

EPBC Act referral 2018/8148 for Inverlochy farming property, Wallan, Victoria: Golden Sun Moth Offset Management Plan 346 Carngham Streatham Road, Chepstowe

VERSION 2 Prepared for Crystal Creek Properties Pty Ltd 21 August 2023



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- Sonika Kumar and Shana Nerenberg (mapping)
- Shana Nerenberg (project management)

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## Inverlochy farming property, Wallan, Victoria (EPBC 2018/8148)

#### **Declaration of accuracy**

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

Signed

Stephen Mueck Senior Consultant Botanist Biosis Pty Ltd

03/08/2018



## Summary

Biosis Pty Ltd was commissioned by Crystal Creek Properties Pty Ltd (Crystal Creek) to prepare an Offset Management Plan (OMP) for an offset site required for losses associated with the development of Inverlochy farming property, 175 Northern Highway, Wallan, Victoria, as outlined under referral 2018/8148.

The Department of the Environment and Energy (DoEE) determined that the development project will have a significant impact upon Golden Sun Moth *Synemon plana* (GSM), and therefore the project is a controlled action and compensatory offsets are required.

A suitable offset site has been identified at 346 Carngham Streatham Road Chepstowe, Victoria. The identified offset site (covering 8.1 hectares) lies between the Snake Valley Chepstowe Road to the north, McDonalds Road to the south and Pittong Chepstowe Road to the east. The property is currently owned by Neville James Oddie (J H Oddie & Co Pty Ltd, ACN: 082 840 122). The offset area is located within a larger pastoral property which includes other biodiversity offset sites, and management prescriptions within this plan are consistent with the plan for the broader property. The broader property has been the subject of a targeted survey for GSM which has been recorded at numerous locations across the property and within the nominated offset site covered by this OMP (ABZECO 2015).

While a significant proportion of this 8.1 ha offset site is not considered to be native vegetation (i.e. the perennial groundcover / understorey doesn't support a minimum of 25% cover of indigenous species) it still represents habitat for GSM.

This OMP outlines how the Chepstowe GSM offset site will provide the 8.1 hectares of GSM habitat of the total required offsets for the Inverlochy farming property, amounting to an offset of about 3.6 times the impact to GSM habitat at the Inverlochy farming property.

The Chepstowe GSM offset site will be secured in-perpetuity through an appropriate legal encumbrance registered on the property (a covenant as to part Section 3A *Victorian Conservation Trust Act 1972*). Gains in GSM habitat quality through on-ground actions are expected over the duration of the 10 year offset management plan, and through the ongoing land-use commitments to manage the offset site for biodiversity conservation.

This plan specifies a range of management actions for the offset area, including weed management, management of tree and shrub recruitment, and protection of the habitat values of the offset site from degradation by stock and unauthorised access. The plan documents an adaptive management framework, in which management actions are modified based on the results of monitoring and auditing activities in order to keep management focussed on the outcome of protecting and enhancing GSM habitat. The risk assessment also includes triggers for plan review, following environmental events such as significant weed invasion that has the potential to significantly alter the character and condition of the offset site.



# 1. Introduction

## 1.1 Project background

Biosis Pty Ltd was commissioned by Crystal Creek Properties Pty Ltd (Crystal Creek) to prepare a Golden Sun Moth Offset Management Plan (OMP) for an offset site required for losses associated with the development of Inverlochy farming property, Wallan, Victoria (Figure 1), as outlined under referral 2018/8148.

An ecological assessment of the Inverlochy farming property, including a habitat hectare assessment and results of targeted surveys, is documented by Biosis (2017). This report identifies the condition and extent of native vegetation, including the area of Golden Sun Moth *Synemon plana* (GSM) habitat to be impacted in association with the proposed development (Figure 2). Consequently, Biosis (2017) was used, in conjunction with the *Environment Protection and Biodiversity Conservation Act 1999* EPBC Act offsets policy, to identify the extent of GSM habitat required to offset impacts to these MNES resulting from the development of the Inverlochy farming property.

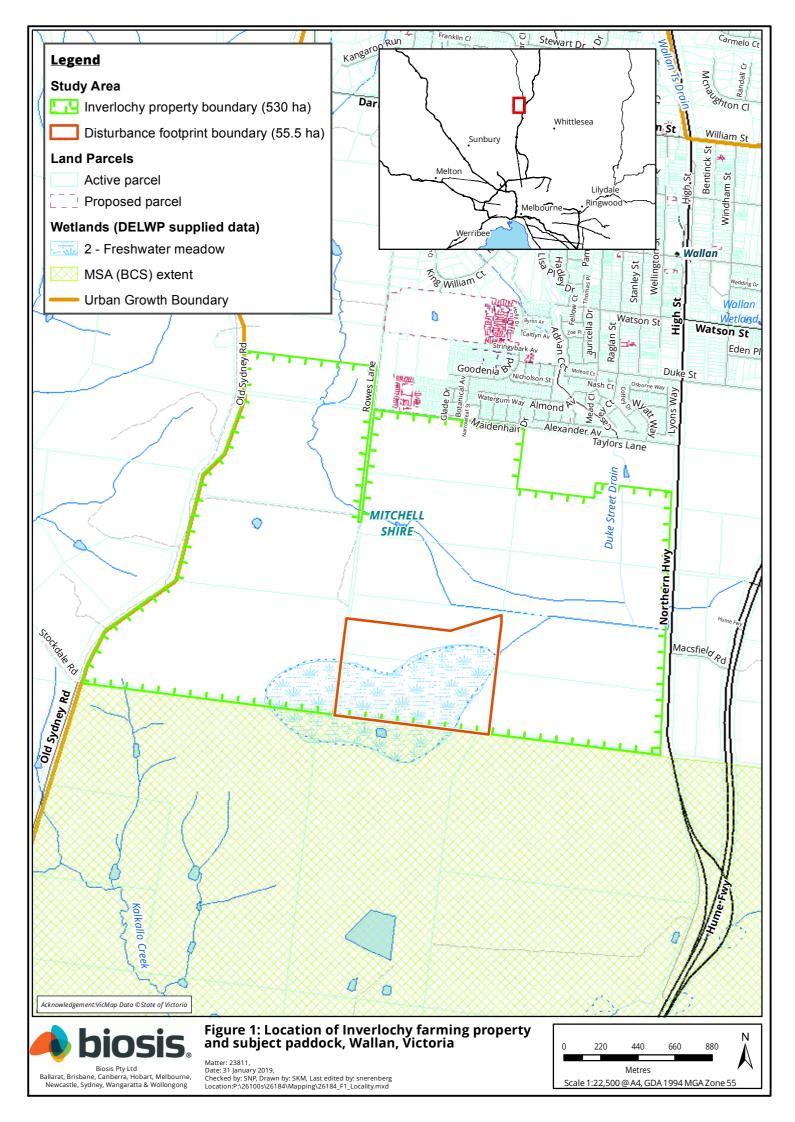
A planning permit application for the proposed development has been submitted to Mitchell Shire Council and is in the process of being assessed. The development is being assessed by the Department of the Environment and Energy (DoEE) under the EPBC Act through referral 2018/8148.

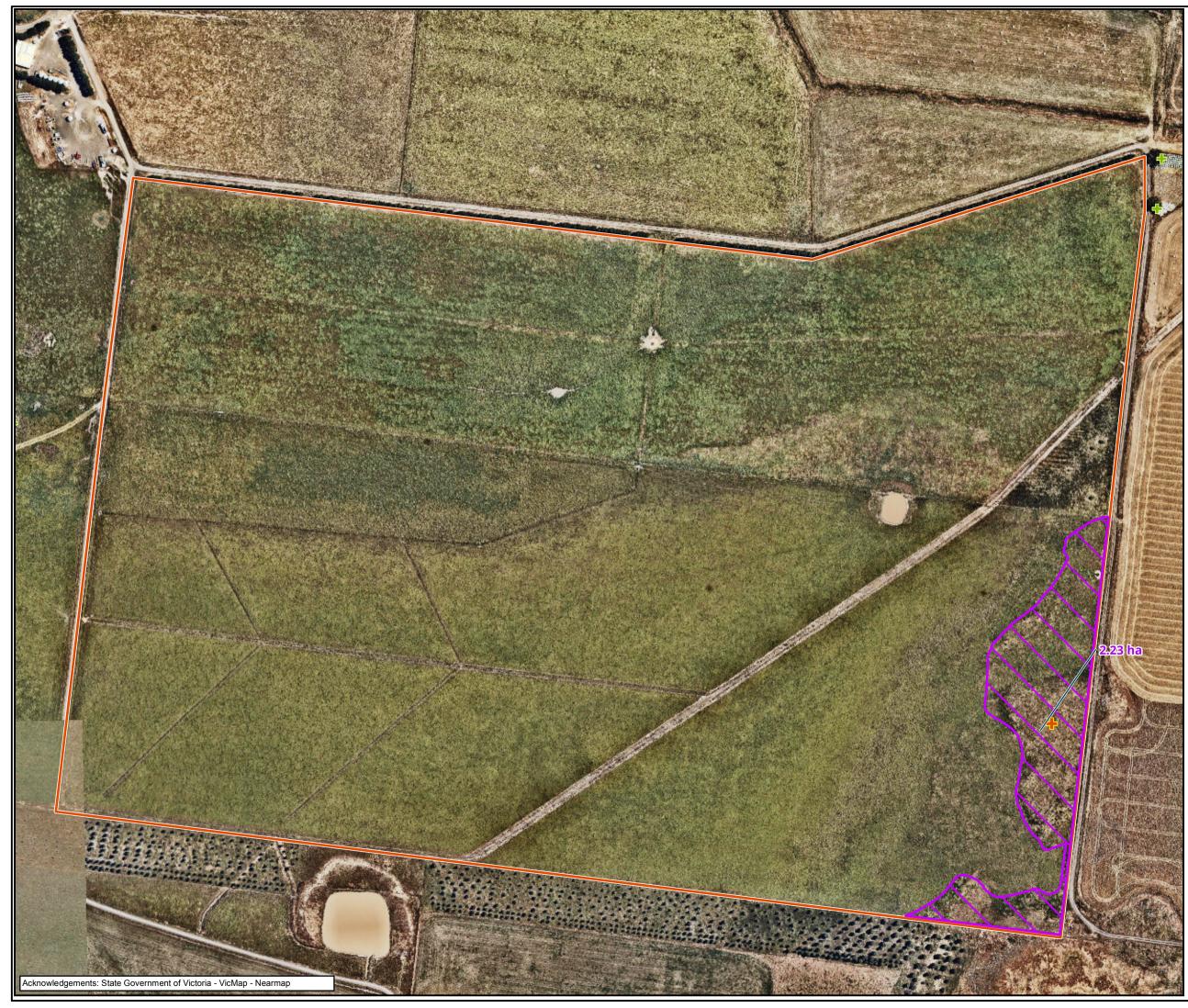
The development, if approved, would result in clearing of 3.708 hectares of native vegetation of which 2.23 hectares is confirmed GSM habitat (Figure 2).

The external EPBC Act offset for GSM habitat is proposed to be sourced from one parcel of the pastoral property at 346 Carngham Streatham Road Chepstowe (Figure 3, the Chepstowe GSM offset). An ecological assessment of the Chepstowe offset was conducted by Biosis in 2018 and targeted surveys for GSM completed later in the same year (Biosis 2018). This report provides the ecological information to support this OMP including documented evidence of a resident GSM population. This OMP covers an area of 8.1 hectares dominated by vegetation that could not be defined as native vegetation at the time of the assessment but which still supports a significant population of GSM (Figure 4). Management of this external EPBC Act offset will involve protection and active ecological management of 8.1 hectares of relatively unimproved pasture which supports GSM food plants.

The overall development of the Inverlochy farming property will be conducted in a manner such that the existing GSM habitat will be lost in a single event. The project is expected to begin in mid-2019 and be completed within one to two months. All offsets required to compensate for this removal will be sourced prior to commencement of the proposed development. Works will not commence until offsets have been sourced and the relevant Offset management Plans (s) approved by the Minister. This OMP outlines how the Chepstowe GSM offset site will provide the total required offsets for the Inverlochy farming property (8.1 hectares of GSM habitat).

A glossary of technical terms used throughout this OMP is provided in Appendix 3.





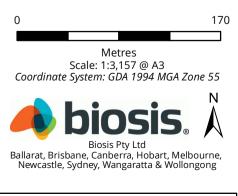
### Legend

Disturbance footprint boundary

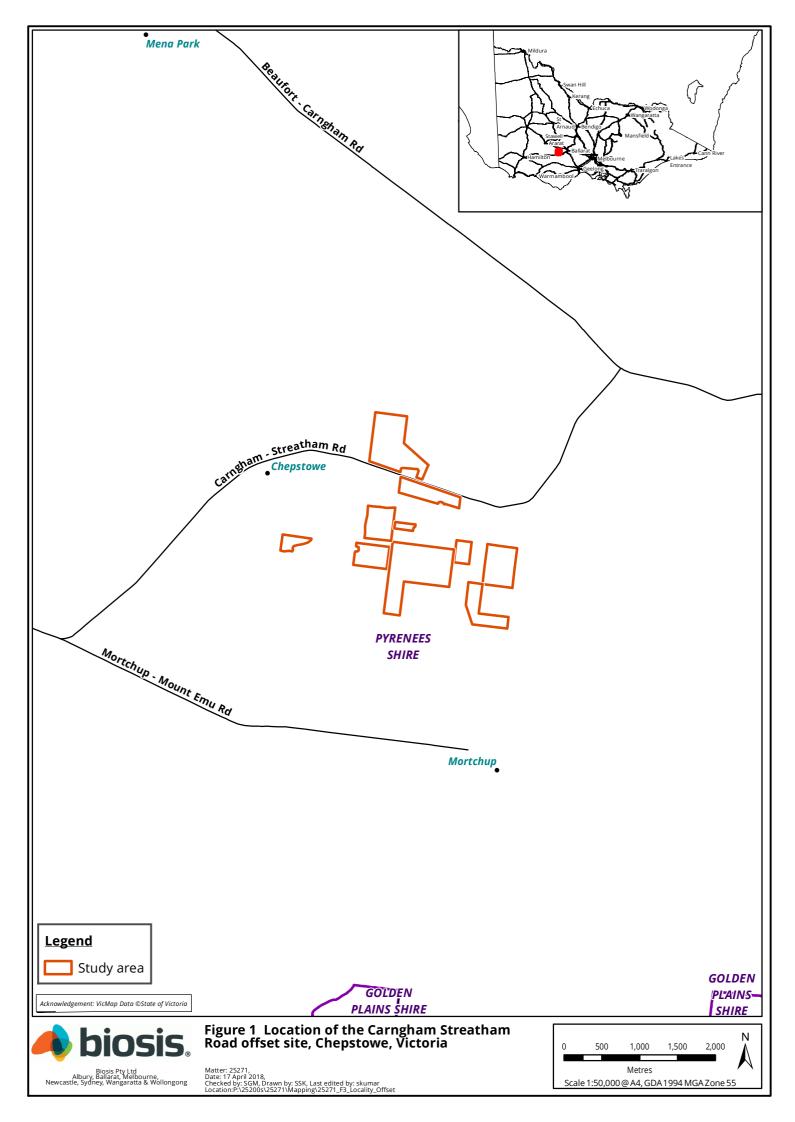
Impact area: Golden Sun Moth habitat proposed for removal

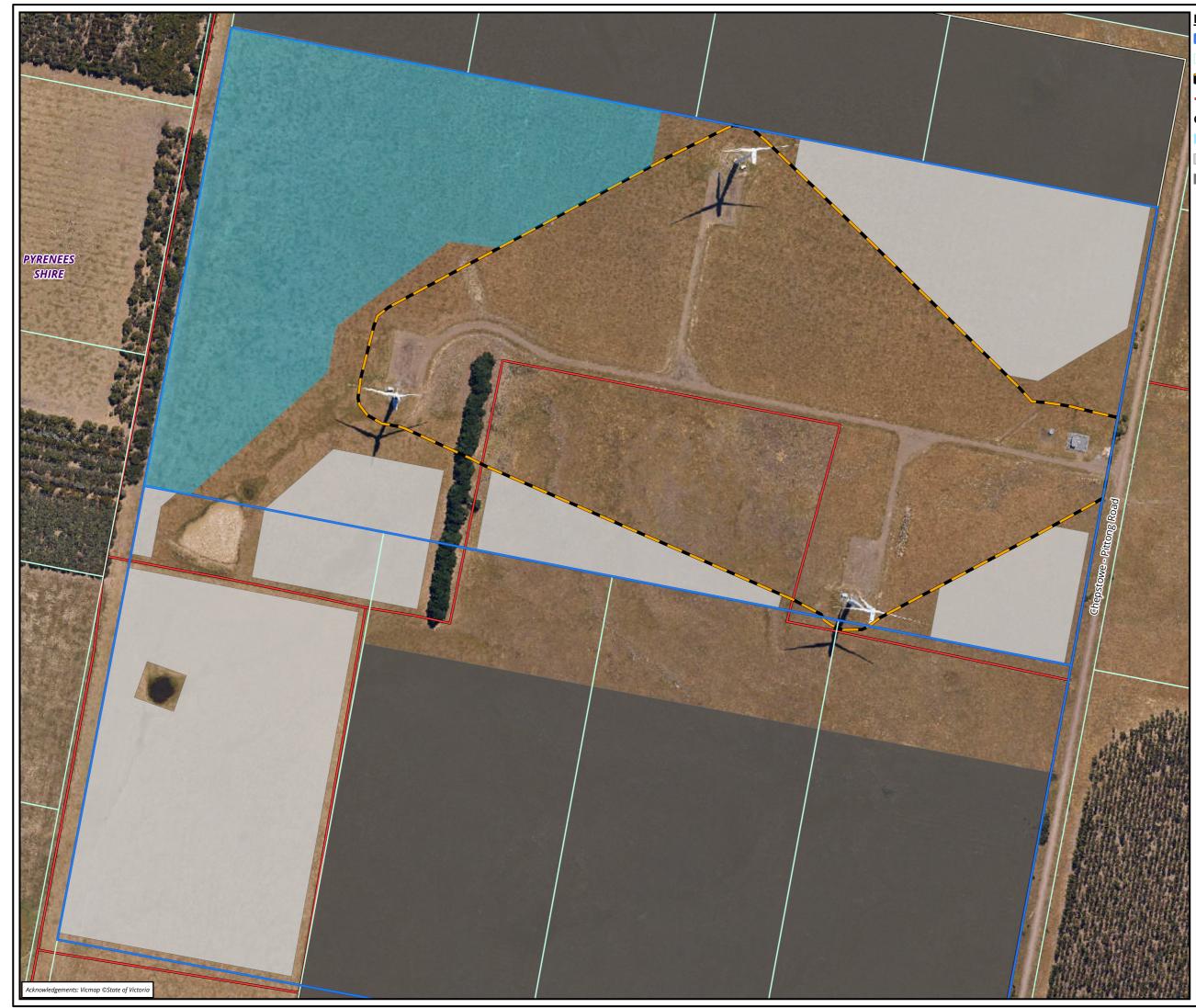
Golden Sun Moth records location
 (3 males observed)

## Figure 2 Location of the impact area for MNES within the Action area, Wallan, Victoria



Matter: 23811, Date: 31 January 2019, Checked by: SN, Drawn by: LDM, Last edited by: snerenberg Location:P:\26100s\26184\Mapping\26184\_F2\_MNES.mxd





#### Legend

- Title boundary
  - Lot boundary
- 🔲 Wind farm lease area
- Farm fence

### Offset areas

- GSM offset 8.10 ha
- Other pending offset 43.85 ha
- Existing offsets

## Figure 4 Crystal Creek Golden Sun Moth (GSM) Offset area, Chepstowe, VIC.

0 20 40 60 80 100 

Metres Scale: 1:3,000 @ A3 Coordinate System: GDA 1994 MGA Zone 54

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Matter: 26184, Date: 18 August 2023 , Prepared for: STT; prepared by: SP, Last edited by: mknudsen Layout: 26184\_F4\_CHEPS\_2022 Project: P:\26100s\26184\Mapping\ 26184\_Inverlochy\_EPBC\_prelim\_documentation.aprx



## 1.2 Objectives

The objective of this OMP is to document the development site and GSM offset site details to meet EPBC Act approval requirements of offsetting impacts to GSM by securing, maintaining and improving GSM habitat within the designated offset site. The objectives of this plan are to:

- Improve the condition of 8.1 hectare area within the Chepstowe property (346 Carngham Streatham Road, Chepstowe) in a manner consistent with the EPBC Act Environmental Offsets Policy;
- Support establishment of legal security arrangements for the in perpetuity protection and management of the offset site;
- Undertake management actions to protect and improve the quality of GSM habitat within the offset site;
- Provide a timetable of management actions, outcomes and progress reviews;
- Detail appropriate monitoring and evaluation of management actions and completion criteria; and
- Compensate for the proposed loss of habitat at Inverlochy farming property, Wallan, as detailed in EPBC referral 2018/1848.

### 1.3 Report structure

The structure and content of the OMP is consistent with the requirements of the 'Standard Offset Plan' template provided by DELWP and is organised in a number of parts:

- **Introduction** This section summarises the background information relevant to the Project, including the purpose and scope of the work and the assessment methodology.
- **Part A: Offset Suitability** This section assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. Part A should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. Covenant under the *Victorian Conservation Trust Act 1972*).
- **Part B: Offset Implementation** This section describes how the offset is to be implemented. Part B includes details regarding landowner commitments, management activities, monitoring and reporting. This section is intended for those responsible for implementing the OMP, including future landowners. Information in this section is intended to be placed on title.

The plan also incorporates the requirements of guidelines for the preparation of an offset management plan under the EPBC Act offsets policy (Commonwealth of Australia 2014).



# 2. Part A: Offset suitability

This section provides details of the development site, assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. This section should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. Covenant under the *Victorian Conservation Trust Act 1972*). The location of the development site and the proposed offset site are provided in Figures 1 and 2 respectively.

## 2.1 Development site Details

Landowner of development site	Crystal Creek Properties Pty Ltd
Location and address of development site	175 Northern Highway, Wallan, Victoria
Local Government Area	Mitchell Shire
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
Permit applicant	Crystal Creek Properties Pty Ltd
Planning Permit Application (ID)	PLP319/17
Date Approved	27 June 2019

## 2.2 Vegetation Approved for Removal

Vegetation removal associated with the development of the Inverlochy farming property (Figure 1) is consistent with the requirements of the planning permit. Vegetation to be removed is described in the biodiversity assessment prepared by Biosis (2017) and the condition of this vegetation is summarised in Table 1. A total of 3.708 hectares of native vegetation is proposed for clearing, of which, 2.23 hectares is classified as GSM habitat (Figure 2).

## 2.3 Description of offset site – 346 Carngham Streatham Road Chepstowe

The nominated GSM offset site at 346 Carngham Streatham Road Chepstowe (8.1 hectares), has been identified as meeting Commonwealth offset policy requirements (DSEWPaC 2012). Crystal Creek will provide a total offset package of 8.1 hectares of occupied GSM habitat. The following summarises the existing conditions at the Chepstowe GSM offset site, including current permitted uses and its suitability as an offset as assessed against Commonwealth requirements.

The site is approximately 32 km west of Ballarat and 130 km west of the Melbourne central business district (Figure 3). The property is currently zoned Farming Zone within the Shire of Pyrenees and is not covered by any overlays relating to biodiversity or inundation. The land is owned and managed by Neville Oddie (Director, J H Oddie & Co Pty Ltd) who also holds broader areas of farmland in this location. The site has historically been used for domestic stock grazing and is currently managed for sheep grazing. Three wind turbines also occupy part of the land parcel on which the proposed offset is located.



#### 2.3.1 Habitat description

The offset site is located within the Victoria Volcanic Plains Bioregion (<u>http://maps.biodiversity.vic.gov.au/</u><u>viewer/?viewer=NatureKit</u>) and is dominated by undulating hills.

DELWP identifies the native (pre-1750) vegetation of the site as a combination of the ecological vegetation classes (EVC) Plains Grassy Woodland (EVC 55). While scattered remnant tree, including River Red-gum *Eucalyptus camaldulensis* and Yellow Gum *Eucalyptus leucoxylon* are present within the broader property, past clearing has largely resulted in treeless vegetation.

Scattered shrubs include Black Wood Acacia melanoxylon and Hedge Wattle Acacia paradoxa.

A modified ground cover is typically dominated by the perennial Brown-top Bent *Agrostis capillaris* although annual introduced grasses such as Oats *Avena* spp., Bromes *Bromus* spp., Fescue *Vulpia* spp. and Rye-grass *Lolium* spp. are also prominent. There are also patchy areas of perennial pasture species (weeds) such as Toowoomba Canary-grass *Phalaris aquatica* and Cocksfoot *Dactylis glomerata*.

However, native ground cover species are scattered across the site and occasionally form smaller patches which would be classified as native vegetation but are too small to map in the broader context. Common species include Wallaby-grasses *Rytidosperma* spp., Common Wheat-grass *Anthosachne scabra*, Spear-grasses *Austrostipa* spp. and Weeping Grass *Microlaena stipoides*.

The ground cover varies from being relatively open to being quite dense depending on the recent intensity of grazing.

The open nature of the grassy ground cover and the scattered presence of suitable food plants (such as Wallaby-grasses and Spear-grasses) provides the suitable habitat requirements for GSM.

#### 2.3.2 Offset Site suitability

The proposed offset site supports a large and well established population of GSM and is 130 kilometres west of the development site. While offsets are often provided in close proximity to the development site, in this case, the current statutory arrangements make this impracticable. The Inverlochy farming property is within the Melbourne Urban Growth Boundary so would ordinarily be covered by the Melbourne Strategic Assessment and associated Biodiversity Conservation Strategy. However, the area of the development site shares a border with the area covered by the Melbourne Strategic Assessment (DSE 2009) but is not with the MSA area itself. As part of the broader development of Melbourne's expanded urban growth boundary, the Victorian Department of Environment, Land, Water and Planning (DELWP) developed a broader conservation strategy for GSM in the Melbourne region (DEPI 2013). As such it is considered that conservation efforts for this species are well catered for in the Melbourne region.

The protection of more remote populations of this species across its natural range is therefore considered to provide a positive conservation outcome for this critically endangered species since conservation of this species outside the Melbourne area has not been considered on a strategic level.

#### 2.3.3 Site condition

The proposed offset site has been subject to past land clearing for the grazing of domestic stock (sheep and cattle). It has been subject to some level of pasture improvement activities which has established a patchy cover of selected agricultural grasses such as Rye-grass, Toowoomba Canary-grass and Cocksfoot. While the site may have been subject to some level of fertilizer application, the existing vegetation suggests any application has been infrequent.

While at the time of the assessment, most of the ground cover does not support a sufficient component of perennial native species to be defied as native vegetation (i.e. Victoria's definition of native vegetation



requires 25% of the perennial ground cover to be composed of native species for areas to be defined as a patch of native vegetation), the pasture does support small patches of spear-grasses and wallaby grasses which achieve this threshold.

Weed cover is typically dominated by Brown-top Bent and annual introduced grasses. However, noxious weeds such as Gorse *Ulex europaeus*, Spear Thistle *Cirsium vulgare* and Paterson's Curse *Echium plantagineum* while present at relatively low abundance, have the potential to degrade the GSM habitat present. Note that none of the weed species present are food sources for GSM meaning that weed removal does not pose a threat to GSM food sources.

There are also signs of the presence of European Rabbit (warrens, scratchings and latrine sites).

Details of Quality scoring of the offset site are provided within the preliminary documentation.

#### 2.3.4 Current permitted land uses

The property is zoned Farming Zone (FZ) within the Pyrenees Shire Planning Scheme and is not covered by any overlays relating to biodiversity or inundation. The purpose of the FZ is to provide for the use of land for agriculture including the establishment of plantations for timber production over areas of at least 40 ha.

In its current condition, the proposed offset site does not meet the definition of a patch of native vegetation and offsets would not be required if this vegetation were to be removed through agricultural activities such as domestic livestock grazing, weed control or pasture improve.

If conditions improve and native vegetation were to meet the definition of a patch, removal of native vegetation is controlled under Clause 52.17 of the Victoria Planning Provisions but some removal of native vegetation would still be exempt from needing a planning permit and associated offsets (Clause 52.17-7), for activities including:

- Removal of dead vegetation.
- Removal of vegetation for construction of a boundary fence.
- Mowing of understorey grass vegetation to a height of 100 mm above ground level.
- Grazing by domestic stock.
- Timber harvesting of 'reasonable amounts' for personal use, including firewood and construction of fences or buildings.
- Pruning of up to 1/3 of the foliage of individual plants.
- Treatment of pest animal burrows or weed infestations.
- Stone exploration or extraction.
- Fire protection, including periodic fuel reduction burning or construction of firebreaks and fire fighting access tracks.

There are no existing buildings within the property in which the proposed offset area is located but there are three wind turbines.

#### **Existing offset arrangements**

The proposed offset area has not been allocated for the provision of any other offsets, either under the EPBC offsetting policy or for provision of offsets under Victorian policy, including the Biodiversity Assessment Guidelines or the Net Gain Framework.

Other sections of the property contain habitat and recorded individuals of GSM. These sections may be subject to separate, future offset arrangements for other projects.



## 3. Part B: Offset Implementation

This section presents the actions required to implement the OMP. The OMP details methods for the management, conservation and improvement of native vegetation at the offset site for the benefit of the protected matter (GSM) over a ten year period commencing from EPBC Act approval of this OMP. These actions are required over the initial ten year period and, while the OMP may be updated after that period with approval from DoEE, active ecological management to maintain or improve GSM habitat condition is required for the life of the EPBC Act Approval and from thereon in perpetuity.

All works will be conducted by a suitably qualified and experienced contractor and/or the landholder. Prescribed management actions are, where relevant, in accordance with the Victorian BushBroker standards for management (DSE 2012a, DSE 2012b and DSE 2012c).

The OMP aims to achieve habitat improvement gains through on-ground actions and therefore is required to be achievable, straightforward and practical. All of the management actions specified must be measurable and support the offset completion criteria.

## 3.1 Offset site details

Table 1 provides details of the offset site, including the landowner, parcel details and local government property information.

Offset Site Details			
Landowner of offset site	Neville Oddie (Director, J H Oddie & Co Pty Ltd, ACN: 082 840 122)		
Landowner Contact	Neville Oddie (NevOddie@netconnect.com.au)		
Location and address of offset site	346 Carngham Streatham Road		
Area of offset site	8.1 ha		
Parish	Chepstowe		
Allotment (SPI)	Part of Lot PC375103 (346 Carngham Streatham Road)		
Volume / Folio	PC375103		
Local Government Area	Pyrenees Shire		
Bioregion	Victorian Volcanic Plain		

#### Table 1 Offset Site Details

## 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 farmland which will be managed in a sympathetic manner on a voluntary basis. The current land owner has secured formal offset agreements to protect other portions of this broader area of GSM habitat but the nominated section of this parcel has not been allocated for the provision of any other offsets, either under the EPBC offsetting policy or for provision of offsets under Victorian policy.



All easements noted on the current title have been excluded from the net offset area. No future easements can be applied to the offset area as these are likely to conflict with the objectives of this OMP. Tracks, dams and infrastructure that will not be primarily managed for GSM habitat have been excluded from the offset area.

## 3.3 Offset security, management responsibility and reporting requirements

Crystal Creek has located a suitable offset site and negotiated an agreement with the owner(s) of the property. The proposed offset area is located within a larger property on the Carngham Streatham Road, Chepstowe. The property is owned by Neville Oddie (Director, J H Oddie & Co Pty Ltd) (or other future owner), who will be responsible for ongoing management of the offset site throughout the period of this plan.

The offset site will be secured and managed for the purposes of conservation in perpetuity via covenant as to Section 3A *Victorian Conservation Trust Act 1972*, to be registered on title and managed by the Trust for Nature (TfN). The management strategy for the proposed offset site consists of implementing a vegetation OMP incorporating the management of ground cover biomass using the time controlled grazing of domestic stock, weed and vermin control, and regular monitoring. Details of security and management responsibility are shown in Table 3.

Responsibility			
Who is liable/responsible for meeting offset requirements?	Crystal Creek Properties Pty Ltd		
Type of security	Covenant as to part Section 3A Victorian Conservation Trust Act 1972		
Date of commencement for the covenant	To be implemented in 2019 before works commence		
Date agreement registered on-title	To be completed in 2019		
Offset site management responsibility	Neville Oddie		
Offset Monitoring Responsibility	Neville Oddie		
Site management	Neville Oddie		
Monitoring	Neville Oddie		
Auditing	Crystal Creek Properties Pty Ltd		
Reporting responsibility (to TfN)	Neville Oddie		
Reporting responsibility (to DoEE)	Crystal Creek Properties Pty Ltd		
Plan review	Crystal Creek Properties Pty Ltd		

#### Table 2 Security and Management Responsibility and Reporting Requirements

The offset area will be secured in-perpetuity via a covenant as to part Section 3A *Victorian Conservation Trust Act 1972*, to be registered on the title in 2019. The encumbrance registered on title requires the landholder and future owners to manage the land in accordance with this OMP or any future approved revisions of this plan.



The covenant will specifically state the in-perpetuity land-use commitments across the offset site to:

- Retain and manage all GSM habitat as directed by this offset management plan;
- Exclude domestic stock except as permitted by this plan;
- Exclude the use of stock feed such as hay or other material which could support weed seeds that is sourced from outside the offset area. Sterile feed such as pellets can be sourced externally;
- Eliminate any woody weeds and control the cover of other high threat weeds ensuring this cover does not increase beyond levels achieved at Year 10 of management;
- Ensure that pest animals are controlled and that level of control attained at the completion of Year 10 of management is maintained in perpetuity.
- Exclude pasture improvement and any type of cultivation and cropping;
- Exclude fertilizer application for the first ten years of the covenant. TfN may then permit low levels of fertilizer application if the land owner can prove this will not adversely impact native vegetation or GSM habitat.
- Control the accumulation of ground cover biomass through either the controlled grazing of sheep or using the controlled application of fire;
- Monitoring for any new and emerging high threat weeds and eliminate to < 1% cover;
- Maintain a progressive annual works plan which caters to current conditions and prescribes ongoing management with the promotion of native perennial grasses as its primary objective; and
- Monitor and report on the abundance of GSM within the offset site during the first flight season after initiating this OMP and then during the flight seasons in years 2, 4, 6, 8 and 10 of this OMP and thereafter as requested.

Implementation of this management plan is the overall responsibility of the land owner (Neville Oddie). 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 3.10) with reports submitted to TfN, Crystal Creek and DoEE. Management actions by the land owner will be overseen by the TfN as part of the legal protection over the site.

The 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.

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

Implementation of the OMP will begin upon registration of the covenant with registration of the covenant to be commence on approval of the OMP.

Funding for implementation of this OMP has been agreed between Crystal Creek, the land owner and TfN. 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.



## 3.4 Offset completion criteria

The key environmental outcomes / criteria to be achieved through protection and management of the offset area are:

- Legal protection of 8.1 hectares of GSM habitat for the period of the OMP, and in perpetuity;
- Physical protection of the habitat area from manageable threats including uncontrolled stock grazing, weed infestations and degradation by pest animals.
- Improvement in the condition of GSM habitat, as measured by habitat monitoring.

#### 3.5.1 Future site condition - completion criteria

The 8.1 hectare offset site must achieve a gain in Quality score of 1 point over the 10 year period by achieving the following site condition:

• predominantly moderate quality native vegetation (VQA site condition score of over 30/75) including at least 20% cover known food source

This will be done primarily by reducing the cover of perennial grassy weeds and managing biomass.

Attaining the nominated future condition class will require the VQA site condition score components of Lack of Weeds to be scored at 25% cover or less and the amount of inter-tussock spaces (Recruitment score) at >20 to 40%.

Monitoring assessments will be undertaken in marked quadrats distributed through the offset site as described in Section 3.10.2. A key target will be a decline in the average abundance of perennial introduced pasture grasses such as Brown-top Bent, Toowoomba Canary-grass and Cocksfoot.

Maintenance of the open tussock structure across the site, the removal of woody weeds and a decline of 50% in the average cover of perennial grassy weeds (including Brown-top Bent, Toowoomba Canary-grass and Cocksfoot) after 10 years of management (in comparison to baseline monitoring data) will be undertaken to ensure successful attainment of the nominated future condition class.

#### 3.5.2 Performance criteria

Key performance and completion criteria are:

- Continuous improvement in average site condition as described in Section 3.5.1.
- Effective threat abatement, including the control of stock grazing, weeds and pests as specified in Section 3.9.
- Completion of scheduled management actions (Section 3.9 and Table 5 & 6).
- Completion of scheduled monitoring activities (Section 3.10 and Table 7).
- Completion of scheduled reports and audits (Section 3.11, 3.12 and Table 8).

## 3.5 Limitations and uncertainty

This management plan has been formulated using information from recently conducted site inspections and targeted surveys (Biosis 2018). The OMP will be subject to external review and quality assurance by DoEE, the land owner and TfN as part of the process to register the site covenant. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate.



The proposed offset area supports records of GSM from targeted surveys undertaken in the most recent 2018/19 flight season (Biosis 2019) as well as surveys in the 2016/17 and 2017/18 flight seasons (ABZECO 2018).

The OMP includes a reasonable expectation that the control of environmental weeds to reduce their cover and prevent / restrict their production of seed, while concurrently encouraging the growth and seed production of the existing cover of indigenous grasses, will result in an increase in the abundance and cover of native grasses. As most of the native grasses present are GSM food plants, this management strategy is expected to improve the habitat condition for GSM. However, there is a possibility that the recruitment of indigenous species will be slower than expected or prolonged drought conditions may inhibit recruitment.

If seed production is restricted by unforeseen circumstances such as drought then seed collection and dispersal options would be investigated. Alternatively the time period for active management would be extended to compensate for any lag in the establishment of native grasses.

## 3.6 Ongoing management commitments

The offset site will be managed for the purposes of the conservation of GSM.

From the commencement of the agreement, the landowner agrees to undertake the following management commitments in perpetuity:

- Eliminating all woody weeds < 1% cover through continuous detection, treatment and infestation prevention.
- Monitoring for any new and emerging high threat weeds and eliminate through continuous detection, treatment and infestation prevention and eliminate to < 1% cover.
- Ensuring that overall weed cover does not increase beyond the current levels (current total herbaceous / grassy weed cover for the property varies from 10% to 80%).
- Control introduced perennial grasses such as Brown-top Bent, Toowoomba Canary-grass and Cocksfoot with the objective of reducing their current extent by 50% at the end of the 10 year management period (as defined by baseline monitoring).
- Controlling rabbits, hares and foxes to an extent above existing legal requirements.
- Exclude stock except as otherwise permitted under this plan.
- Exclude the use of stock feed such as hay or other material which could support weed seeds that is sourced from outside the offset area. Sterile feed such as pellets can be sourced externally;
- Exclude pasture improvement (excepting ground cover rehabilitation to increase the cover of native grasses), and cultivation for commercial cropping;
- Excludes the planting of shrubs and trees, including both native and introduced woody species (except as otherwise approved by TfN); and
- Exclude fertilizer application for the first ten years of the covenant. TfN may then permit low levels of fertilizer application if the land owner can prove this will not adversely impact native vegetation or GSM habitat.



### 3.7 Risk assessment and adaptive management

Active ecological management is expected to provide a high probability of generating improvements in the condition of the vegetation present (i.e. increasing the abundance of native grasses and herbs while decreasing the abundance of introduced species) and attainment of the offset completion criteria.

The management actions proposed in this plan are based on a combination of experience in the management of native grasslands and grassy woodlands, documents prepared by Victoria's Department of Environment, Land, Water and Planning (DELWP) (i.e. DSE 2009) and other publications (i.e. Marshall 2013, Williams et al. 2015).

The proposed strategies for the management of this site are consistent with established practices for the management of grasslands and grassy woodlands elsewhere including State conservation reserves and offset sites.

The active involvement of TfN is expected to provide high quality guidance and advice to the landholder in their management of the site.

The monitoring protocols documented in this plan are considered adequate to detect attainment of the offset completion criteria (above).

The plan includes a basic strategy (time controlled grazing) for ground-cover biomass control which is considered a major ecological management requirement for the site. Where this fails to deliver the prescribed outcome in any one year, ecological burning provides an option to achieve the required biomass management target (i.e. maintaining an open grassland environment dominated by native species). The application of one or both of these management actions will provide the biomass control outcome required.

It is acknowledged that the response of natural environments to management can be unpredictable and management activities need to be flexible to respond to changing conditions and unpredictable events. Examples of potential risks are outlined in Table 5 and discussed below. Seasonal conditions can also vary greatly from year to year and influence offset site management actions in any one year. This seasonality is recognised in this offset plan by allowing for flexibility around timing of actions at the discretion of the land manager in consultation with TfN so as to attain and maintain performance and completion criteria.

There is some risk that biomass control is not properly managed in any one year. This has the potential to occur in response to above average rainfall years when ground cover growth is persistently high while wet conditions restrict stock access and the potential use of ecological burning. If such events occur, the land manager will ensure additional efforts are made by in subsequent years to maintain the rate of improvement required.

Another major ecological management requirement is weed control, with the objective of reducing the overall presence of weeds and reducing biomass. Varying seasonal conditions will provide triggers for changes in the abundance of different species, particularly weeds. The greatest risk to achieving the required outcomes is a failure to conduct an appropriate level of work at an appropriate time or the occurrence of persistent adverse conditions restricting an appropriate management response. The regular site inspections will allow land managers to anticipate changes in seasonal conditions and respond accordingly. Persistent, well timed management actions will be able to take advantage of seasonal fluctuations to achieve the completion criteria.

Woody weeds are currently at very low rates abundance and it will be a relatively simple management exercise to eliminate mature woody weeds while maintaining a schedule of controlling any new infestations. Seedlings of re-sprouting or re-colonising woody weeds will be detected through monitoring and controlled by the proposed on-going works. If adult woody weeds are detected in the offset area beyond Year 2 of the



plan corrective actions would be required (e.g. increase woody weed control activities to ensure elimination of these species within one year).

Similarly control works will target perennial weeds including Canary-grasses, Brown-top Bent and Cocksfoot. Persistent herbicide application is an effective control measure for these species and while these species are likely to reinvade from surrounding infestations, ongoing works are planned to cope with the associated management requirements. If adequate resources are not allocated to these tasks, the cover of these species may remain static or increase. Any observations or monitoring which detect an increase in perennial weeds above the previous assessed conditions and percentage cover will trigger a requirement for a greater management input (the required corrective action being targeted increased management actions). In that context additional site observations (over and above formal monitoring) collected by TfN (or an independent ecologist) is essential in providing feedback on the efficacy of management.

Another significant risk associated with the management of this site is the occurrence of climatic triggers which would increase the abundance of weed species by triggering the germination of any soil stored seed reserves. In the first instance management will over allocate resources to weed control as the more comprehensive control achieved by such works the lower the ability these species have to recover / recolonise. Integrating herbicide control works with biomass control works (grazing and/or fire) increases the efficacy of both actions and the outcomes-based approach to this plan (i.e. to attain and maintain the offset completion criteria) supports this approach. Given persistent management occurs it is considered a relatively low risk that the completion criteria will not be achieved.

If after the first 8 years of management, the monitoring results indicate that the completion criteria are unlikely to be achieved, DoEE will be contacted to determine potential additional future offset requirements. If the offset area fails to attain and maintain the completion criteria at or following year 10, but during the period of EPBC Act Approval, an additional offset will be provided to account for the failed offset. DoEE will be consulted to determine the suitability of the replacement offset.

Active management to target the control of pest plants and to manage the accumulation of ground-cover biomass is advantageous to both the health of the vegetation but also to the ability of GSM to persist within this environment. As such the proposed management regime is considered unlikely to have a negative impact on GSM. This has been our experience where Biosis has managed other grassland reserves in metropolitan Melbourne. If the GSM monitoring detects significantly fewer GSM observations (i.e. a decline of over 50%) in successive monitoring events potential causes for such a decline would be investigated and appropriate corrective actions implemented. Such an outcome resulting from the implementation of this OMP is considered highly unlikely (i.e. low risk).

This OMP describes management and monitoring actions at the offset site for the 10 year period following commencement of the OMP. At the end of that period management and monitoring actions will be reviewed in light of the new condition of the offset and any new information relating to the management of this type of grassy woodland environment. Note that active conservation management is required until 2029 and the quality of the vegetation needs to be maintained in perpetuity. The timing of actions is based on adaptive management. By monitoring management actions, and habitat condition, management will be adapted to ensure the stated commitments in the OMP are achieved. Also over time, new management techniques may become available, or further information on the ecology and status of the vegetation communities onsite may necessitate adjustment to management actions. The landowner will continue to receive advice from TfN on any developments in grassy woodland management and update the OMP as appropriate in perpetuity.

Section 4 includes tables of management actions (Table 6) and a risk assessment (Table 7) with associated monitoring (Table 8) and reporting (Table 9) programs.

Key risks identified in Table 5 include:



- Unauthorised entry of domestic stock or vehicles into the offset area;
- Woody weed infestations;
- Expansion of new or existing weeds at uncontrollable levels;
- Rabbit infestations;
- Over abundant tree regeneration; and
- An unexplainable decline in the abundance of GSM.

Failure of the adaptive management approach to adequately respond to risks, as identified in monitoring reports (Section 3.11) or audits (Section 3.12), will result in a review of this plan, as discussed in Section 3.13 and Table 6.

## 3.8 Management actions and land use commitments

This section presents the actions required to implement the management strategy for the offset site. The offset site is to be secured and managed for conservation purposes in perpetuity. Management actions described below are to be implemented for a period of 10 years. The landowner will continue to manage the offset site after the completion of year 10 as specified under the covenant agreement.

The broad objective of site management will be to produce a decrease in the abundance of perennial weeds with a commensurate increase in the abundance of perennial native species, particularly grasses which are known food plants for GSM.

Offsets will be achieved by:

- Weed control:
  - Ensuring that weed cover does not increase beyond current levels.
  - Ensuring that the cover of introduced perennial grasses decreases by 50% of the baseline monitoring cover.
  - Eliminating all woody weeds (<< 1% cover).
  - Monitoring for any new and emerging high threat weeds and eliminate to < 1% cover.
- Managing organic litter and biomass accumulation.
- Monitoring for regeneration of native woody species and conducting ecological thinning as required to avoid the formation of a dense sward of young regrowth. A target maximum density will be one tree per 5000 square metres (average per definable offset unit).
- Controlling rabbits, hares and foxes.
- Monitoring and controlling new and emerging pest animals.
- Retaining all standing trees, dead or alive (where relevant).
- Retaining fallen logs and fallen branches (where relevant).
- Excluding stock except as otherwise prescribed by this plan.

The management actions listed below outline the prescribed actions for achieving the required gains through active management (maintenance and improvement) and permanent protection of the offset site. Table 4 details these prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area as identified in Figure 4.



Where appropriate, the offset management plan and specified management actions should form part of a broader strategy for long-term management of ecological values within contiguous land.

#### 3.9.1 Fencing, information and access control

Threats, including stock grazing must be able to be managed within the offset area at all times. Unauthorised access must also be prevented, particularly access via vehicle for any unauthorised activity. Preventing access will also minimise soil disturbance, soil compaction and the import of weeds and pathogens. The intention of fencing is to protect the property from threats in perpetuity.

The property boundary is currently fenced which currently controls access and threats effectively. However, there are other uses within the title of the offset associated with a leasehold agreement that may involve contractors coming onto the property. All contractors undertaking work that has potential to impact of GSM habitat extent or quality must undergo site induction prior to commencing work. The location of the offset area must be marked out with posts to clearly designate the boundary of the offset area, the offset area is to be shown on farm maps, and permanent signage placed on gates to alert contractors to the presence of protected environmental values.

If these control measures are not practicable, then the offset area will need to be fenced from the adjacent leasehold uses to a standard to prevent accidental access by vehicles and people. There is no requirement to provide additional stock fencing for the offset area, as it is located within a fully fenced property.

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

Where fencing exists or is required to control threats, ensure all fencing around the perimeter of the property is maintained in good condition according to the standards detailed in BushBroker Information Sheet 12 – Standards for Management – Fencing (DSE 2012c), for the term of the OMP.

#### 3.9.2 Woody weeds

#### **Elimination of all woody weeds**

Woody weeds present and otherwise known from the local area include Gorse *Ulex europaeus*, Briar Rose *Rosa rubiginosa*, Horehound *Marrubium vulgare* and Hawthorne *Crataegus monogyna*. The woody weeds present throughout the offset site will be controlled within the first year of the OMP commencement date. Any woody weed recruits subsequently observed within the offset site will have their location recorded and plants subject to control works within 6 months of observation. No woody weeds will be permitted to set seed and will be controlled before any viable seed can be produced.

Any other woody weeds recorded on site must be eliminated appropriately. Any impact to Indigenous plants will be minimised during treatment of woody weeds. Woody weeds will be controlled by either cut & paint techniques, spot spraying or be hand pulled). Monitor for any re-sprouting or seedlings and eradicate.

#### New and emerging woody weeds

Monitoring for new and emerging woody weeds will be conducted throughout the year for the term of the agreement, and any new and emerging woody weeds eliminated.

Refer to Information Sheet 8 - Standards for Management - Weeds (DSE 2012b).

#### 3.9.3 Herbaceous weeds

#### **Control of all herbaceous weeds**

*The Catchment and Land Protection Act 1994* (CaLP Act) lists noxious weeds and requires that all landowners take reasonable steps to prevent the spread of, eradicate and / or control noxious weeds on their land. High



threat weeds are not restricted to those listed under the CaLP Act but are environmental weeds that have potential to displace a lifeform (as defined in the Habitat Hectares method) of the vegetation community through competition for resources. All noxious weeds and woody weeds are considered high threat weeds in in grasslands along with perennial introduced grasses like Toowoomba Canary-grass and Brown-top Bent.

The control of high threat and listed noxious weed species is a key management action within the offset site and must be adequately addressed if improvement site gains are to be achieved.

All high threat weeds will be treated, with an emphasis on ensuring that weed cover does not increase beyond current levels. Weeds listed in Table 4 were found on site and are considered to be a high threat. These weeds will be monitored each year to ensure their cover is not increasing. Increasing cover of these weeds will be controlled using the methods outlined in Table 4 or as otherwise approved by TfN.

Treat weeds before the plant has flowered and set seed. Impacts to indigenous plants will be minimised during treatment.

Relatively flat areas with a low erosion risk can be treated more intensively than areas on slopes which are more erosion prone.

It is noted that none of the weed species present within the proposed offset provide food resources for GSM.

Refer to BushBroker Information Sheet 8 - Standards for Management - Weeds (DSE 2012b).

#### New and emerging high threat herbaceous weeds

Monitoring for new and emerging high threat herbaceous weeds will be conducted throughout the year for the term of the agreement, and any new and emerging weeds eliminated. In addition to any high threat weeds, this must include any noxious weeds listed under the CaLP Act.

Scientific name	Common name	Method	Timing
Avena spp.	Oats	Crash graze, spot spray with an appropriate herbicide.	Late winter to early summer
Cirsium vulgare	Spear Thistle	Chip out or spot spray rosettes with an appropriate herbicide.	Late winter to early summer
Echium plantagineum	Paterson's Curse	Disperse biocontrol agents as appropriate. Spot spray or boom spray with herbicide as appropriate.	Late winter to early summer
Phalaris aquatica	Toowoomba Canary- grass	Spot spray with an appropriate herbicide.	Late winter to early summer
Agrostis capillaris	Brown-top Bent	Crash graze, spot spray with an appropriate herbicide.	Late winter to early summer
<i>Bromus</i> spp., <i>Vulpia</i> spp., <i>Aira</i> spp.	Weedy annual grasses	Crash graze, spot spray with an appropriate herbicide.	Late winter to early summer
<i>Lolium</i> spp.	Rye-grass species	Crash graze, spot spray with an appropriate herbicide.	Winter to Spring
Silybum marianum	Variegated Thistle	Chip out or spot spray rosettes with an appropriate herbicide.	Late winter to early summer

#### Table 3 Herbaceous weeds to be controlled – method and timing



#### 3.9.4 Pest animals

*The Catchment and Land Protection Act 1994* lists rabbits, hares and foxes as established pest animals and requires that all landowners take reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land.

Rabbits and hares will be monitored and controlled throughout the year. If rabbit activity is detected on the site use an integrated approach in accordance with BushBroker Information Sheet 7 – Standards of Management – Rabbits (DSE 2012a). This involves fumigation, hand collapsing of burrows and baiting. Remove any carcasses to prevent poisoning of native predators.

Foxes are a threat to native fauna and will be controlled if found on the property. Fox dens where present are required to be destroyed through fumigation and hand collapse.

Continue to monitor and control rabbits, hares and foxes all year round as well as any new and emerging pest animals.

#### 3.9.5 Biomass / Organic Litter control

Biomass management throughout the offset site is essential to maintain the open tussock grassy ground cover structure preferred by GSM. While there are no specific guidelines for habitat management for GSM within the relevant conservation advice for GSM, habitat degradation of grassland and grassy woodland environments is a known threat for the species.

Where there is a sustained build up in ground cover biomass over any one year, resulting in a reduction of inter-tussock space to an average of less than 30%, biomass will need to be actively reduced. Site productivity is a key determinant of ecosystem responses to disturbance regimes and in productive systems frequent disturbance (i.e. 1 to 5 year intervals) are commonly required to maintain diversity. This is because potentially dominant species, predominantly grasses, can rapidly re-establish between disturbances causing the sub-dominant inter-tussock species to be outcompeted (Morgan 2015).

Determinations on the cover of inter-tussock space and the build-up of groundcover biomass will be made based on the weed monitoring quadrats and general observations made during other monitoring events (i.e. GSM monitoring as per Section 3.10.5) and 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 grassy ground cover. If appropriate, ecological burning could also be utilised.

#### Use of grazing for ecological management

Currently the offset site is subject to unrestricted grazing by sheep and cattle. Given the low diversity of native species found within the uncultivated sections of this site, this method of disturbance (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 outline in this OMP. Biomass accumulation control at this site will therefore consider the standards for management of ecological grazing provided by DSE (2009).

The offset site supports patches of native grassy understorey but in general does not support enough indigenous ground cover to be uniformly defined as native vegetation (DELWP 2017). Timed grazing in the offset area to maintain an open tussock grassland structure is seen as a precautionary management method to disadvantage introduced annual and perennial grasses and provide an advantage to native perennial grasses. Grazing of domestic stock will utilise both sheep and cattle. The use of cattle is more suited for the



initial knockdown in high biomass areas or areas containing extensive areas of dry grass or 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 controlled to allow native species to grow and set seed over the spring to midsummer period (DSE 2009). Stock will be excluded or only occur at very low levels (i.e. less than 20% of recommended stocking rates) from the beginning of October to the end of December annually, for the life of the OMP. However, this period will be flexible to reflect the prevailing climatic conditions and allow the period of grazing exclusion to be varied on ecological advice and for the purposes of conservation management. The landowner will keep records of the number of stock 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 process. This data and the resultant impact on biomass will provide the basis for an on-going grazing strategy to be approved by the TfN or another independent ecologist.

The only exception to requirements specified for the control of grazing is if an ecological burn is planned and occurs during the 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 post-fire.

Note that the objective of grazing is to maintain an open tussock ground cover structure and to allow native perennial grasses to set seed and increase their abundance over time.

#### 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 Country Fire Authority and in line with a fire management plan completed by a suitably qualified consultant. The following provides guidelines for use of burning only in an ecological sense.

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 (compared to 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 to effective weed control. However, stimulating the soil-stored weed seed bank is seen as positive as this allows this seed bank to be exhausted through active management.

Burning is acknowledged as an important component of the natural disturbance regime in grassy ecosystems but because of the habitat requirements for GSM burning will be restricted to outside the GSM flight season (generally November to January in Victoria). This allows management to be consistent with the relevant conservation advice.

The controlled application of fire will 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 portion of the offset area is to be burnt more frequently than once every three years (unless approved by TfN in consultation with a qualified ecologist). Burning will be conducted in a mosaic pattern and any individual burn will not burn the entire site.

The landowner will prepare maps identifying the fire history of the offset area to ensure biomass control efforts are at appropriate frequencies and recorded. Details of fire and grazing within the offset will also be documented in the annual reporting.



Any ecological burns will be conducted during benign (nil to low wind and mild temperature) weather conditions and are likely to be patchy (i.e. not result in the uniform burning of all areas). Patch burning will ensure an array of small patches are burnt covering no more than about a hectare for any burnt patch. This will be mapped by GPS to ensure appropriate tracking of management actions.

No portion of the offset site will be burnt at a frequency of more than three times over any decade covered by this OMP. This is considered a low fire frequency for the management of grassy ecosystems.

Any burning strategy will minimise impacts to GSM and the potential for fire to spread in an uncontrolled manner. Ecological burning will only occur outside the prescribed declared fire danger period for this region.

Burnt areas will be protected from grazing for at least 6 months immediately following the burn to allow species regeneration and recruitment to occur. A cover of vegetation above 60% is be required before grazing can be re-introduced.

## 3.9 Monitoring

Monitoring of the site is an integral component of the regular site management activities. Such monitoring identifies changes early, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the OMP. This includes observations by the landowner during normal activities within the offset site and broader property. Such observations are important for maintaining things such as the integrity of fencing and site security. While these are normal land management activities they have also been formalised in this OMP (See Table 4).

Regular site inspections (of about one hour at least every two months) to provide general condition observations are also a requirement of this plan (See Table 4). At a minimum the landowner must keep a diary of any works conducted within the offset site and record any observations which could influence or initiate a management response (e.g. "observed seedlings of a new woody weed in the middle of the offset site today. Will spot spray these with an appropriate herbicide by the end of the week"). These details provide valuable information on the management of the site and detail the commitment of the landowner to the OMP.

More general supervision/monitoring of the offset site will be undertaken by the TfN to ensure the grassy ground cover response to management actions achieve the offset completion criteria. TfN will visit the site a minimum of four times over any 10 year 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 inspected 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 (or more frequently as required).

Records of all management actions will be kept to provide evidence of completed works and management tasks.

A list of plant species observed, noting which, if any, weed species have become locally extinct will be maintained for the offset site by the landowner. While all data collection will be the responsibility of the landowner, all data collected will be provided to DoEE on request.

Annual vegetation monitoring assessments conducted by suitably qualified ecologists will include a broad assessment of the entire offset site to document the general overall condition of the site and the ability of management works to attain and maintain the OMPs completion criteria).



#### 3.10.1 Fence condition

Surveys of the property boundary fence must be conducted quarterly, and when visiting the site to conduct other monitoring or management actions. Any damage to the fence that may allow vehicles or stock to enter outside of the parameters outlined in this OMP must be repaired immediately.

#### 3.10.2 Weed monitoring

Weed monitoring will be conducted annually in spring. There will be three components to the monitoring:

- Inspection of the entire offset area for woody weeds, by walking and / or driving throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the offset site will likely require at least four hours of survey. All patches of infestations or individual plants will be mapped with a GPS, and the locations will be supplied to the weed management contractor/landholder for treatment. Subsequent monitoring will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire offset site for new infestations.
- While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, and cover will be estimated to the nearest five percent cover. Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/landholder for treatment.
- Three 5 x 5 metre quadrats will be established in dispersed locations across the GSM offset area. These will be used to assess and record the percentage total vegetation cover, the percentage cover of inter-tussock spaces (open ground), the average height of vegetation and the cover of native and exotic life-forms. This data will be collated and, in conjunction with the observations made on herbaceous weeds collected in association with woody weed monitoring, used to report on progress in the management of weeds over the entire offset site.

Information will be collated as part of the annual reporting requirements outlined in Table 8.

#### 3.10.3 Pest animal monitoring

Signs of pest animals (rabbits, hares and foxes) will be recorded during weed monitoring surveys, and at all other times when visiting the offset site. In particular, the locations of any active rabbit warrens must be mapped using GPS, and the locations supplied to the pest animal management contractor/landholder for treatment. Subsequent monitoring will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the offset area.

#### 3.10.4 Tree and shrub recruitment

Remnant indigenous trees are rare within this property. However, some plantations are present and evidence was observed of past attempts to re-establish native woody plants. A dense cover of tree and / or shrub recruitment would reduce the overall suitability of the GSM habitat present. While grazing would likely limit the establishment of woody species, there is some potential for dense stands of woody native species to develop as a result of changed management activities.

An open cover of tree or shrub regeneration is considered desirable as it is likely that an open woodland was the natural condition of this environment and would allow both the structure and species composition of GSM habitat to be maintained. In that context an initial density for tree regeneration or replanting should be restricted to one tree or shrub for every 5000 square metres (0.5 hectares). If monitoring indicates that no tree regeneration is able to cope with the grazing regime applied to the offset site then selected tree regeneration or plantings may be protected with localised fencing to prevent browsing by domestic stock.



#### 3.10.5 Golden Sun Moth Monitoring

Monitoring during the flight season for GSM is considered essential for DoEE to determine the efficacy of the actions taken to protect and offset impacts to this species. Monitoring will record the number of individuals observed from set monitoring transects.

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 every second year is appropriate. Baseline monitoring data on the distribution and abundance of GSM within the offset site has been collected during the 2018/19 flight season. Repeated monitoring of these transects every second year for the duration of this OMP (i.e. years 2, 4, 6, 8, and 10) will therefore be required to evaluated the persistence and relative abundance of GSM at this site.

Monitoring events for GSM will be undertaken in accordance with the requirements of DEWHA (2009). A monitoring event includes four GSM surveys (i.e. the site is assessed four times during a flight season) to document the occurrence and abundance of GSM within the offset site. The results of these surveys will be compared to the original baseline surveys (2018 /19 flight season) and those of the previous monitoring event. Surveys are prescribed for every second year (years 2, 4, 6, 8 and 10) over the ten year management period outlined by this OMP. Surveys will be undertaken during the GSM flight season, which in this region is typically expected to be between November and January 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 late 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 this Chepstowe offset site, no reference sites are required. Prior to surveys being conducted, reports of GSM flying at the property will provide the most useful indicator to identify the start of the flight season at Chepstowe.

Surveys within the flight season are to be spaced at least one week apart to allow for variations in emergence patterns. Survey will take place when conditions are 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.

Surveys will systematically walk the entire offset site along permanent transects. Transects traversing the site will be walked by two zoologists separated by about 50 metres. Transects will be located to cover all sections of the offset site. The beginning and end of each transect will be recorded as a GPS waypoint or a line on a mobile smart device or handheld GPS receiver. Tracks will be recorded using GPS tracking and a waypoint taken for each location where GSM are observed. Each survey is expected to take approximately 60 to 90 minutes to complete.

Any obvious changes to the habitat characteristics of the offset area will be recorded during the GSM survey. This will be supported by relevant photos of the habitat or management issues identified.

The results of each survey will be reported to TfN and Crystal Creek. The report will also include an assessment of any changes or trends noted in either the habitat condition or population size by the zoologist.

## 3.10 Reporting

The landowner must submit a report annually to TfN and DoEE for each year of the ten years of this management plan. Reports are to be submitted at least two months prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed before the anniversary date.



The Annual Report addresses progress against the commitments set out in this agreement. Annual Reports will provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for the offset site.

The annual report must include:

- Details of management actions, including on ground works, undertaken within the reporting period.
- Results of monitoring activities, including fence condition, weeds, pest animals, habitat quality, vegetation quality and ground cover biomass accumulation / the cover of open ground.
- Tracking and evaluation of results in comparison to management performance targets and completion criteria
- Site photographs including from three defined photo points.
- Details of compliance or non-compliance with the schedule of management actions (Table 4).
- Details of compliance or non-compliance with performance targets (Table 4).
- Details of any incidents or new and emerging management issues, with recommendations for corrective action and plan review in order to attain the offset completion criteria.
- Any triggers exceeded and which corrective actions were implemented
- Details of any GSM monitoring events including an assessment of the relevant results.

The reporting schedule is detailed in Table 8.

### 3.11 Auditing

The approval holder (Crystal Creek) is responsible for auditing the implementation and effectiveness of the OMP. Audits will be conducted by an independent ecologist at the following stages:

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

The timing of scheduled audits is detailed in Table 8. Additional audits may be triggered as a result of a plan review (Section 3.12) or following an environmental incident resulting in significant change to site conditions, as identified in the risk assessment (Table 5).

## 3.12 Plan review

This plan includes an adaptive management framework, where management actions may be triggered by events occurring within the offset site, or the results of monitoring activities. A review of the OMP will only be necessary in the event of a major incident that makes a significant change to the character or condition of the offset area. The most likely such event is a major wildfire, as described in Table 5.



If a plan review is triggered, this will be conducted by CRYSTAL CREEK in consultation with the offset site owner and DoEE. Any future adaptive management changes will be incorporated into the OMP and an updated version of the OMP will be supplied to DoEE.

The OMP review will involve changes to any part of the OMP needed to adequately respond to the trigger and re-direct management actions towards achieving the environmental outcomes.

This could involve changes to:

- Specific details of offset site management methods.
- Monitoring methodology.
- Schedules of monitoring, reporting and auditing.



## 4. Schedule of management actions, risks, monitoring and reporting

This section provides a schedule of management actions (Table 4) for the offset area. Table 5 provides an assessment of the risk of failing to achieve desired outcomes, and specifies how this relates to the monitoring (Table 6) and reporting (Table 9) program.

Year No	Action #	Objective – Entire offset site	Timing of activity – month(s)	Standard to be achieved	Related management and monitoring activity (# -see Table 6)
1 and ongoing	1.	Control of stock, unauthorised activities and vehicle access. Ensure the offset site is appropriately fenced from neighbouring land and road reserves. Fences to be monitored and maintained in functional condition.	Within 1 month of commencement of agreement.	Control of domestic stock access to offset area. Exclusion of unauthorised vehicles from offset area. Exclusion of unauthorised access or unauthorised firewood collection. Maintain fencing around the perimeter of the property to the standard detailed in BushBroker Information Sheet 12 – Standards for Management – Fencing (DSE 2012c) (sheep fencing standard). Any new fences, if required to control threats to ecological values, will be constructed to this standard.	Management Sec. 3.9.1 Monitoring #1 - Sec. 3.10.1
1 and ongoing	2,	Remove all woody weed infestations within the offset area Weeds to be managed in accordance with BushBroker Information Sheet 8 – Standards for Management – Weeds (DSE 2012b)	Within 1 month of commencement of agreement.	No mature woody weeds present within offset area (<< 1% cover) after the completion of Year 1. Minimise off-target damage (avoid all native plants) Record and control any woody weed regeneration / re-colonisation	Management Sec. 3.9.2 Monitoring #2 - Sec. 3.10.2

#### Table 4 Management Actions



Year No	Action #	Objective – Entire offset site	Timing of activity - month(s)	Standard to be achieved	Related management and monitoring activity (# -see Table 6)
Annual	3.	Monitor and control herbaceous weeds. Control methods and timing specified in Table 4 and in accordance with DSE (2012b). Establish baseline monitoring sites including quadrats (10) and photo points (4) and reassess annually in late spring.	Refer to Table 4.	Herbaceous weed cover to not exceed current levels. Herbaceous weeds not to interfere with native grass recruitment. Minimise off-target damage (avoid all native plants) Introduced perennial grasses to reduce in cover by 50% at the end of 10 years management.	Management Sec. 3.9.3 Monitoring #2 - Sec. 3.10
Ongoing	4.	Monitor and control new and emerging woody weeds	Ongoing	New outbreaks of woody weeds to be removed as soon as detected. No woody weeds present within offset area. Minimise off-target damage (avoid all native plants).	Management Sec. 3.9.2 Monitoring #2 - Sec. 3.10.2
Ongoing	5.	Monitor and control new and emerging high threat herbaceous weeds	Ongoing	New outbreaks of high threat herbaceous weeds eliminated. No new high threat herbaceous weeds present within offset area. Minimise off-target damage (avoid all native plants).	Management Sec. 3.9.3 Monitoring #2 - Sec. 3.10.2
Ongoing	6.	Monitor and control ground cover biomass	Ongoing	Minimise or exclude grazing from the beginning of October to the end of December annually. Note this period may be varied based on ecological advice to allow conservation management to adapt to seasonal conditions. Allow native grasses to flower and set seed	Management Sec. 3.9.5 Monitoring #2 - Sec. 3.10.5



Year No	Action #	Objective – Entire offset site	Timing of activity – month(s)	Standard to be achieved	Related management and monitoring activity (# -see Table 6)
				Maintain an open tussock grassy ground cover with inter-tussock spaces covering about 30% (+/- 10%) during the GSM flight period.	
Biennial	7.	Monitor and evaluate Golden Sun Moth population and habitat condition. Establish baseline monitoring transects and reassess biennially during the GSM flight season. Report on population and habitat condition.	GSM flight season in beginning of year 1 and then years 2, 4, 6, 8 and 10	Documentation of GSM population from sixteen transects collected four times in each monitoring event. Assessment of any trends in GSM population size or extent. Documentation of the condition of GSM habitat condition based on visual assessments.	Management Sec. 3.9.5 Monitoring #5 - Sec. 3.10.5
Ongoing	8.	Monitor and control Rabbits, Hares and Foxes. Rabbits to be managed in accordance with BushBroker Information Sheet 7 (DSE 2012a).	Ongoing	No fresh ground disturbance by pest animals (particularly rabbits) observed in the offset area. No active rabbit warrens within offset area, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as logs and rocks). No active fox dens within offset area, if present they are to be destroyed through fumigation and hand collapse. Continue to monitor and control rabbits and foxes all year round.	Management Sec. 3.9.4 Monitoring #3 - Sec. 3.10.3
Ongoing	9.	Monitor and control all new and emerging pest animals.	Ongoing	Control numbers of any new and emerging pests.	Management Sec. 3.9.4 Monitoring #3 - Sec. 3.10.3



Year No	Action #	Objective – Entire offset site	Timing of activity – month(s)	Standard to be achieved	Related management and monitoring activity (# -see Table 6)
Annual	10.	<b>Monitor tree and shrub regeneration</b> and undertake ecological thinning if required (section 3.6.6).	Autumn	Tree and shrub regeneration does not limit habitat for GSM. Only allow an open / scattered cover of immature canopy trees and understorey trees or large shrubs to develop. No more than one tree and 10 shrubs per 5000 square metres will be allowed to establish. If cover levels of the relevant species exceed these limits then they will be thinned so as not to exceed the designated target.	Management Sec. 3.9 Monitoring #4 - Sec. 3.10.4
All (annually)	11.	Prepare and submit an annual report.	Submit 2 months prior to agreement anniversary date. Annual reporting under this OMP will be aligned with the reporting requirements of the BushBroker Agreement.	Annual report is signed, dated and submitted by the landholder at least 2 months prior to the anniversary date of the agreement, as specified in the BushBroker agreement.	Refer to section 3.11



#### Table 5Risk assessment and management

This risk assessment uses the risk framework from the DoEE EMP guidelines. The likelihood and consequence classification is summarised in Appendix 2.

Objective (refer to Table 5)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity (# See Table 6)
1	Unauthorised entry of domestic stock to the offset area. Grazing, browsing and trampling damage to vegetation. Damage to or loss of juvenile trees and shrubs	Unlikely	Minor	Low	Domestic stock sighted on offset site out of authorised periods.	Remove stock. Repair fencing. Monitor vegetation.	1
1	Entry of vehicles to offset area. Damage to understorey vegetation, soil compaction.	Unlikely	Minor	Low	Vehicle observed on offset site. Evidence of recent vehicle access e.g. tyre tracks.	Repair fencing. Assess adequacy of fencing.	1
1	Unauthorised access.	Unlikely	Minor	Low	Evidence of firewood collection or physical disturbance observed.	Assess adequacy of fencing.	1
2, 3, 4	Woody weeds are present within offset area (> 1% cover). Herbaceous weed cover exceeds current levels (50-80%).	Possible	Minor	Low	Woody weed cover exceeds 1%. Herbaceous weed cover exceeds current levels. Weeds appear to be interfering with improvements to GSM habitat.	Control weeds. Minimise off-target damage (avoid all native plants)	2
6, 7	Pest animals observed within offset site. Damage to understorey vegetation or recruiting trees and shrubs.	Possible	Moderate	Medium	Fresh ground disturbance or scats of pest animals observed in the offset area. Active rabbit warrens observed within offset area. Active fox dens observed within offset area. New and emerging pest observed within offset area.	Destroy fox dens and rabbit warrens through fumigation and hand collapse. Undertake control works for new and emerging pests as appropriate.	3



Objective (refer to Table 5)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity (# See Table 6)
8	Tree and shrub recruitment is significantly above or below that allowed under this OMP.	Possible	Minor	Low	Cover of immature trees and shrubs are more than defined. Recruitment of immature trees and shrubs not observed.	Ecological thinning to achieve target density of tree regeneration. Undertake action to encourage regeneration and address threats to regeneration.	4
4	GSM population drops significantly without apparent reason	Possible	Critical	Severe	Population of GSM declines by over 80% in comparison to any previous years without explanation as to how it may recover or habitat condition noted as significantly lower than previous year and recovery is uncertain.	Review ecological management parameters. Review plan.	5
1, 2, 3, 4, 5, 6, 7, 8	<ul><li>Wildfire.</li><li>May impact temporarily or permanently on overstorey condition and natural regeneration.</li><li>May impact upon weed recruitment patterns.</li><li>May destroy fencing.</li></ul>	Possible	Medium	Medium	Wildfire observed within offset area.	Monitor for increased erosion (immediately post fire and 12 months post fire). Undertake weed control works to take advantage of new growth. Inspect fence condition and repair any damage. Significant wildfire throughout the majority of the offset area is a trigger for plan review (Section 3.13).	1, 4



### Table 6Monitoring schedule

#	Monitoring activity	Parameter/s measured	Survey / monitoring guidelines	Where	When	Reliability
1	Fence condition	Condition of boundary fences.	Survey the perimeter of the offset site to ensure fences are intact and assess evidence of domestic stock, vehicle access or firewood harvesting. Refer to Section 3.9.1 and 3.10.1 for details.	Offset site perimeter	Quarterly	High
2	Weed monitoring	Cover of woody and herbaceous weed species present.	Vegetation survey to be conducted to identify woody and herbaceous weed species and determine cover. Woody species to be mapped using GPS. Herbaceous weed cover (percentage cover) to be estimated for defined sections of the offset site. All weed species present identified to species level. Refer to Section 3.9.2, 3.9.3 and 3.10.2 for details.	Offset area.	Annual - Spring	High
3	Pest animal monitoring (Rabbits, Hares and Foxes, and new and emerging pest animals)	Presence of pest animals or signs e.g. scats, diggings, browsing or grazing	Signs of pest animals to be recorded during vegetation surveys. Locations of rabbit warrens to be mapped using GPS. Refer to Section 3.9.4 and 3.10.3 for details.	Offset area.	Annual – Spring During vegetation condition survey	High
4	Tree and shrub recruitment survey	Number of juvenile trees and shrubs	Tree and shrub species and size classes to be assessed within permanently marked quadrats. Refer to Section 3.9 and 3.10.4 for details.	Offset area.	Annual – Spring During vegetation condition survey	High
5	Golden Sun Moth population and habitat condition monitoring	Number of GSM observed. Subjective condition of habitat	Refer to Section 3.10.2 and 3.10.5 for details.	Offset area.	Biennial after baseline survey.	High



#### Table 7Reporting schedule

#	Type of report	Approval condition	Responsibility	Timing	Reporting authority	Trigger (if any)
1	Annual management actions report. Tabulates management actions completed within the offset area (Section 3.11).	To be completed	Offset site owner	Report to be completed by August 31 so information is available prior to spring monitoring.	DoEE TfN	Not Applicable
2	Annual monitoring report. Presents results of offset site monitoring activities (Section 3.11).	To be completed	Offset site owner	Annual monitoring to be completed in spring. Report to be completed by November 30 of each year.	DoEE TfN	Completion of annual monitoring
3	Review of offset management plan (Section 3.13).	To be completed	Offset site owner	As required.	DoEE TfN	Significant environmental event causing widespread impact to habitat within the offset site e.g. Wildfire.
3	GSM population and habitat condition assessment (Section 3.11)	To be completed	Offset site owner	Following completion of GSM monitoring events. Reporting included with annual report (see #2 above).	DoEE TfN	Baseline in 2018/19 flight season. Biennial thereafter. Otherwise as requested by DoEE.
3	Audit report (Section 3.12).	To be completed	Approval holder (CRYSTAL CREEK)	End of years 1, 4, 8 and 10.	Doee	Not Applicable



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# Appendices



# Appendix 1 DoEE EMP Guidelines Risk Framework

#### **Risk Framework**

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

#### Likelihood

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented

Highly Likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely
Rare	May occur in exceptional circumstances

#### Consequence

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



# Appendix 2

## Reference table for conditions of approval EPBC 2018-8148

Condition of Approval	How addressed	Where addressed
<ol> <li>Prior to the commencement of the action, to compensate for the loss of up to 2.23 ha of Golden Sun Moth habitat, the approval holder must secure the 8.1 ha offset at Chepstowe for the protection of the Golden Sun Moth, as shown in Appendix 1.</li> <li>The approval holder must implement the Offset Management Plan, for the offset required under</li> </ol>	This plan is the offset management plan for the offset site Action not commenced. The offset site is currently managed as part of the wider paddock, but the OMP	Whole of OMP
<ul> <li>condition 2, for the duration of the approval.</li> <li>8. The approval holder must maintain accurate and complete compliance</li> </ul>	will begin Monitoring and compliance records are prepared as part of the	Section 3.9 (Monitoring) Section 3.10 (Reporting)
<ul> <li>records.</li> <li>10. The approval holder must: <ul> <li>a. submit plans electronically to the Department for approval by the Minister;</li> <li>b. publish each plan on the website within 20 business days of the date the plan is approved by the Minister or of the date a revised action management plan is submitted to the Minister</li> <li>d. keep plans published on the website until the end date of this approval.</li> </ul> </li> </ul>	<ul> <li>monitoring and reporting.</li> <li>a. Plan submitted electronically for approval</li> <li>b. Current approved OMP published here: www.crystalgroup.com.au</li> <li>d. Once approved, the revised plan will be published on the company website here: www.crystalgroup.com.au</li> </ul>	Section 3.11 (Auditing) N/A
11. The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under a plan, is prepared in accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department in accordance with the requirements of the plan	All monitoring is conducted in accordance with monitoring guidelines and all data is in accordance with the Department's Guidelines.	Section 3.9- Monitoring

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## Appendix 3 Glossary

This appendix contains definitions of technical terms used in this OMP. Items marked with an asterisk (\*) are cited from DELWP (2007b)

#### Benchmark\*

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

#### **Biodiversity\***

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

#### **Bioregion\***

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

#### BushBroker

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

#### **Canopy Tree**

Defined in the Habitat Hectare (DSE 2004) vegetation quality assessment method, as a mature tree that is greater than three metres in height, and is normally found in the upper layer of the relevant vegetation type.

#### DBH (Diameter at Breast Height)\*

The diameter of the main trunk of a tree measured 1.3 m above ground level.

#### Ecological vegetation class (EVC)\*

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

#### **EPBC** Act

Environmental Protection and Biodiversity Conservation Act 1999

#### Gain

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

#### Habitat hectares\*

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

#### Habitat score\*

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

#### Habitat zone\*

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

#### Improvement gain\*

This is gain resulting from management commitments beyond existing obligations under legislation to improve the current vegetation quality. Achieving improvement gain is predicated on maintenance commitments being already in place. For example, control of any



threats such as grazing that could otherwise damage the native vegetation must already be agreed.

#### Indigenous vegetation\*

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

#### Large Old Tree (LOT)\*

A tree with a DBH equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

#### Offset\*

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

#### **Offset Management Plan (OMP)**

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

#### **Medium Shrub**

A shrub life-form used in the Habitat Hectare (DSE 2004) vegetation quality assessment method. The life-form includes shrubs between 1 and 5 m high.

#### **Revegetation\***

Establishment of native vegetation to a minimum standard in formerly cleared areas, outside of a remnant patch.

#### Scattered tree\*

An indigenous canopy tree that does not form part of a remnant patch of native vegetation (see definition of remnant patch of native vegetation).

#### Site

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

#### Site gain

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

#### **Recruitment\***

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

#### **Remnant vegetation\***

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

#### Supplementary planting

Establishment of overstorey and/or understorey plants within a remnant patch. Typically includes the planting or direct-seeding of understorey life forms.

#### **Understorey\***

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

#### **Victoria Planning Provisions**

A list of planning provisions that provides a standard template for individual planning schemes.