset site for management and monitoring purposes in accordance with advice from a qualified ecologist and land surveyor.
- Control access and any passive use to minimise impacts on native vegetation.
- Provide access for farm owned management vehicles into the offset site, using the existing access gates. No additional vehicle access is to be established without the approval of the landowner and TfN.

3.5.2 Weed control

The weed control requirements to achieve the prescribed habitat hectare gains only require woody weeds to be eliminated (these are already absent from the offset site) and other weed levels are to be maintained at their current level. However the site is concurrently an offset under the EPBC Act and DoE requires a habitat improvement for both NTGVVP and GSM habitat. Targets below therefore identify a reduction in the cover of perennial weeds.

All high threat weeds are to be controlled to minimise or reduce their occurrence and ensure no further spread of weeds. The total cover of perennial grassy and broad-leaf weeds on site varies between the

different Habitat Zones. Commonly encountered high threat weeds within the proposed offset area include Toowoomba Canary-grass *Phalaris aquatica*, Spear Thistle *Cirsium vulgare*, Oat *Avena* spp. and Yorkshire Fog *Holcus lanatus*. The highest cover of these species is in Habitat Zone 3 with their total cover approaching 20%. Elsewhere their cover is estimated at about 5%. No woody weeds were detected within the study area and, importantly, no very high threat perennial grassy weeds such as needle-grasses *Nassella* spp. were detected.

Annual grassy weeds are prominent and typically the total weed cover (annuals and perennials) is about 40%. The annual weeds, which are mainly grasses such as Fescue *Vulpia* spp., Soft Brome *Bromus hordeaceus* and Hair Grass *Aira* spp., which not considered a significant threat in this environment, will be managed using grazing in an attempt to reduce their prominence. However, it is unlikely that any direct active management would have any impact on these species and no targets are proposed to for such species other than to prevent them increasing their current cover.

Weed control works are required to eliminate any woody weeds and otherwise prevent the increase in cover for all other weeds. Specific weed management targets in this OMP are aims for the improvement of the offset site and progress towards achieving targets will be reported as scheduled. Adaptive management actions will be recommended and implemented as appropriate.

Management works over the ten year period covered by this OMP will aim to reduce the cover of perennial high threat weeds from their current level to no more than 2%. This includes specific aims identified in Table 3. Management will also aim to reduce perennial grassy weeds to less than 1% total cover and broadleaf weeds to less than 2% of the cover by the end of the ten year management period.

The emphasis for weed control is the prevention of weed seed production with the goal being the reduction in the total weed cover with specific targets for high threat species on site. Weed control works will be timed appropriately in accordance with Tables 3 & 4.

Weed levels will be monitored and management methods adapted over time in response to changing conditions. New and emerging high threat weeds will be monitored and controlled (to less than 1% cover) if found. Any other significant environmental weeds identified during the ongoing site monitoring will also be controlled. If other high threat weeds, such as Chilean Needle-grass *Nassella neesiana*, are found to occur in surrounding areas owned by the offset land owner, it would be prudent and cost effective to eliminate such species from nearby areas to reduce any potential invasion into the offset area. The offset owner will contact the land owner of any public land (i.e. council managed road reserves adjacent to the offset site) where high threat weeds occur within the vicinity of the offset area, with the aim to have these weeds controlled.

Woody weeds are not known from the offset area but are likely to occur in the broader 200 ha parcel. However these only appear to be present at a very low cover. If any woody weeds are observed during site management or monitoring activities, these need to be controlled and eliminated promptly (before fruiting and seed set). The cover of woody weeds will be maintained at <<1% in perpetuity.

Spot spraying with appropriate herbicide is the main method for reducing weed cover. Spot spraying will be undertaken regularly, particularly in spring and early summer, with a focus on killing weed plants prior to seed set. Biomass control is also considered as an effective method for controlling and reducing weed levels. Biomass control at the site will include controlled sheep grazing and potentially ecological burning. Spot spraying will be completed in a manner which minimises non-target damage. Spot spraying will not occur during high wind days or in close proximity to threatened flora without protective measures in place (i.e. physical shielding).

Burning is particularly effective at reducing weed cover, especially for species that are difficult to control such as annual grasses. Burning and/or grazing will allow greater access and efficiency for weed control and increased natural regeneration of indigenous plant species (Sections 3.5.4 and 3.5.5 below). Periodic burning that is followed by spot spraying can be an efficient control strategy for weed species that are difficult to control until they are replaced by native species.

Table 3: High threat weeds for priority control (Biosis 2015).

Scientific Name	Common Name	% cover for the current assessment	Control Proposed	Desired Outcome [^]
<i>Bromus</i> spp., <i>Aira</i> spp., <i>Vulpia</i> spp.	Annual grasses	20 – 40%	Controlled pulse grazing by sheep to prevent seed set.	Prevent cover from increasing
<i>Avena</i> spp.	Oats	1%	Controlled pulse grazing by sheep to prevent seed set. Spot spraying appropriate herbicide to prevent seeding.	<1% cover
<i>Holcus lanatus</i>	Yorkshire Fog	1 – 2%	Spot spraying appropriate herbicide (early spring).	<1% cover
<i>Phalaris aquatica</i>	Toowoomba Canary-grass	5 –20%	Spot spraying appropriate herbicide (early spring).	<2% cover
<i>Rumex</i> spp.	Dock	1%	Spot spraying appropriate herbicide (early spring).	<1% cover
<i>Cirsium vulgare</i>	Spear Thistle	1–5%	Spot Spraying appropriate herbicide (prevent flowering).	<1% cover

[^] Desired outcome after 10 years of ecological management

Target species are likely to change over time in response to seasonal conditions, the result of pulse grazing or the conduct of any controlled burns (e.g. likely flush of broad-leaf weeds to be treated post-burn). Weed cover and species will therefore be monitored and management adapted in response to achieve desired outcomes outlined in this management plan. TfN will be consulted and approve the control techniques for any new or emerging weeds identified within the offset area.

The offset area is not in close proximity to any named waterway although a number of seasonal wetlands occur within this parcel and its surrounds. While there maybe localised surface water flows during high rainfall events, any wetland within the site is ephemeral and no specific runoff risk is identified for the application of herbicides to this area.

Targeting this level of reduction in the weed species present will ensure the overall weed levels do not increase. Management targeting maintenance of the *status quo* maintains a high level of risk that the target to maintain weed levels at current levels would not be achieved.

The weed control requirements to achieve the prescribed habitat hectare gains only require woody weeds to be eliminated and other weed levels not exceed their current level. It must be noted that the specific weed management targets in this OMP are aims for the improvement of the offset site, and their specific achievement is not a compulsory component of this plan.

Actions

- Periodic spot spraying of weeds with appropriate herbicide will be undertaken, particularly through spring and early summer.
- Target weeds will be controlled in a timely manner and before seed set; this requires regular monitoring and treatment.

- Ensure the absence of high threat woody environmental weeds within the offset area through monitoring and if high threat woody environmental weeds are found to occur, control and eliminate promptly. Preferably control nearby infestations to prevent the spread of these species.
- Control works will aim to reduce the total cover of perennial weeds to no more than 2%. Specific targets include: a reduction of high threat weeds in accordance with Table 3; perennial grassy weeds to be reduced to less than 2% total cover; and broadleaf weeds reduced to no more than 2% cover. Targeting this level of reduction will ensure the weed levels do not increase over the ten year management period.
- Monitoring will be undertaken to demonstrate the effectiveness of weed control works and the results are to be used to adapt future control works and targets.
- Any populations of new and emerging high threat weeds will be treated promptly and eliminated to <1% cover. This will be done in consultation with TfN.
- Any other significant environmental weeds identified during the ongoing site monitoring will also be controlled in consultation with TfN.
- During weed control, natural regeneration of indigenous flora will be protected from off-target damage.
- Biomass management will be undertaken as per Sections 3.5.4 below.

3.5.3 Pest Animals

The control of vermin including rabbits and other pest herbivores beyond the legal duty of care is a requirement of this OMP. Therefore pest animal control works are required within the offset site.

Grazing by European Rabbits *Oryctolagus cuniculus* and European Hares *Lepus europeaus* is evident and is likely to have a significant impact within the offset site. However, no active rabbit warrens were noted within the offset site.

Currently rabbits and hares are controlled by shooting and this appears to be effective at this point in time. If this changes, baiting can be considered as an option for control of these pests.

Control within the offset site would effectively be achieved through a reasonable level of works to eliminate animals within any active warrens in the local area (i.e. land within the owners control and within 500 m of the offset site). Control will in part be achieved through the removal and destruction of the shelter provided by any shrubby weeds within the broader area managed by the same landowner. The landowner will therefore control all shrubby environmental weeds on their land within 500 m of the offset site. Control of rabbits will be undertaken in accordance with current guidelines provided by the relevant Victorian Government Department.

Ripping of rabbit warrens within the offset site is not permitted. If any warrens develop within the offset site they will be treated by low impact measures such as fumigation or implosion.

Other problem pest animals may include cats and foxes although the general lack of shelter and harbour for these species reduces the likelihood that any animals are resident in the local area. Control techniques such as poisoning are therefore likely to be ineffective. The landowner will select from the range of control techniques available and apply the most effective in the local conditions.

Actions

- Control and seek to locally eliminate European Hares, European Rabbits, cats and foxes and using appropriate control techniques including shooting, poison baits or similar methods, without soil disturbance.

- At a minimum spotlight shooting over a minimum period of one hour targeting all pest animals will occur over the entire offset site four times per annum, twice between February and April and twice between September and November. This will be conducted by the landowner, local shooting organisations (i.e. Field and Game) or a professional shooter employed by the landowner. Records will be kept to document the number of pest animals encountered and the frequency of control works increased if numbers are observed to increase.
- Fumigate rabbit warrens according to best practise management. Fumigation works will be conducted by the landowner or a suitably qualified operator.

3.5.4 Biomass / Organic Litter control

Biomass management is essential to maintain indigenous flora and fauna values throughout the offset site. Biomass management is also required to maintain inter-tussock spaces and prevent excessive competition to grassland forbs. Where there is a sustained build up in ground cover biomass over any one year, resulting in a reduction of inter grass tussock space to an average of less than 30%, biomass will need to be actively reduced. Judgements on the cover of inter-tussock space and the build-up of groundcover biomass will be made by the landowner in consultation with the TfN. The independent ecological monitoring will also assess the effectiveness of the biomass control techniques applied and the need for any adjustments to the management regime to provide the prescribe outcome.

Controlled grazing will be applied to reduce biomass and maintain an open tussock-grass structure for this grassland, and where appropriate, ecological burning could also be utilised.

Use of grazing for ecological management

Currently the offset site is subject to unrestricted grazing by sheep. Given the diversity of native species found within the uncultivated native grasslands of this site, this method of disturbance regime (grazing by domestic stock) is seen as a reliable and conservative action to maintain and improve the ecological values associated with the area. While grazing by domestic stock will continue as a method of biomass reduction at this site, it will be undertaken in a controlled manner following a grazing management plan. Biomass accumulation control at this site will therefore be consistent with the standards for management of ecological grazing provided by DSE (2009).

In this context pulse grazing (i.e. using high numbers of sheep over short periods) in the offset area to maintain an open tussock grassland structure is seen as a precautionary management method to maintain the species richness of these native grasslands. Grazing of domestic stock will be predominantly with the use of sheep. The use of cattle will not be used for ecological grazing, except where sheep are unsuitable for the initial knockdown in high biomass areas or areas containing weeds not palatable to sheep. Grazing by other domestic stock including but not restricted to goats and horses is to be excluded from the offset site by this plan and the conservation covenant.

The timing of grazing will be strictly controlled to allow native species to grow and set seed over the spring to mid summer period (DSE 2009). Stock will be excluded from the beginning of October to the middle of January annually, for the life of the OMP. Table 4 provides targets to be met for ongoing management of grazing within the offset area. The landowner will keep records of the number of sheep and duration of grazing within the offset area. This data will be provided to the TfN on an annual basis as part of the Landholder monitoring and reporting form. This data and the resultant impact on biomass will provide the basis for an on-going grazing strategy to be approved by the TfN.

Grazing will occur over a short duration and exceed the standard stocking rate to prevent selective grazing and allow for periods of non-grazing. The maximum length of continuous grazing is 2 weeks with at least 4 weeks rest between cycles. Biomass management objectives are that inter-tussock space will be maintained

to at least 30% and the total vegetation cover will not fall below 50%. At least 3 pulse grazing cycles will occur within the grazing period, one of which will occur immediately prior to the exclusion period.

Table 4. Requirements and limit of grazing activities within the offset area.

Period where grazing by domestic stock is not permitted	1 st October to 15 th January annually in perpetuity
Pulse grazing cycles required	3 (minimum)
Grazing required prior to exclusion period	15 th August to 30 th September
Minimum rest from grazing between pulse grazing	4 weeks
Maximum continuous pulse grazing	2 weeks
Biomass management thresholds	Total vegetation cover of no greater than 70%
Target inter-tussock space	Minimum 30% of total site cover

The only exception to requirements specified for pulse grazing (Table 4) is if an ecological burn is planned during or following the pulse grazing period. In this instance a fire management plan produced by the landholder in consultation with TfN will inform when grazing will be removed to allow for a build up in biomass to establish a burn.

Sheep used for pulse grazing will be shorn within the previous two to three months of the calendar year's first pulse grazing event to reduce likelihood of weed seed introductions. If this is not possible then the sheep must have only been grazed elsewhere within Terrinallum South for a minimum period of three months. Stock transfer into the offset site will be timed to minimise the potential for weed seed transport via mud (i.e. stock movements into the offset site will be excluded within two days of rainfall). The broader 200 ha parcel will need to be monitored during wet periods to prevent excessive soil disturbance in areas of Plains Grassy Wetland. Following any high rainfall events, stock will be removed from the offset area immediately unless in the judgement of the land owner, no undesirable soil disturbance would occur. They may be returned when, in the judgement of the land owner, no undesirable soil disturbance would occur.

Use of fire for ecological management

Burning within the offset area will be undertaken only with due consideration to relevant health and safety issues, in consultation with the local Country Fire Authority and in line with a fire management plan completed by the landholder in consultation with TfN. Any fire plan will also be provided to TfN prior to any burning event identified within that plan. The following provides guidelines for use of burning only in an ecological sense. The land owner is responsible for ensuring the requirements of this OMP can be carried out only if compliant with all other government planning requirements and permits.

While grazing by domestic stock will be the typical manner in which ground cover biomass will be regulated, the controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grassy ecosystems such as those that occur within the offset site. 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 indigenous species, it can also be expected to promote certain exotic species and as such post-burning weed-control will be vital in maintaining remnant vegetation. However stimulating the soil stored weed seed bank is seen as positive as this allows this seed bank to be exhausted through active management.

The controlled application of fire can be used for biomass reduction in all or parts of the offset site. 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. However no area is to be subject to a planned burn more frequently than every two years and no more than 50% of the offset site will be deliberately burnt in any one year. The application of a mosaic burning regime is also considered advantageous and therefore any individual planned burn will not cover a contiguous area of more than 10% of the offset site (i.e. there may be six separate planned burns in any one year covering a total of about 6 ha but any one planned burn will cover a maximum of 1 ha and be separated from other burnt areas by at least 20 m of unburnt grassland).

The landowner will prepare maps identifying the fire history of the offset area to ensure compliance with the area restrictions identified above.

The extent, intensity and timing of burns must take into account the presence of threatened species, in particular GSM. Fire may kill individuals of this species during the warmer months of the year when they are active above the soil surface. Timing of burns should only be undertaken when GSM are not flying.

Any ecological burns will be conducted during benign (low wind and mild temperature) weather conditions and may be patchy (i.e. not result in the uniform burning of all areas). Patchy burns are a desirable outcome.

It is accepted that a wildfire event is out of the control of the landowner and is not subject to these conditions.

Actions

- Develop a grazing plan consistent with Table 4 for the offset area, including timing and intensity;
- Exclude grazing during wet periods where, in the opinion of the landowner and/or TfN, unacceptable ground disturbance would occur;
- If using fire for biomass and weed control, the landowner will produce a fire management plan which allows for an ecological burning regime described in the following dot point. Provide the burn plan to TfN prior to any burning event identified within that plan;
- Inform local CFA captain of the intention to conduct a planned burn;
- Planned ecological burning may impact over approximately 40–50% of the offset area at least four times during the 10 year management period. For example at year 1, 4, 7 and 10 or in smaller areas more frequently as required by the fire management plan. Rotate areas burnt so that no area is burnt more frequently than every two years, burn areas in a small scale patchwork with any individual burnt area covering no more than two ha. Note that the use of fire is not a compulsory component of this plan and may also be used at a much reduced scale if considered appropriate (i.e. localised burning of small areas for weed or biomass control);
- When planning burns, ensure all burning permits are in place;
- Plan and conduct ecological burning within different seasons to promote regeneration of a variety of species. However ensure burns consider the ecological needs of any threatened species which may be present (e.g. GSM).

3.5.5 Understorey Diversity and Recruitment

The major threats to understorey diversity in these grasslands are over-grazing by domestic stock and other introduced herbivores, competition from introduced plant species and the accumulation of biomass over a prolonged period (greater than a year). These areas of Plains Grassland retain between 50 and 90% of the expected number of understorey life-forms for this EVC, and are 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 and this is largely a function of the growth stage of the plants present. Enrichment planting is therefore not currently necessary although this will be reviewed by the independent ecologist monitoring the site after five years of active ecological management.

Controlled grazing by domestic stock and the control of rabbits and hares are required to maintain understorey diversity and encourage recruitment of threatened species. Fire or other forms of biomass reduction would also be required to facilitate regeneration, remove the dead biomass associated with weed control works and maintain inter-tussock spacing. The use of fire could be implemented at a number of scales. Within this larger grassland patch it would take the form of a managed patch burn covering up to 6 hectares or in smaller patches localised burning covering up to half a hectare or even tens of square metres using a hand held weed burner. Biomass control works will also reduce the potential for uncontrolled wildfire to impact this site.

Active management will seek to significantly reduce the cover of all exotic species with specific targets for high threat species given in Table 3.

Actions

- Active weed management to be undertaken as outlined in Section 3.5.2
- Biomass will be managed to enhance recruitment – see Sections 3.5.4 above.

3.5.6 Supplementary Planting and Revegetation

There is currently no need to do any supplementary planting or revegetation within the offset site. There is a high diversity of understorey species in this area and improvement will mainly be achieved through weed control. This decision will be reviewed by the independent ecologist after five years of active management.

3.6 Summary of Offset Gains

The gains associated with the implementation of this Offset Management Plan align with the requirements for defined offset areas under Victoria's Native Vegetation Management Framework are as follows:

- The application of permanent legal protection requiring conservation management of the area as guided by this plan (Section 3.3);
- The permanent removal of existing rights to apply fertiliser and conduct exotic pasture improvement activities (Section 3.3 and 3.4);
- The permanent removal of existing rights to graze any domestic stock with the exception of sheep and cattle. Grazing by horses, goats etc. will be excluded by the covenant (Section 3.4);
- Only allowing the pulse grazing of domestic stock within the parameters required by this plan (i.e. grazing exclusion between start of October and middle of January) (Section 3.5.4);
- Maintaining inter-tussock spaces through prescribed biomass control works predominantly through the use of pulse grazing (Section 3.5.4);
- Potential use of fire to augment pulse grazing by sheep to manage biomass and maintain inter-tussock spaces within the restrictions outlined by this plan and DEWHA (2009) (Section 3.5.4);
- Preventing over-grazing by identifying a minimum vegetation cover (50%) to which pulse grazing is permitted (Section 3.5.4);

- Conduct weed control works with the aim of lowering the total cover of perennial weeds from the current level (5 –20% cover) to no more than 2% cover with less than 1% cover for perennial grassy weeds and no more than 2% cover for broadleaf weeds over a ten year period (Section 3.5.2, Table 3);
- Targeting the control of existing high threat weeds as well as any future high threat weeds which may colonise the site (Section 3.5.2, Table 3);
- Requiring the control of pest animals such as rabbits, hares and foxes above the existing legal requirements (Section 3.5.3);
- Requiring the permanent maintenance of the reduced weed cover reached after the first ten years of management (Section 3.4);
- Supervision and monitoring of site management by TfN (Section 3.7).

Additional details on required management actions and relevant timing for implementation is provided in Table 5. This OMP is consistent with the requirements of referral 2011/6057 approval condition 3a.

Table 5: Management plan actions and timing for offsets on the Pura Road, Terrinallum South offset site.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
0	0.1	-	Establish offset area.	Upon registration of the agreement. This action is a key requirement defining the start of the prescribed management period.	12.35	ha	Land Owner	Trust for Nature covenant under the <i>Victorian Conservation Trust Act 1972</i>
0	0.2	-	Ensure appropriate fencing is established. Fencing already protects the broader 200 ha parcel within which the offset site is located. The offset area allocated to this specific offset management plan does not need to be fenced separately unless existing land-use rights are fully exercised in the remainder of the 200 ha parcel.	This action is a key requirement defining the start of the prescribed management period.	-	-	Land Owner	Site isolated from activities excluded by this plan (i.e. construction works, uncontrolled grazing by domestic stock).
0	0.3	-	Establish markers to identify boundary of the offset site to assist with management and monitoring of the area.	This action is a key requirement at the start of the prescribed management period.	-	-	Land Owner in consultation with qualified ecologist and land surveyor	Markers established to identify the boundary of the offset site. Guidance provided by a qualified ecologist to ensure impacts to native vegetation are avoided.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
0	0.4	-	Where appropriate identify a person/company to control pest plants and animals. In this instance the Trust for Nature (TfN) will provide appropriate supervision for the land owner to conduct the pest plant and animal control works.	Upon registration of the Trust for Nature covenant.	-	-	Land Owner	Appropriate personnel appointed to conduct works.
0	0.5	-	Qualified ecologist to undertake baseline monitoring, establish monitoring points and refine management actions based on baseline results.	Oct-Nov monitoring	1	Report	Land Owner	Prepare standard report including photos and confirm agreed performance measures outlined in Section 3.5.
0	0.6	Nil	Conduct baseline monitoring for GSM population as per Section 3.8 and prepare a report on occurrence and abundance.	Oct - Dec	1	Report	Land owner in consultation with TfN	GSM Monitoring report provided to TfN, MSJV and DoE.
1	1.1	0.1-0.5	Land owner to develop annual works plan in consultation with the TfN based on a site inspection with TfN.	Upon registration of the covenant.	-	-	Land Owner and TfN	Annual works plan prepared and approved for implementation by TfN.
1	1.2	1.1	Maintain fences and gates around broader offset area and markers around offset site in good working order. Remove any rubbish present within the offset site.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.3	1.1	Undertake pulse grazing to reduce biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing length at any one time is two weeks with a minimum four week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	15 th January – 30 th September	12.35	ha	Land Owner	Maintain an open tussock grassland with at least 30% cover of inter-tussock space.
1	1.4	1.1	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible). Record numbers of pest animals encountered and increase frequency of control works as appropriate.	Feb–Apr, Sep–Nov	-	-	Land Owner	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks).
1	1.5	1.1	Control high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 3 for percentage cover of high threat weeds at	July–Nov or as required and detailed in the annual works plan	12.35	ha	Land Owner in consultation with vegetation management contractor if	Minimise the occurrence of weeds, with a reduction in total cover of weeds, including high threat weeds, beyond current levels. Target is a total perennial weed cover of no

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			<p>inception. Eliminate any woody weeds (see Section 3.5.2). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.</p>				necessary	<p>more than 2% with reduced cover of high threat weeds listed in Table 3, <1% perennial grassy weeds and no more than 2% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to < 1% cover across offset site.</p>
1	1.6	1.1	<p>Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 40-50% of the offset area at least four times during 10 year management period (e.g. years 1, 4, 7 and 10). Conduct burns in different seasons to promote regeneration of a variety of species.</p>	<p>Sep (or as specified in the burn plan but must not occur during the period 1 October – 15 January due to potential negative impacts to GSM)</p>	25	ha	Landholder in consultation with CFA and TfN	<p>Medium intensity burn over 40–50% of the 12.35 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every two years. Follow up weed control will be undertaken within the burn area in accordance with section 3.5. Burns must also be undertaken to generate a mosaic pattern of burnt and unburnt areas (See section 3.5.4.)</p>
1	1.7	0.5	<p>Conduct regular site inspections at a frequency to ensure management activities are conducted as required. This will incorporate identification of any new weeds and evaluation of biomass</p>	<p>Site inspections at an appropriate frequency</p>	-	-	Land Owner and TfN	<p>Reporting of management activities as agreed. This can consist of a series of notes of observations made by the land owner during site inspections.</p>

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			conditions. These inspections will be conducted by the land owner. TfN to participate in site inspections at least four times over offset period.					
1	1.8	Nil	Conduct monitoring for GSM population as per Section 3.8 and prepare a report on occurrence and abundance.	Oct - Dec	1	Report	Land owner in consultation with TfN	GSM Monitoring report provided to TfN, MSJV and DoE.
1	1.9	1.7	Prepare annual report based on site inspections conducted throughout the year. Report to be provided to TfN, MSJV and DoE.	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to TfN, DoE, MSJV and as appropriate to DELWP.
1	1.10	1.8	Review and update Annual Works Plan in consultation with TfN.	Dec	1	Report	Land owner in consultation with TfN	Following year's management tailored to current site conditions.
Recurrent Activities								
2-10	X.1	1.2	Maintain fences and gates around broader offset area and markers around offset site in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.
2-10	X.2	1.3	Undertake pulse grazing to reduce biomass. A minimum of three pulse	16 th January – 30 th September	12.35	ha	Land Owner	Maintain an open tussock grassland with at least 30% cover of inter-

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing length at any one time is two weeks with a minimum four week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.					tussock space.
2-10	X.3	1.4	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible).	Feb-Apr, Sep-Nov	-	-	Land Owner in consultation with ecological restoration contractor	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks).
2-10	X.4	1.5	Control high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 4 for percentage cover of high threat weeds at inception. Eliminate any woody weeds (see Section	July-Nov or as required and detailed in the annual works plan	12.35	ha	Land Owner in consultation with vegetation management contractor	Minimise the occurrence of weeds, with management aimed at a reduction in total cover of weeds, including high threat weeds, beyond current levels. Aim for a total perennial weed cover of no more than 2% with reduced cover of high

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			3.5.2). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.					threat weeds listed in Table 3, <1% perennial grassy weeds and no more than 2% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to < 1% cover across offset site.
2-10	X.5	1.9	Undertake regular site inspections at a frequency to ensure management activities are conducted as required. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. TfN to participate in site inspections at least four times over offset period.	Site inspections at an appropriate frequency	-	-	Land Owner and TfN	Reporting of management activities as agreed. This can consist of a series of notes of observations made by the land owner during site inspections.
2-10	X.6	2.5	Prepare annual report based on site inspections conducted throughout the year. Report to be provided to TfN, MSJV and DoE.	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to TfN, DoE, MSJV and as appropriate to DELWP
2-9	X.7	2.6	Review and update Annual Works Plan in consultation with TfN.	Dec	1	Report	TfN and land owner	Following years management tailored to current site conditions

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
Year Specific Activities								
0, 1, 2, 4, & 10		Nil	Monitor GSM population as per Section 3.8 and prepare a report on occurrence and abundance.	Oct-Dec	1	Report	Land owner in consultation with TfN	GSM Monitoring report provided to TfN, MSJV and DoE.
2, 5 & 10	X.8	1.8	Qualified ecologist to monitor and refine management actions based on results. Report to regulator as required.	Oct-Nov monitoring Dec Reporting	1	Report	Qualified ecologist to be engaged by the Land Owner	Prepare standard report including results from photos and agreed performance measures outlined in Section 3.5. Monitoring report provided to TfN, DoE, MSJV and as appropriate to DELWP.
4, 7 & 10	4.8, 7.8 & 10.9	1.6	Develop burn plan if appropriate/agreed for that year and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns to be undertaken over 40-50% of the offset area at least four times during 10 year management period (e.g. years 1, 4, 7 and 10). Conduct burns in different seasons to promote regeneration of a variety of species.	Mar-Apr (or as specified in the burn plan)	25	ha	Land owner in consultation with CFA and TfN	Medium intensity burn over 40-50% of the 12.35 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every two years. Follow up weed control will be undertaken within the burn area in accordance with section 1.5. Burns must also be undertaken to generate a mosaic pattern of burnt and unburnt areas (See section 3.5.4.)

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
10	10.10	10.8	Revise this offset management plan (OMP) in consultation with TfN to identify management actions required to maintain the offset site in perpetuity.	Dec	1	OMP	Qualified ecologist	Updated offset management plan to aid ongoing maintenance of the offset site.
10	10.11	10.9	Identify and allocate resources for ongoing management and continue to implement active ecological management to maintain the offset site.	Dec			Land Manager in consultation with TfN	Ongoing ecological management to maintain and improve the ecological values of the Protection Site in perpetuity.
Beyond Year 10								
Beyond year 10			Maintain fences and gates around broader offset area in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.
Beyond year 10			Evaluate ground cover biomass and manage using pulse grazing and ecological burning	As required	12.35	ha	Land owner	Maintain an open tussock grassland structure (30% inter-tussock spacing) using fire and pulse grazing, and ensure areas with high levels of dead weeds are subject to biomass reduction.
Beyond year 10			Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area.	Feb-Apr, Sept-Nov	-	-	Land Owner	Absence of evidence of grazing/browsing by pest animals.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity - month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
Beyond year 10			Control high threat grass / herb weeds before seed set using appropriate methods to ensure existing weed levels, at the minimum, do not increase. Eliminate all woody weeds. Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	July-Nov	12.35	ha	Land Owner	Minimise the occurrence of weeds, with no increase in cover of weeds, including high threat weeds, beyond current levels. Minimum off-target damage. Control new and emerging weeds to < 1% cover across offset site.
Beyond year 10			Undertake monitoring and refine management actions based on results. Identify any new high threat weeds for priority control. Conduct regular site inspections at a frequency to ensure management activities are conducted as required. These inspections will be conducted by the land owner.	Oct-Nov monitoring Site inspections at an appropriate frequency			Land Owner	Land Owner to undertake monitoring as required and site inspections biannually (at a minimum).

3.7 Monitoring and Reporting

Offset sites require a review of the management actions by a qualified ecologist after years 2, 5 and 10 of management. Baseline data will be collected prior to the commencement of management works and data on the selected parameters will be collected during each of the three reviews. The results of these audits will be reported to TfN, DELWP and DoE as required. A template for this reporting is provided in Appendix 3 which will also be used for the collection of baseline data at the start of the offset management period. Information from these monitoring events will be used to guide the ongoing site management.

After the 10 year final report the offset site will continue to be managed by the land owner in a manner consistent with the objectives of this plan.

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 plan. TfN will visit the site a minimum of four times over the 10 year management period (at least the spring of years 1, 3, 6 and 10) and will liaise with the land owner annually regarding the development of an annual works plan.

The progress of management works will be monitored by the land owner on a regular basis (at a minimum once every 2 months). The land owner will provide a management progress report to TfN on an annual basis.

Actions

- Engage a qualified ecologist to undertake monitoring of management at the commencement of the offset management period (to provide baseline data) and in years 2, 5 and 10. Reports will be provided after years 2, 5 and 10 to TfN and DELWP as required and will include a review of past works and future planning.
- A minimum of 10 permanent photo points will be established by the ecologist, marked and accurately located by GPS or similar within the offset site. Photo points will be located to adequately characterise the current vegetation condition, and include a range of weed species. These photo points will be used to monitor the vegetation for the 10 year period covered by this plan.
- Within a 5 x 5 m area centred on each photo point the ecologist will assess the percentage total vegetation cover, percentage cover of inter-tussock space, average height of vegetation and cover of native and exotic life-forms will be recorded.
- The results of the current year's management actions in relation to the annual management objectives will be reviewed by 31 March each year in consultation with TfN. This requires regular site inspection to determine the progress of pest plant and animal control works. Short inspections by the land owner to monitor management progress will be completed at least every two months. Input from the TfN is also required to approve any potential changes to management activities. This input will occur at least once per annum.
- An annual management review will inform the annual works program. This works program will be prepared by the land owner in consultation with the TfN by the end of March each year. The plan will be implemented by the land owner and will include achievable management objectives consistent with this management plan. The works program for the coming year will also address issues that may not have been anticipated in formulating this original management plan.
- Annual progress reports will be prepared by the land owner.
- Appropriate records must be kept for each monitoring event by the land holder, TfN and the nominated ecologist (date, time, location, description of features or actions within each photograph).
- A completed Landowner monitoring and reporting form (required by DELWP in years 2, 5, 10 and within three months as requested in writing by DELWP after year 10).

3.8 Golden Sun Moth Monitoring

As the site is specifically an offset site for the conservation of Golden Sun Moth, monitoring during the flight season for this species is considered essential for DoE to determine the efficacy of the actions taken to protect and offset impacts to this species (see Table 6 for an outline of the management actions required to satisfy Referral condition 3a). As the species is known to occur at the offset site and active management is expected to improve the condition of this habitat, monitoring the population of GSM five times over the life of the OMP is appropriate. Baseline GSM data should be collected for the offset area during the first flight season either just prior to or just after covenant registration.

A monitoring event includes four GSM surveys within the flight season to document the occurrence and abundance of GSM within the offset site. Surveys are prescribed in years 0, 1, 2, 4 and 10. Surveys will be undertaken during the GSM flight season, which in this region is typically expected to be between October and December each year. As the timing of the flight season varies annually and geographically, surveys need to be initiated from when warm weather is considered likely to stimulate emergence. In this region this is expected to occur anytime from early October onwards. Any observations of GSM during monitoring for vegetation condition and during inspections by the land owner or TfN will also be recorded.

As GSM are known to occur at Terrinallum South no reference sites are required. However, prior to the conduct of surveys at this site, reports of GSM flying around Melbourne are likely to provide a useful indicator to identify the start of the flight season at this site.

Surveys are to be spaced at least one week apart to allow for variations in emergence patterns. Survey will take place when conditions were suitable for male flight (generally >20°C, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs.

Each survey will examine the entire site systematically using a suitably qualified and competent ecologist/zoologist(s) walking a series of transects running parallel and spaced approximately 50m apart. Tracks will be recorded using a GPS and a waypoint taken for each location where GSM are observed. Each survey is expected to take between approximately one to two hours to complete.

Any obvious changes to the habitat characteristics of the offset area will be recorded during the GSM survey.

3.9 Timing

The time frame of the OMP is 10 years from commencement of legal protection. Ecological improvements including the control of pest plants and animals are required to be achieved over this ten year period. The formal commencement of the 10 year management period must start when the offset area has been legally protected.

Reports prepared by a suitably qualified ecologist will be provided after years 2, 5 and 10 to TfN, MSJV, DoE and DELWP as required, and will include a review of past works and future planning.

The land owner will provide a report on the status of management works to the TfN, MSJV and DoE on an annual basis.

Prior to works being undertaken each year the annual works program (based on Table 6) will be reviewed. The person undertaking the works will prepare a detailed works program in consultation with TfN. The works program for the coming year will also address issues that may not have been anticipated in formulating this original management plan.

This management plan will be periodically reviewed during the 10 year management period and modified if necessary. It is suggested that a review of this plan be incorporated in the reporting requirements for years 2, 5 and 10.

3.10 Risk Analysis

While this offset management plan identifies the management responsibilities associated with this offset area, the management of natural systems are subject to seasonal conditions and the response of the natural environment to those conditions. While there is every expectation that the implementation of the management actions outlined in this plan will produce an improved ecological outcome for NTGVVP and GSM habitat present there are risks associated with the implementation of this plan. Where outcomes are not achieved in a timely manner for various reasons outside of the land managers control, the intensity of management actions may need to adapt to such variable outcomes. For example if this part of the State experiences a rabbit plague then the proposed pest animal control measures would not be adequate to achieve the objectives of this OMP (i.e. negligible impact from pest animals).

Table 6 outlines potential risks associated with the management of this environment and potential corrective actions to be implemented if particular thresholds are exceeded.

Table 6. Risk analysis and proposed corrective responses.

Risk	Trigger for Corrective Action	Corrective Action
Increasing population of pest animals (i.e. Fox, Cat, Rabbit, Hare)	Increase of 20% in the observed population of a pest animal over two successive control events (applies for an observed population of more than 10 rabbits and 5 foxes, cats or hares. Fluctuations in populations smaller than this are not considered a trigger for corrective actions to be applied)	Increase frequency of control works to achieve a population below nominated thresholds (i.e. less than 10 rabbits and 5 foxes, cats or hares observed per control event).
Increasing abundance of perennial weeds	Any observable increase in the cover of perennial weeds over a 12 month period	Increase frequency of control works
Significant increase in ground cover biomass	Significant (90%) decrease in Golden Sun Moth population between two monitoring events coinciding with greater than expected levels of ground cover vegetation. More than 70% cover of perennial tussock grasses during summer	Increase the intensity of activities designed to maintain an open grassland environment (i.e. autumn and winter grazing). Conduct an ecological burn.
Management has a negative impact on threatened flora species present	Unexplained decline (more than 10% in any one year) in the population of a threatened species (i.e. drought can explain such a decline and is an event outside management control).	Modify management activities where possible at a broad or local level.
Decrease in Golden Sun Moth population	90% decline in population over two monitoring periods (N.B. substantial inter-year population fluctuations appear to be normal for this species. Wet years in particular appear to disadvantage this species).	Where there is no explanation for the decline (i.e. a succession of wet years) then conduct an ecological burn over half of the offset site.

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Appendices

Appendix 1: Flora

A1.1 Flora species recorded from the study area

Notes to table:

EPBC Act: CR - Critically Endangered EN - Endangered VU - Vulnerable	DEPI 2014: e - endangered v - vulnerable r - rare
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 RR - Regionally restricted species	# - Native species outside natural range

Status	Scientific Name	Common Name
Rare or threatened species		
CR, e, L	<i>Pimelea spinescens</i> subsp. <i>spinescens</i>	Spiny Rice-flower
Native Species		
	<i>Acaena echinata</i>	Sheep's Burr
	<i>Anthosachne scabra</i>	Common Wheat-grass
	<i>Asperula conferta</i>	Common Woodruff
	<i>Austrostipa eremophila</i>	Desert Spear-grass
	<i>Austrostipa nodosa</i>	Knotty Spear-grass
	<i>Calocephalus citreus</i>	Lemon Beauty-heads
	<i>Chrysocephalum</i> sp. 1	Plains Everlasting
	<i>Convolvulus angustissimus</i>	Blushing Bindweed
	<i>Deyeuxia quadriseta</i>	Reed Bent-grass
	<i>Eryngium ovinum</i>	Blue Devil
	<i>Eryngium vesiculosum</i>	Prickfoot
	<i>Haloragis heterophylla</i>	Varied Raspwort
	<i>Juncus subsecundus</i>	Finger Rush

Status	Scientific Name	Common Name
	<i>Lachnagrostis filiformis</i>	Common Blown-grass
	<i>Lobelia pratoides</i>	Poison Lobelia
	<i>Lomandra nana</i>	Dwarf Mat-rush
	<i>Oxalis perennans</i>	Grassland Wood-sorrel
	<i>Poa labillardierei</i>	Common Tussock-grass
	<i>Poa sieberiana</i>	Grey Tussock-grass
	<i>Rumex dumosus</i>	Wiry Dock
	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass
	<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass
	<i>Rytidosperma fulvum</i>	Copper-awned Wallaby-grass
	<i>Selliera radicans</i>	Shiny Swamp-mat
	<i>Themeda triandra</i>	Kangaroo Grass
	<i>Wahlenbergia communis</i>	Tufted Bluebell
Introduced Species		
	<i>Acetosella vulgaris</i>	Sheep Sorrel
	<i>Aira</i> spp.	Hair Grass
	<i>Arctotheca calendula</i>	Cape Weed
	<i>Avena fatua</i>	Wild Oat
	<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	Soft Brome
	<i>Centaurium tenuiflorum</i>	Slender Centaury
RC	<i>Cirsium vulgare</i>	Spear Thistle
	<i>Cynosurus echinatus</i>	Rough Dog's-tail
	<i>Erodium botrys</i>	Big Heron's-bill
	<i>Holcus lanatus</i>	Yorkshire Fog
	<i>Hordeum leporinum</i>	Barley-grass
	<i>Hypochaeris radicata</i>	Flatweed
	<i>Lactuca saligna</i>	Willow-leaf Lettuce
	<i>Leontodon taraxacoides</i> subsp. <i>taraxacoides</i>	Hairy Hawkbit
	<i>Phalaris aquatica</i>	Toowoomba Canary-grass
	<i>Plantago coronopus</i>	Buck's-horn Plantain

Status	Scientific Name	Common Name
	<i>Romulea rosea</i>	Onion Grass
	<i>Rumex conglomeratus</i>	Clustered Dock
	<i>Solanum nigrum</i>	Black Nightshade
	<i>Trifolium dubium</i>	Suckling Clover
	<i>Trifolium repens</i> var. <i>repens</i>	White Clover
	<i>Trifolium subterraneum</i>	Subterranean Clover
	<i>Vulpia bromoides</i>	Squirrel-tail Fescue

Appendix 2: Gain Calculator

Net Gain calculator output for the 12.35 ha Pura Road offset site

DSE Gain Calculator

Version 1.2, October 2008

[About DSE Gain Calculator](#)

STEP 1 Enter site details

NAME or EOI CODE:
 SITE CODE (number):
 SITE LOCATION/ADDRESS:
 PROPERTY SIZE:

STEP 2 Habitat zone code (a-z)
 Zone Type

STEP 3 Select bioregion

STEP 4 Select EVC BCS:
 If "Other" is selected:
 - enter EVC & Standardiser: EVC: Standardiser:
 - enter assessed habitat scores manually under STEP 10, based on EVC BCS.

STEP 5 Enter size of habitat zone, to one decimal place ha
 (or revegetation area)

STEP 6 Select current land tenure

STEP 7 Select current planning controls

- no entitlement to graze with domestic stock
- no entitlement to remove trees - alive
- no entitlement to remove trees - dead
- no entitlement to remove dead vegetation
- no entitlement to remove fallen timber
- requirement for regular fuel reduction
- other - please insert

Enter other:

STEP 8 Select proposal type

STEP 9 Select total patch size class - including adjoining zones

STEP 11 Choose the appropriate management options as required

(a) Exclude stock and ensure that weed cover does not increase beyond current levels*
 (b) Retain all standing trees - dead or alive
 (c) Retain all fallen timber/branches/leaf litter
 (d) Eliminate high threat woody weeds & control pest animals
 (e) Eliminate all identified high threat weeds & control pest animals
 (f) Supplementary planting
 (g) Any additional site-specific management actions
 (h) If (h) is selected, select management actions from below:

ATTENTION

- Ecological thinning
- Ecological burning
- Ecological flooding
- Other

*For Grassland type EVC's only
 Replace management option (a) above with:

 * All grassland management actions must ensure no further weed spread

STEP 10
Current Habitat Score

Attribute	Max	Default	Assessed	Comments
Large Trees	10	na		
Tree canopy cover	5	na		
Understorey	25	10	15	
Lack of weeds	15	7	6	
Recruitment	10	6	6	
Organic litter	5	3	4	
Logs	5	na		
Landscape context	25	10	17	
Standardised Habitat Score	100		59	

STEP 12
Gain Scores for Remnant Management

Attribute	Maintenance Gain/ha		Improvement Gain/ha		Comments
	Calculated	Assessed	Calculated	Assessed	
Large Trees	na		na		
Tree canopy cover	na		na		
Understorey	7.5		1.25		
Lack of weeds	na		1		
Recruitment	3		1		
Organic litter	2		1		
Logs	na		na		
Total		12.5		4.25	

STEP 13 Choose security arrangement

Standardised Sum Main + Impr Gain/ha	22.78
Prior Mgt Gain/ha	5.9
Security Gain/ha	5.9
Total Gain/ha	34.58

Calculating the total gain
Total Gain (HHa) 4.27

STEP 14 User details

USER NAME:
 ORGANISATION:
 CONTACT TELEPHONE:
 CONTACT EMAIL:

Appendix 3: Monitoring and reporting form

A3.1 DELWP Owner Monitoring and Reporting Form

Landowner of offset site	
Location and address of offset site [1]	
Offset site number (if applicable)	
Offset plan reference number (if applicable)	
Responsible Authority	
Report #	
Signature	
Date	

Please attach a copy of Management Action Table from the Offset Plan with information on which actions have been completed for year/s of this reporting period.

Describe specific monitoring results from surveys undertaken, survival rates of revegetation works, fencing work, success of weed and pest animal control work, successful management tools (i.e. techniques used to control weed species, protection of new plants, monitoring techniques...) and any problems or issues experienced (i.e. new infestation of weed species, storm damage to fencing...).

Provide photographs showing evidence of works.

If any agreed management actions or commitments are incomplete or have not been undertaken in the times specified explain the reasons why and what program of action/s will be undertaken to implement the action. If no action is to be undertaken please explain the reason/s and how the targets specified will be met.

Figures



Legend



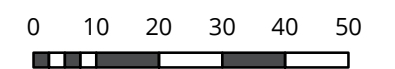
-  Reserve boundary
-  Parcel boundary

Figure 1: Location of the Maidstone Street Industrial subdivision, Altona Victoria

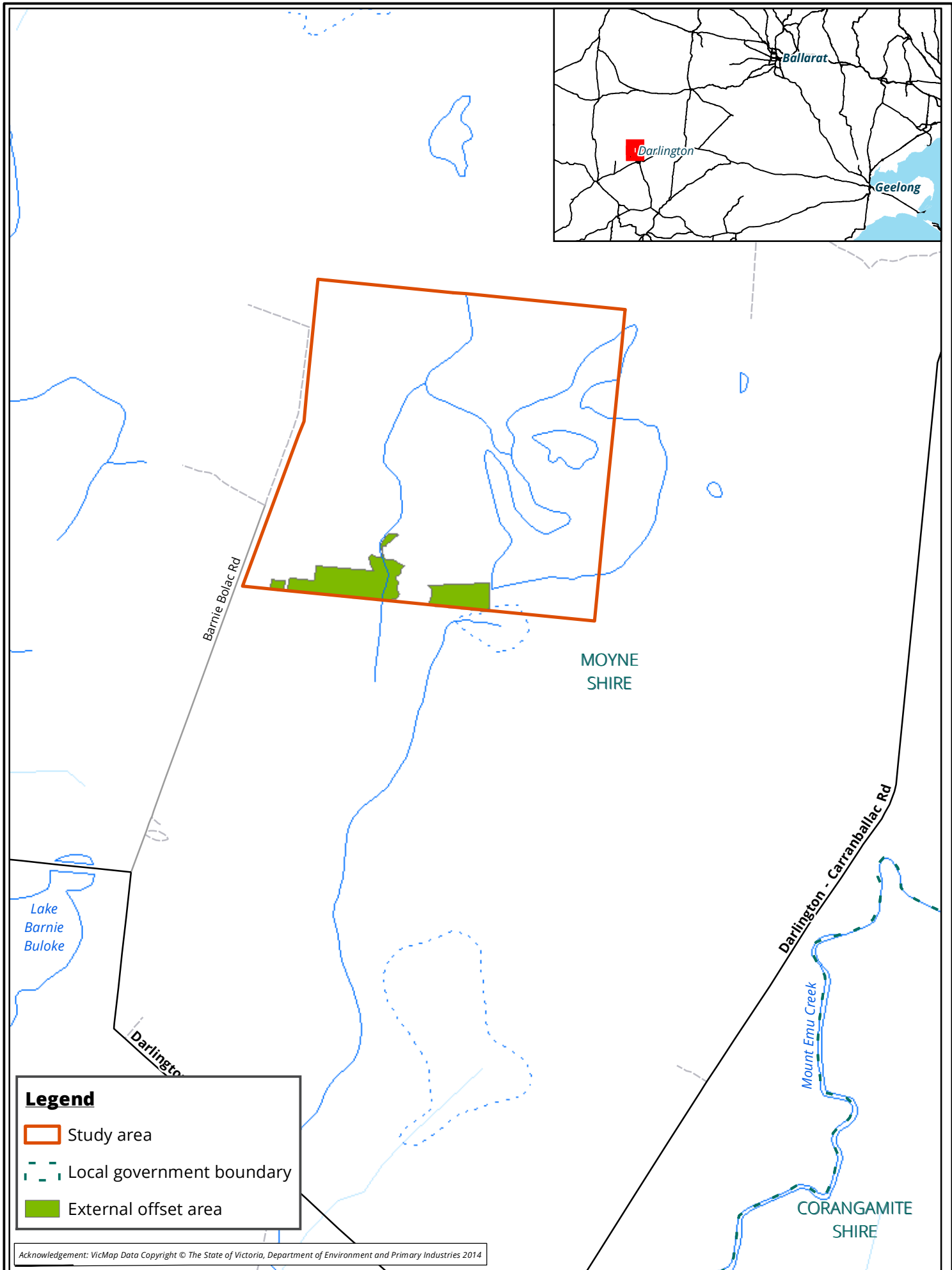


Metres
Scale: 1:1,200 @ A3
Coordinate System: GDA 1994 MGA Zone 55



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Matter: 18903,
Date: 27 March 2015,
Checked by: SGM, Drawn by: LDM, Last edited by: Imilne
Location: P:\18900s\18903\Mapping\18903_F1_Maidstone



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Figure 2: Location of the external offset site, Barnie Bolac Road, Darlington, Victoria



Legend

- Study area

Vegetation quality

- Habitat zone 1
- Habitat zone 2
- Habitat zone 3

Significant species record

- + *Pimelia spinescens* ssp. *spinescens*
- ▲ 2014-15 Golden Sun Moth record

Figure 3: Ecological values identified within the Terrinallum South offset site, Darlington, Victoria

0 25 50 75 100
 Metres

Scale: 1:3,500 @ A3
 Coordinate System: GDA 1994 MGA Zone 54

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