|  |
| --- |
| Final Report  **Offset Management Plan: 9 Mahoneys Lane, Dunkeld, Victoria**  Prepared for  **VicRoads (Western Highway Project)**  **March 2015** |
|  |
| **Ecology and Heritage Partners Pty Ltd** |

ACKNOWLEDGEMENTS

We thank the following people for their contribution to the project:

* Michael Wickerson (VicRoads) for project information;
* The landowners who provided access to the study area.

DOCUMENT CONTROL

|  |  |
| --- | --- |
| Assessment | Offset Management Plan |
| Address | 9 Mahoneys Lane, Dunkeld, Victoria |
| Project number | 5682 |
| Project manager | Clio Gates Foale (Senior Ecologist) |
| Report author(s) | Clio Gates Foale, Robyn Giles (Senior Botanist) |
| Report reviewer | Chad Browning (Consultant Zoologist) |
| Other EHP staff | N/A |
| Mapping | Robyn Giles |
| File name | 5682\_EHP\_Dunkeld\_Final\_OMP\_23032015 |
| Client | VicRoads (Western Highway Project) |

|  |  |  |  |
| --- | --- | --- | --- |
| Report versions | Comments | Comments updated by | Date submitted |
| Draft 1 | - |  | 03/03/2014 |
| Draft 2 | Comments from VicRoads and DoE | R. Giles | 14/04/2014 |
| Draft 3 | Comments from landholder | R. Giles | 15/01/2015 |
| Final v1 | Comments from DoE | R. Giles | 23/03/2015 |

**Copyright © Ecology and Heritage Partners Pty Ltd**

This document is subject to copyright and may only be used for the purposes for which it was commissioned. The use or copying of this document in whole or part without the permission of Ecology and Heritage Partners Pty Ltd is an infringement of copyright.

**Disclaimer**

Although Ecology and Heritage Partners Pty Ltd have taken all the necessary steps to ensure that an accurate document has been prepared, the company accepts no liability for any damages or loss incurred as a result of reliance placed upon the report and its contents.

Contents

[1 Title offset plan 6](#_Toc409081860)

[2 INTRODUCTION 7](#_Toc409081861)

[2.1 Background 7](#_Toc409081862)

[2.1.1 *Planning and Environment Act 1987* 7](#_Toc409081863)

[2.1.2 *Environment Protection and Biodiversity Conservation Act 1999* 7](#_Toc409081864)

[2.2 Objectives 8](#_Toc409081865)

[2.3 Report Structure 9](#_Toc409081866)

[3 METHODS 10](#_Toc409081867)

[3.1 Database and Literature Review 10](#_Toc409081868)

[3.2 Gain Scoring Method 10](#_Toc409081869)

[4 PART A - OFFSET SUITABILITY 12](#_Toc409081870)

[4.1 Clearing Site Details 12](#_Toc409081871)

[4.1.1 Significant Species and Communities 12](#_Toc409081872)

[4.1.2 Ecological Vegetation Classes 13](#_Toc409081873)

[4.2 Summary of Losses and Net Gain targets 13](#_Toc409081874)

[4.2.1 Federal 13](#_Toc409081875)

[4.2.2 State (Victoria) 13](#_Toc409081876)

[4.3 Offset Management Strategy 16](#_Toc409081877)

[4.3.1 Federal 16](#_Toc409081878)

[4.3.2 State (Victoria) 17](#_Toc409081879)

[5 DESCRIPTION OF THE OFFSET SITE 19](#_Toc409081880)

[5.1 Vegetation Condition 19](#_Toc409081881)

[5.1.1 Grassy Eucalypt Woodland of the Victorian Volcanic Plain 19](#_Toc409081882)

[5.2 Fauna Habitat 20](#_Toc409081883)

[5.2.1 Golden Sun Moth *Synemon plana* 21](#_Toc409081884)

[6 LIKE-FOR-LIKE CRITERIA 22](#_Toc409081885)

[6.1 Gains Available in Proposed Offset Site 22](#_Toc409081886)

[6.1.1 Remnant vegetation gains available 23](#_Toc409081887)

[6.1.2 Remnant trees gains available 23](#_Toc409081888)

[6.2 Summary of Available Gains 26](#_Toc409081889)

[6.3 Allocation of Native Vegetation Gains 26](#_Toc409081890)

[7 Part B – Offset Implementation 27](#_Toc409081891)

[7.1 Details of Offset Site 27](#_Toc409081892)

[7.2 Strategy for Offset Site 27](#_Toc409081893)

[7.3 Management Objectives 28](#_Toc409081894)

[7.4 Management Actions 28](#_Toc409081895)

[7.4.1 Security Arrangements 29](#_Toc409081896)

[7.4.2 Access Control 29](#_Toc409081897)

[7.4.3 Pest Control 29](#_Toc409081898)

[7.4.4 Biomass Control 32](#_Toc409081899)

[7.4.5 Supplementary Planting 33](#_Toc409081900)

[7.5 Monitoring and Reporting 33](#_Toc409081901)

[7.5.1 Monitoring 34](#_Toc409081902)

[7.5.2 Reporting 35](#_Toc409081903)

[7.6 Management Actions Table 36](#_Toc409081904)

[8 References 42](#_Toc409081905)

[Figures 44](#_Toc409081906)

[Appendix 1 – EPBC Act Offset Calculators 45](#_Toc409081907)

# Title offset plan

Title information for the offset site is documented in Table 1.

Table . Title information for the offset site

|  |  |  |  |
| --- | --- | --- | --- |
| Title Offset Plan | | | |
| Planning Permit Number (ID) / Work Authority No: | TBC | | |
| Proponent: | VicRoads (Western Highway Project) | | |
| Address: | 237 Ring Road, Wendouree, Victoria, 3355 | | |
| Landowner and Permit (Work Authority) Holder Statement | | | |
| **Permit (Work Authority) Holder** | | | |
| Print Name: | VicRoads (Western Highway Project) | | |
| Signature: |  | | |
| Date: |  | | |
| **Landowner of Offset Site** | | | |
| Print Name: | Adam Merrick | | |
| Signature: |  | | |
| Date: |  | | |
| Responsible Authority Statement | | | |
| The native vegetation credits described in this plan provide an offset for the removal of native vegetation specified in this plan to the satisfaction of the Department of Environment, Land, Water and Planning and the Department of Environment. | | | |
| Print Name: | Department of Environment, Land, Water and Planning | Department of Environment | |
| Position: |  |  | |
| Signature: |  |  | |
|
| Date: |  |  | |
| Responsible Authority Approval | | | |
| This Offset Plan has been approved and is endorsed by the responsible authority. . | | | |
| Print Name: |  | |  |
| Position: |  | |  |
| Responsible Authority: | Department of Environment, Land, Water and Planning | | Department of Environment |
| Signature: |  | |  |
|
| Date: |  | |  |
| Date of Commencement: |  | |  |

# INTRODUCTION

## Background

Ecology and Heritage Partners Pty Ltd was commissioned by VicRoads (Western Highway Project) to develop an Offset Management Plan (OMP) for the Western Highway Project, Beaufort to Ararat (Section 2), Victoria (Figure 1).

The Western Highway (A8) is being progressively upgraded as a four-lane divided highway for approximately 110 kilometres (km) between Ballarat and Stawell, and this is referred to as the Western Highway Project. As the principal road link between Melbourne and Adelaide, the Western Highway serves interstate trade between Victoria and South Australia and is the key corridor through Victoria’s west, supporting farming, grain production, tourism and a range of manufacturing and service activities. The Western Highway Project consists of three stages:

* Section 1: Ballarat to Beaufort
* Section 2: Beaufort to Ararat
* Section 3: Ararat to Stawell.

A flora, fauna and Net Gain assessment as well as targeted flora, fauna and aquatic surveys were conducted by Ecology and Heritage Partners Pty Ltd between October 2010 and January 2012 in order to document flora and fauna values and legislative implications of the proposed development between Beaufort to Ararat (Section 2) (Ecology and Heritage Partners Pty Ltd 2012).

### *Planning and Environment Act 1987*

A planning permit for the project is required from local Council. The project is subject to the provisions of the *Native Vegetation Framework*: *A Framework for Action* (the Framework) (NRE 2002)*.* The *Permitted Clearance Regulations* and *Biodiversity Assessment Guidelines* (DEPI 2013), which supersede the Framework for projects granted approval prior to 30 December 2013, are not relevant as the planning permit was granted prior to the changes being implemented.

### *Environment Protection and Biodiversity Conservation Act 1999*

One flora species, two ecological communities and two fauna species listed under the Commonwealth’s *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were recorded within the proposed alignment (Ecology and Heritage Partners Pty Ltd 2012). Based on the EPBC Act Significant Impact Guidelines (DEWHA 1999; 2009), the Project will have a significant impact on Golden Sun Moth *Synemon plana* andthe Grassy Eucalypt Woodland of the Victorian Volcanic Plain and Natural Temperate Grassland of the Victorian Volcanic Plain ecological communities.

An EPBC Act referral has been submitted for the proposed construction works. VicRoads were advised by the Department of Environment (formerly Department of the Sustainability, Environment, Water Population and Communities) on 17 December 2010 that the proposed project is a controlled action requiring assessment and approval in accordance with the EPBC Act. Specifically, Condition 8 of the approval conditions outlines the requirements that must be addressed as part of this Offset Management Plan.

#### Condition 8

Within 9 months of the date of this approval, the person taking the action must submit a draft GEWVVP Offset Management Plan to the Department for the Minister’s approval. The GEWVVP Management Plan must be prepared in consultation with a suitably qualified ecologist and provide for the conservation and enhancement of GEWVVP within the GEWVVP Offset (s), and must include details of:

1. baseline data and other supporting evidence that documents the baseline condition of GEWVVP on the GEWVVP Offset(s);
2. description, key performance indicator, and timeframe for implementing specific management actions to improve the condition of GEWVVP within the GEWVVP Offset(s), including but not limited to control of weed and pest species, control of access to the protected land, strategic fire and grazing management (acknowledging that such impacts may be positive or negative depending on circumstances);
3. measures to ensure that actions taken have no detrimental impact on the populations or habitat of other listed threatened species and communities that are likely to occur or utilise the GEWVVP Offset(s);
4. information and commitments about monitoring and reporting on the improvements in condition of the offset site; and
5. corrective actions and contingency measures to be implemented where monitoring under the GEWVVP Offset Management Plan indicates a degradation of the GEWVVP.

## Objectives

The objective of the OMP is to document the clearing site and offset site details to meet Net Gain and EPBC Act approval requirements by securing, maintaining and improving remnant vegetation within the designated offset site.

Specifically, the objectives of the OMP are to:

* Review offset requirements based on vegetation clearance and the outcomes of the EPBC Act Offsets Policy and Planning Permit conditions;
* Address the requirements of condition 8 of the EPBC Act approval conditions; and
* Develop an OMP to compensate for the permitted loss of vegetation as part of the proposed development. This will include but not be limited to the following:
  + Means of calculating the offsets;
  + Location of the offset sites;
  + Type of offsets to be provided;
  + Details of management actions for remnant vegetation;
  + Investigate an appropriate 'security' arrangement, if applicable;
  + Based on available information from the client, prepare a map of the offset sites;
  + Develop a timetable of management actions, outcomes and progress reviews; and,
  + Suggest appropriate monitoring and evaluation of management actions.

## Report Structure

The structure and content of the OMP is consistent with the requirements of the ‘Standard Offset Plan’ template provided by the Department of Environment, Land, Water and Planning (DELWP) (formerly known as the Department of Environment and Primary Industries) and is organised in several 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 sites, and includes details regarding approved clearing, Like-for-Like criteria and gain 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 or Section 173 Agreement pursuant to the *Planning and Environment Act 1987*).
* *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 plan, including future landowners. Information in this section is intended to be placed on title.

# METHODS

## Database and Literature Review

The Victorian Biodiversity Atlas (DSE 2011a; 2011b), the Flora Information System (Viridans 2012a) and the Victorian Fauna Database (Viridans 2012b) were reviewed to identify previous records of native and exotic flora and fauna species within the local area, as well as threatened flora and fauna species that have the potential to occur within 10 kilometres of the proposed offset site.

Information pertaining to matters protected under the EPBC Act including listed taxa, ecological communities and Ramsar wetlands, was obtained from the Department of Environment (DoE) Protected Matters Search Tool (DoE 2014).

Reports and documents detailing the ecological features of the study area as relevant to the OMP were reviewed, in particular:

* Ecology and Heritage Partners Pty Ltd 2012. *Western Highway Project: Section 2, Beaufort to Ararat, Victoria. Impact Assessment Report – Flora, Fauna and Ecological Communities*. Report prepared for VicRoads.
* Plume Ecology Pty Ltd 2014. Email summarising ecological values present within 6640 Glenelg Highway, Dunkeld, including attached offset gain calculator. Sent from Lauren Eddy (Plume Ecology Pty Ltd) to Nick Lewis (ESLink Services Pty Ltd), 31/01/2014 at 2.22pm.

This OMP has been developed based on *Victoria's Native Vegetation Management: A Framework for Action* (The Framework) (DNRE 2002), as well as relevant vegetation management guidelines and other relevant templates published by DELWP.

## Gain Scoring Method

Gains in habitat score can be achieved via a number of means, where a commitment is made to designate an area as a permanent offset site to compensate for vegetation loss elsewhere. Gains can also be achieved through revegetation of formerly modified land where such offset types are permitted.

Four types of gains are recognised by DELWP for existing vegetation offset sites (DSE 2006a), including:

* *Prior Management Gain* – This gain acknowledges actions to manage a freehold site and usually attracts a score of 10% of the current habitat score of the offset site;
* *Security Gain* – This is gain resulting from actions to enhance the security of the on-going management and protection of native vegetation. This gain usually attracts between 10 and 40% of the current habitat score of the offset site, depending on the security agreement reached and land tenure of the offset site;
* *Maintenance Gain –* This is gain from commitments that contribute to the maintenance of current vegetation quality over time (i.e. avoiding any decline); and,
* *Improvement Gain* – This is gain resulting from management commitments beyond existing obligations under legislation to improve the current vegetation quality.

The amount of gain achieved also depends on the land tenure of the offset site. Gain scores must be consistent with the Vegetation Gain Approach – Technical basis for calculating gains through improved native vegetation management and revegetation (DSE 2006a) and the Native Vegetation: Scoring Gain from an offset – DSE Gain Calculator user instructions (DSE 2006b).

Gain scores for managing existing vegetation and revegetation works are to be achieved over a ten year management period. The vegetation quality achieved from these activities at year ten of management must be protected and maintained in similar condition in perpetuity (DNRE 2002).

Gain scoring was assessed using the (former) Department of Sustainability and Environment (DSE) Gain Calculator (DSE 2010). The calculator allocates maintenance and improvement gain, prior management gain and security gain scores based on the habitat hectare measures and vegetation management actions used to maintain or improve vegetation quality over the mandatory 10 year management period (DSE 2006b).

# PART A - OFFSET SUITABILITY

## Clearing Site Details

The clearing site details are provided in Table 2. A detailed description of ecological values within the study area is provided in the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

Table . Clearing Site Details

|  |  |
| --- | --- |
| Clearing Site Details | |
| Landowner of clearing site | VicRoads |
| Location and address of clearing site | Western Highway, Section 2 (Beaufort to Ararat) |
| Local Government Area | Western section: City of Ararat  Eastern section: Shire of Pyrenees |
| Catchment Management Authority | Glenelg-Hopkins Catchment Management Authority |
| Responsible Authority | DELWP and DoE |
| Applicant | VicRoads |
| Planning Permit Number (ID) | TBC |
| Date approved | TBC |

### Significant Species and Communities

A total of 227 plant taxa (151 indigenous, 76 exotic) were recorded within the study area (Ecology and Heritage Partners Pty Ltd 2012). One nationally significant flora species (Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*), two nationally significant ecological communities (Natural Temperate Grassland of the Victorian Volcanic Plain [NTGVVP] and Grassy Eucalypt Woodland of the Victorian Volcanic Plain [GEWVVP]), three State significant flora species (Yarra Gum *Eucalyptus yarraensis*, Emerald-lip Greenhood *Pterostylis smaragdyna* and Golden Cowslips *Diuris behrii*), two State significant ecological communities (Western (Basalt) Plains Grassland and Victorian Temperate Woodland Bird Community) and numerous species of regional significance were identified.

A total of 76 fauna species (67 indigenous, 9 exotic) were recorded within the study area (Ecology and Heritage Partners Pty Ltd 2012). Two nationally significant fauna species (Dwarf Galaxias *Galaxiella pusilla* and Golden Sun Moth *Synemon plana*), two State significant species (Brown Toadlet *Pseudophryne bibronii* and Brown Treecreeper *Climacteris picumnus*) and one regionally significant species (Baillon’s Crake *Porzana pusilla*) were identified. In addition, the State significant Powerful Owl *Ninox strenua* and Brush-tailed Phascogale *Phascogale tapoatafa* were reported to be present within the study area by a local landholder whose property lies south of the intersection of Martins Lane and Western Highway. Based on the EPBC Act Significant Impact Guidelines (DEWHA 1999; 2009), the Project will have a significant impact on Golden Sun Moth and the NTGVVP/ GEWVVP ecological communities.

### Ecological Vegetation Classes

The alignment footprint intersects ten Ecological Vegetation Classes (EVC)s with varying quality and extent including Alluvial Terraces Herb-rich Woodland, Creekline Grassy Woodland, Grassy Dry Forest, Grassy Woodland, Heathy Dry Forest, Hills Herb-rich Woodland, Heathy Woodland, Plains Grassland, Plains Grassy Woodland and Plains Grassy Wetland.

The Plains Grassland, Plains Grassy Woodland, Alluvial Terraces Herb-rich Woodland, Creekline Grassy Woodland and Plains Grassy Wetland EVCs are considered endangered within the Victorian Volcanic Plain bioregion. Within the Central Victorian Uplands bioregion, the Grassy Woodland, Creekline Grassy Woodland and Alluvial Terraces Herb-rich Woodland EVCs are listed as endangered, the Hills Herb-rich Woodland EVC is listed as vulnerable, the Grassy Dry Forest and Heathy Woodland EVCs are listed as depleted and the Heathy Dry Forest EVC is listed as least concern.

## Summary of Losses and Net Gain targets

### Federal

Losses associated with Matters of National Environmental Significance (NES) are summarised in Table 3. Offset targets were determined through discussions with the federal DoE and in accordance with the EPBC Act Offsets Policy (October 2012).

Table . Losses associated with Matters of NES

|  |  |  |
| --- | --- | --- |
| Matter of NES | Losses | Offset Target |
| Spiny Rice-flower | 1 plant | N/A (Plant to be translocated) |
| Golden Sun Moth | 31.56 hectares | 100 hectares |
| Dwarf Galaxias | Losses to be avoided | N/A |
| Grassy Eucalypt Woodland of the Victorian Volcanic Plain | 11.14 hectares | 33.5 hectares |
| Natural Temperate Grassland of the Victorian Volcanic Plain | 5.25 hectares | 20.3 hectares |

### State (Victoria)

Offset requirements and multipliers are specified in accordance with Appendix 4, Table 6, pp. 54-55 of the Framework (DNRE 2002) and Table 5 of the Glenelg Hopkins Native Vegetation Plan (GHCMA 2006). A detailed description of vegetation losses is provided in the Flora and Fauna Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

#### Vegetation Patches and Large Old Trees

Total losses and Net Gain targets for remnant native vegetation and Large Old Trees associated with the clearing site are outlined in Table 4.

#### Scattered Trees

Total losses and Net Gain targets for scattered trees associated with the clearing site are outlined in Table 5.

Table . Vegetation losses and Net Gain targets

| Bioregion | Target EVC | Conservation significance | Vegetation | | | | Large Old Trees | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total Losses (Ha) | Total Losses (HabHa) | Net Gain Multiplier\* | Net Gain Target (HabHa) | Total Losses | Protection Multiplier | Total to be Protected | Recruitment Multiplier | Total to be Recruited |
| CVU | ATHrW | V. High | 7.36 | 3.48 | 2 | 6.96 | 40 | 8 | 320 | 40 | 1,600 |
|  | CGW | V. High | 0.01 | 0 | 2 | 0 | 8 | 8 | 64 | 40 | 320 |
|  | GDF | High | 9.69 | 5.1 | 1.5 | 7.65 | 6 | 4 | 24 | 20 | 120 |
|  |  | Low | 3.2 | 0.7 | 1 | 0.7 | 0 | 0 | 0 | 0 | 0 |
|  |  | Medium | 4.09 | 1.57 | 1 | 1.57 | 5 | 2 | 10 | 10 | 50 |
|  | GW | V. High | 1.38 | 0.8 | 2 | 1.6 | 2 | 8 | 16 | 40 | 80 |
|  | HDF | High | 2.99 | 1.76 | 1.5 | 2.64 | 6 | 4 | 24 | 20 | 120 |
|  |  | Low | 0.35 | 0.2 | 1 | 0.2 | 5 | 0 | 0 | 0 | 0 |
|  | HHrW | High | 7.44 | 3.13 | 1.5 | 4.7 | 5 | 4 | 20 | 20 | 100 |
|  |  | V. High | 4.88 | 2.93 | 2 | 5.86 | 29 | 8 | 232 | 40 | 1,160 |
|  | HW | High | 1.58 | 0.94 | 1.5 | 1.41 | 10 | 4 | 40 | 20 | 200 |
| VVP | ATHrW | V. High | 4.14 | 1.82 | 2 | 3.64 | 36 | 8 | 288 | 40 | 1,440 |
|  | CGW | High | 0.87 | 0.25 | 1.5 | 0.38 | 10 | 4 | 40 | 20 | 200 |
|  |  | V. High | 5.71 | 1.82 | 2 | 3.64 | 16 | 8 | 128 | 40 | 640 |
|  | GW | V. High | 0.96 | 0.54 | 2 | 1.08 | 1 | 8 | 8 | 40 | 40 |
|  | PG(HS) | High | 6.93 | 2.08 | 1.5 | 3.12 | 0 | 4 | 0 | 20 | 0 |
|  |  | V. High | 3.93 | 1.16 | 2 | 2.32 | 0 | 8 | 0 | 40 | 0 |
|  | PGW | High | 26.36 | 8.21 | 1.5 | 12.32 | 34 | 4 | 136 | 20 | 680 |
|  |  | V. High | 5.77 | 2.82 | 2 | 5.64 | 8 | 8 | 64 | 40 | 320 |
|  | PGWe | High | 0.21 | 0.06 | 1.5 | 0.09 | 0 | 4 | 0 | 20 | 0 |
|  |  | V. High | 0.05 | 0.01 | 2 | 0.02 | 0 | 8 | 0 | 40 | 0 |
| **Total** |  |  | **97.9** | **39.38** |  | **65.54** | **221** |  | **1,414** |  | **7,070** |

**Notes:** CVU = Central Victorian Uplands, VVP = Victorian Volcanic Plain, GDF = Grassy Dry Forest, PG (HS) = Heavier-soils Plains Grassland, HHrW = Hills Herb-rich Woodland, PGWe = Plains Grassy Wetland, CGW = Creekline Grassy Woodland, GW = Grassy Woodland, ATHrW = Alluvial Terraces Herb-rich Woodland, PGW = Plains Grassy Woodland, HDF = Heathy Dry Forest, HW = Heathy Woodland. Alignment area has not been fully assessed for Net Gain (i.e. indicative Due Diligence assessment undertaken in some areas). As such Net Gain targets may vary marginally following detailed assessment. Large Old Tree targets are based on estimates of trees present and potential losses within each patch, further assessment is required to determine the number of Large Old Trees within all patches within the study area.

Table . Scattered Tree losses and Net Gain targets

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study Area | Conservation Significance | Size | Losses | Protect | | Recruit | | Recruit Only | |
| Multiplier\* | Target | Multiplier\* | Target | Multiplier\* | Target |
| VVP | High | LOT | 41 | 2 | 82 | 10 | 410 | 100 | 4,100 |
|  |  | MOT | 5 | 1 | 5 | 5 | 25 | 50 | 250 |
|  |  | ST | 22 | 0 | 0 | 0 | 0 | 0 | 0 |
|  |  | VLOT | 45 | 4 | 180 | 20 | 900 | 200 | 9,000 |
| CVU | High | LOT | 24 | 2 | 48 | 10 | 240 | 100 | 2,400 |
|  |  | MOT | 4 | 1 | 4 | 5 | 20 | 50 | 200 |
|  |  | VLOT | 3 | 4 | 12 | 20 | 60 | 200 | 600 |
|  | Low | LOT | 7 | 0 | 0 | 5 | 35 | 50 | 350 |
|  |  | MOT | 4 | 0 | 0 | 5 | 20 | 50 | 200 |
|  |  | ST | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
|  |  | VLOT | 5 | 1 | 5 | 5 | 25 | 50 | 250 |
|  | Medium | LOT | 4 | 1 | 4 | 5 | 20 | 50 | 200 |
|  |  | MOT | 3 | 1 | 3 | 5 | 15 | 50 | 150 |
|  |  | VLOT | 1 | 2 | 2 | 10 | 10 | 100 | 100 |

**Notes:** CVU = Central Victorian Uplands, VVP = Victorian Volcanic Plain, VLOT = Very Large Old Tree, LOT = Large Old Tree, MOT = Medium Old Tree, ST = Small Tree.

## Offset Management Strategy

Several offset sites have been identified to meet State and federal offset requirements. This document relates to the offsets identified within the property located at 9 Mahoneys Lane, Dunkeld, Victoria. To be referred to here as the Dunkeld property.

The following summarises the federal and State offset requirements that are proposed to be met within the Dunkeld property.

### Federal

Table 6 summarises the quantity and location of offsets identified to compensate for losses associated with Matters of NES.

Table . Offsets associated with Matters of NES

|  |  |  |  |
| --- | --- | --- | --- |
| Matter of NES | Losses | Offset Target | Offsets identified (Ha); Location |
| Grassy Eucalypt Woodland of the Victorian Volcanic Plain | 11.14 hectares | 33.5 hectares | 33.5 hectares; Dunkeld |

#### Environment Protection and Biodiversity Conservation Act 1999 Offsets Policy

Offset targets were determined through discussions with DoE and in accordance with the EPBC Act Offsets Policy (October 2012). The EPBC Act Offsets calculator (Excel spreadsheet) was used to determine appropriate offset targets to compensate for the loss of Matters of NES. The calculator spreadsheet is provided in Appendix 1, and the assumptions used to populate the calculator are presented below.

##### Grassy Eucalypt Woodland of the Victorian Volcanic Plain

* *Offset location*: Dunkeld property.
* *Habitat to be removed* = 11.14 hectares.
* *Habitat quality* = 4/10. The majority of GEWVVP persists within road reserves along the Western Highway and other adjoining roads. These areas comprised of an intact overstorey of River Red-gum *Eucalyptus camaldulensis* with a modified grassy understorey and very few shrub species.
* *Risk-related time horizon* = 2 years. The land will be managed in perpetuity for conservation purposes for GEWVVP.
* *Time until ecological benefit* = 10 years. Native vegetation is expected to improve in extent, species diversity and density within 5 years through applied weed and biomass control regimes.
* *Start area and quality* = 33.5 hectares and 4/10. The offset site supports native woodland habitat in moderate condition. Scattered River Red-gums are present throughout the site with a predominantly indigenous grass understorey, however shrubs and many herbs species are absent.
* *Risk of loss without offset* = 15%. Without protection as an offset site there is uncertainty regarding the future use of the land. Most likely the property would continue to be managed under the current regime, and it is likely that further degradation of indigenous grass cover due to the spread of exotic pasture grasses and the loss of remnant trees with little or no chance of regeneration will occur over time.
* *Future quality without offset* = 4/10. Assumes management proceeds in accordance with the current regime and quality remains at 4/10.
* *Risk of loss with offset* = 5%. The land will be managed in perpetuity for conservation purposes for GEWVVP.
* *Future quality with offset* = 7/10. The offset site is to be secured and managed for conservation purposes in perpetuity, with implementation of a vegetation management plan incorporating weed control and regular monitoring, aiming to maintain and enhance native biodiversity.
* *Confidence in result* = 80%. Confidence in applied scores is relatively high due to careful consideration of the offset site, existing habitats and landscape context.

### State (Victoria)

#### Vegetation Offsets

Table 7 summarises the quantity and location of offsets identified to compensate for losses associated with Large Old Trees and Scattered Trees.

Table . Offsets associated with loss of patches of native vegetation

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Bioregion | Target EVC | Conservation significance | Total Losses (HabHa) | Net Gain Target (HabHa) | Offsets identified (HabHa); Location | Offsets to be sourced (HabHa) |
| VVP | ATHrW | V. High | 1.82 | 3.64 | - | 3.64 |
|  | CGW | High | 0.25 | 0.38 | - | 0.38\* |
|  |  | V. High | 1.82 | 3.64 | - | 3.64 |
|  | GW | V. High | 0.54 | 1.08 | - | 1.08 |
|  | PG(HS) | High | 2.08 | 3.12 | - | 3.12\* |
|  |  | V. High | 1.16 | 2.32 | - | 2.32\* |
|  | PGW | High | 8.21 | 12.32 | 1.45; Dunkeld | 10.87\* |
|  |  | V. High | 2.82 | 5.64 | 5.64; Dunkeld | 0 |
|  | PGWe | High | 0.06 | 0.09 | - | 0.09\* |
|  |  | V. High | 0.01 | 0.02 | - | 0.02 |

Note: VVP = Victorian Volcanic Plain, PG (HS) = Heavier-soils Plains Grassland, PGWe = Plains Grassy Wetland, CGW = Creekline Grassy Woodland, GW = Grassy Woodland, ATHrW = Alluvial Terraces Herb-rich Woodland, PGW = Plains Grassy Woodland, \* denotes offsets that can be sourced through another proposed offset also containing matters of NES.

#### Trees

Table 8 summarises the quantity and location of offsets identified to compensate for losses associated with Large Old Trees and Scattered Trees.

Table . Offsets associated with loss of Large Old Trees and Scattered Trees

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Bioregion | Trees | Scattered | LOT | Total | Offsets identified (no. trees); Location | Offsets to be sourced (no. trees) |
| VVP | Total Losses | 113 | 105 | 218 | N/A | N/A |
|  | To be Protected | 267 | 664 | 931 | 53; Dunkeld | 878 |
|  | To be Recruited | 1335 | 3320 | 4655 | 265; Dunkeld | 4390 |
|  | Recruit Only | 13350 | N/A | 13350 | N/A | N/A |

**Notes:** Offsets sourced must be either “protect and recruit” or “recruit only”. Under “protect and recruit” five (5) trees are assumed recruited for every one (1) tree that is protected.

# DESCRIPTION OF THE OFFSET SITE

The study area supports one broad vegetation and habitat types: grassy woodland. Vegetation condition and habitat quality are discussed in further detail below.

## Vegetation Condition

Vegetation within the study area is dominated by grassy woodland, located throughout the property. Based on the field assessment, grassy woodland within the study area is consistent with Plains Grassy Woodland EVCs. This is broadly consistent with extant DELWP mapping which shows these areas are dominated by Plains Grassy Woodland (EVC 175) (DEPI 2014b).

Plains Grassy Woodland is described as an open, eucalypt woodland to 15 metres with an understorey consisting of a few sparse shrubs over a species-rich grassy and herbaceous ground layer (DEPI 2014a).

Remnant vegetation within the site consisted of a scattered River Red-gum overstorey with a grassy understorey dominated by indigenous grasses including wallaby grasses *Rytidosperma* spp., Common Tussock-grass *Poa labillardierei,* Common Wheat-grass *Elymus scaber* subsp. *scaber,* Weeping Grass *Microlaena stipoides* var. *stipoides* and spear grass *Austrostipa* spp. During the time of the assessment, few herb species were present due to the sub-optimal timing of the survey (late summer), however, previous assessments undertaken in spring have recorded a diversity of herb species and lilies including Yellow Star *Hypoxis vaginata*, Kidney Weed *Dichondra repens*, Pale Sundew *Drosera peltata* and Grassland Wood-sorrelOxalis perennans (pers. comm. Adam Merrick, landholder). Shrub species were absent from the site and there was no regeneration of River Red-gums occurring within the site.

The site is currently grazed by sheep at a low rate with other stock also present. Some internal fences are present however the stock has access to all areas of the property. Weed infestations were largely restricted to areas beneath the River Red-gum tree canopies where sheep are likely to congregate. These areas were typically dominated by the noxious weeds Horehound *Marrubium vulgare* and Spear Thistle *Cirsium vulgare* as well as other exotic grass species. There was a large infestation of Brown-top Bent-grass *Agrostis capillaris* present in the north western corner of the property and along the southern boundary adjacent to the Glenelg Highway. Other weed species present within the site included Paspalum *Paspalum dilatatum*, Squirrel-tail Fescue *Vulpia bromoides*, Flatweed *Hypochoeris radicata* and Onion-grass *Romulea rosea*.

A habitat hectare assessment was conducted on remnant patches of Plains Grassy Woodland vegetation within the offset site to determine a baseline condition (Appendix 2). All patches were assessed to have a habitat condition score greater than 0.4 and were considered to be of Very High conservation significance. The main difference in quality for these remnant patches was the cover of weed species and type of organic litter present.

### Grassy Eucalypt Woodland of the Victorian Volcanic Plain

One nationally listed vegetation community, GEWVVP listed as critically endangered under the EPBC Act, was recorded within the offset area.

The key diagnostic criteria and condition thresholds present within the study area, as outlined in listing advice for this community (Threatened Species Scientific Committee 2008) include:

* Must be a minimum size of 0.5 hectares; AND
* One or more of the following native grass genera accounts for at least 50% of the perennial ground layer cover: Themeda (Kangaroo-grass), Austrodanthonia (Wallaby-grass), Austrostipa (Spear-grass), Microlaena (Weeping Grass) and/or Poa (Tussock-grass); OR
* If native grasses account for less than 50% of the perennial ground layer cover, then the patch is either:
  + A valuable wildflower site where at least 50% of the ground layer vegetative cover is represented by native dryland forbs during spring-summer; OR
  + Not heavily invaded by perennial weeds such that the perennial weeds comprise less than 70% of the ground layer vegetative cover; OR
  + If perennial weeds comprise more than 70% of the ground vegetative cover, then that patch must have more than ten native perennial species per 100m2 AND a density of at least three big trees per hectare (i.e. DBH >70cm for Eucalypts).

Remnant Plains Grassy Woodland (Habitat Zones 1, 2 and 3a) meets the condition thresholds outlined above and is considered to be representative of the GEWVVP vegetation community (Figure 2). These habitat zones displayed a perennial native grass cover greater than 50% and/or less that 70% perennial weed cover.

Remnant vegetation within Habitat Zone 3b and 3c do meet the condition thresholds outlined above and are not considered to correspond with this community. These habitat zones displayed greater than 70% perennial weed cover.

There is 34.00 hectares of GEWVVP available for offset within the study area (Figure 2).

## Fauna Habitat

Grassy woodland within the study area provides moderate to high quality habitat for native fauna, with native birds and mammals using River Red-gums for refuge, roosting, nesting and foraging purposes. River Red Gums recorded in this area are very large (DBH ranging from 107cm to 238cm), with a variety of bird species likely to utilise these areas for perching, foraging and nesting, including Australian Magpie *Gymnorhina tibicen*, Magpie-lark *Grallina cyanoleuca*, Sulphur-crested Cockatoo *Cacatua galerita*, Galah *Eolophus roseicapilla,* Red Wattlebird *Anthochaera carunculata* and Noisy Miner *Manorina melanocephala*. When flowering, the canopy trees provide fruitful nectar yields that would provide important foraging habitat for migratory nectivores such as Rainbow Lorikeet *Trichoglossus haematodus*, Musk Lorikeet *Glossopsitta concinna* and White-plumed Honeyeater *Lichenostomus penicillatus*.

The numerous hollows and fissures within River Red-gums provide roosting, nesting and refuge habitat for birds, arboreal mammals and microbats, for example Common Brushtail Possum *Trichosurus vulpecula,* Common Ringtail Possum *Pseudocheirus peregrinus*, Gould’s Wattled Bat *Chalinolobus gouldii* and Lesser Long-eared Bat *Nictophilus geoffroyi*. These trees also have value for birds of prey as perches for scanning, roosting and nesting, and fallen branches beneath River Red-gums may provide refuge habitat for a variety of reptile species.

### Golden Sun Moth *Synemon plana*

Golden Sun Moth has been identified in and around Dunkeld on numerous occasions, with the majority of records taken in 2009 and 2011 (VBA 2014; Plate 1). The study area supports remnant grassland vegetation with a high cover of wallaby grasses, a preferred food source for Golden Sun Moth. Targeted surveys have not been undertaken within the property; as such the presence of Golden Sun Moth cannot be confirmed. However, based on habitat present within the study area, landscape context and the proximity of previous records, Golden Sun Moth is considered likely to occur within the study area.

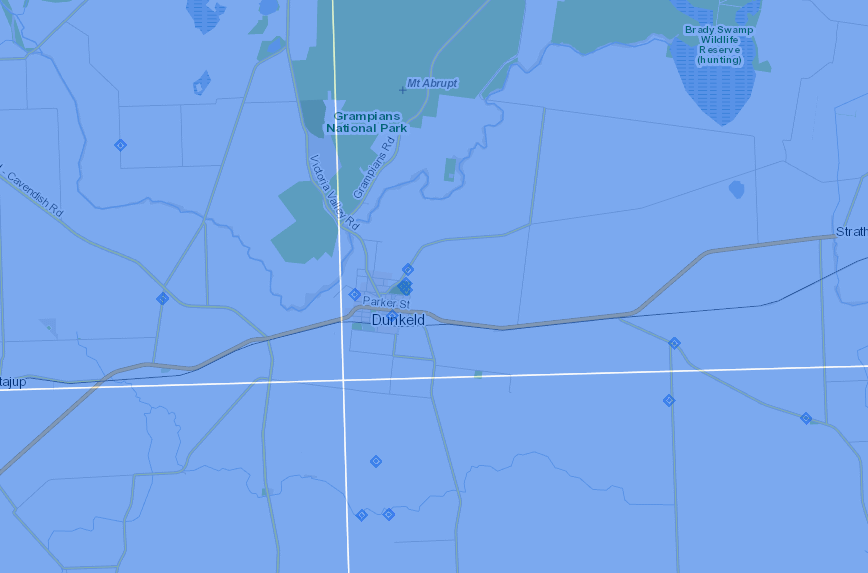


Plate 1: Golden Sun Moth records in Dunkeld area. Screenshot taken from online Victorian Biodiversity Atlas (VBA 2014)

# LIKE-FOR-LIKE CRITERIA

In determining the appropriate offset responses for permitted vegetation clearance, the Framework sets out several like-for-like criteria, which must be met for any offset site (DNRE 2002). Relevant like-for-like criteria are shown in Table 9.

Based on the criteria in Table 9, the quality objectives have been met for all vegetation losses.

Table . Summary of offset site requirements to meet Net Gain criteria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Offset Attributes | Conservation Significance | | | |
| Very High | High | Medium | Low |
| Vegetation or habitat type | The same vegetation / habitat type | The same vegetation / habitat type OR a Very High significance vegetation / habitat in the same Bioregion | Any EVC in the Bioregion OR a Very High or High significance vegetation / habitat in an adjacent Bioregion | |
| Landscape role | Similar or more effective ecological function AND land protection function as impacted by the loss | Similar or more effective ecological function OR land protection function as impacted by the loss | Similar or more effective land protection function as impacted by the loss | |
| Quality | 90% of the quality being lost | 75% of the quality being lost | 50% of the quality being lost | |
| Revegetation | 10% | 25% | 50% | 100% |
| ‘Trading up’ | Where gains are achieved in vegetation / habitat of a higher significance than the vegetation lost, then the amount of the offset will be proportionally reduced. E.g. offsetting losses in Medium conservation significance with Very High conservation significance gains will reduce the amount of the offsets by half, i.e. the Medium multiplier (1) divided by the Very High multiplier (2). | | | |

## Gains Available in Proposed Offset Site

Quantification of the available gains at the offset site is shown in Table 10. The gains available at the offset site are based on several commitments, such as managing existing remnant vegetation (i.e. by retaining and protecting vegetation, all fallen coarse woody debris within all zones and controlling high-threat weeds) and increasing security (through an on-title agreement, such as a Section 173 agreement or Trust-for-Nature covenant). The offset site is private land for the purposes of calculating gain as per DELWP guidelines (DSE 2010a). Therefore prior management, security, maintenance and improvement gains are available (DSE 2006a, Table 2a. p.7; DSE 2010a).

The gains achievable from the “proposed offsets” from remnant vegetation and large old trees are presented within this section.

### Remnant vegetation gains available

A habitat hectare assessment was conducted on remnant patches of Plains Grassy Woodland vegetation within the offset site (Table 11). In total, three habitat zones were recorded with a combined area of 35.51 hectares, comprising 15.74 habitat hectares of Very High conservation significance Plains Grassy Woodland. This vegetation is considered of Very High conservation significance, as Plains Grassy Woodland vegetation is endangered in the Victorian Volcanic Plain bioregion (DSE 2013b).

The native vegetation Gains available in the study area have been calculated using the habitat scores for each Plains Grassy Woodland habitat zone recorded above, DSE’s Gains Calculator and Vegetation Gain Approach (DSE 2006) (Table 11). A total gain of 7.0 habitat hectares of Very High conservation significance Plains Grassy Woodland is available in the three habitat zones recorded in the study area.

These Gains are available on the basis that the site will be secured with an on-title agreement (e.g. Section 173 or equivalent) and contains an approved 10-year Offset Management Plan outlining the management actions required to maintain and improve the current condition of native vegetation recorded.

### Remnant trees gains available

A total of 50 VLOT and 3 LOTs were recorded within remnant patches throughout the property.

The use of the relevant trees to satisfy the offset requirements associated with the proposed vegetation losses will require their permanent protection through an on-title agreement with an approved 10-year Offset Management Plan outlining the management actions required to protect these trees, and promote the recruitment of additional trees. Appropriate Tree Protection Zones (TPZ), in accordance with DELWP guidelines (DSE 2007; 2011c) (2x the canopy diameter), should be applied to trees within the proposed offset sites.

Table . Meeting Like-for-Like criteria for clearing remnant patches

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Clearing site | | | | | | | Offset site | | | | | | |
| Target # | Habitat Zones | Bioregion | EVC | Conservation Significance | Min. Habitat Score for Target | Other Like-for-Like Requirements | Trading up | Offset Zones | Bioregion | EVC | Conservation Significance | Habitat Score | Other Like-for-Like Attributes |
| H1 | PGW | VVP | Plains Grassy Woodland | Very High | 0.39 | Best 50% of habitat for GSM | No | PGW1 | VVP | Plains Grassy Woodland | Very High | 0.49 | GSM habitat to be confirmed |
| H2 | PGW | VVP | Plains Grassy Woodland | High | 0.39 | N/A | Yes | PGW1 | VVP | Plains Grassy Woodland | Very High | 0.49 | N/A |
| PGW2 | VVP | Plains Grassy Woodland | Very High | 0.45 | N/A |
| PGW3 | VVP | Plains Grassy Woodland | Very High | 0.41 | N/A |

Table . Native vegetation gains available

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| EOI Code / land manager name | | | Merrick - Dunkeld | | | Merrick – Dunkeld | | | Merrick – Dunkeld | | |
| Site code (number) / Habitat Zone ID (letter) | | | PGW1 | | | PGW2 | | | PGW3 | | |
| Land tenure | | | freehold | | | freehold | | | freehold | | |
| Property Size | | | >=10 Ha | | | >=10 Ha | | | >=10 Ha | | |
| Patch Size | | | >=20Ha | | | >=20Ha | | | >=20Ha | | |
| Zone type | | | Offset (Stat Planning) | | | Offset (Stat Planning) | | | Offset (Stat Planning) | | |
| Proposal type | | | Remnant patch | | | Remnant patch | | | Remnant patch | | |
| Security arrangement | | | Registered on-title agreement or crown land equivalent | | | Registered on-title agreement or crown land equivalent | | | Registered on-title agreement or crown land equivalent | | |
| Bioregion | | | Victorian Volcanic Plain | | | Victorian Volcanic Plain | | | Victorian Volcanic Plain | | |
| EVC name | | | Plains Grassy Woodland | | | Plains Grassy Woodland | | | Plains Grassy Woodland | | |
| BCS | | | E | | | E | | | E | | |
| EVC standardiser | | | 1 | | | 1 | | | 1 | | |
|  | | Max | Current condition | Maintenance gain/ha | Improvement gain/ha | Current condition | Maintenance gain/ha | Improvement gain/ha | Current condition | Maintenance gain/ha | Improvement gain/ha |
| Scores | Large Trees | 10 | 3 | na |  | 3 | na |  | 3 | na |  |
| Tree Canopy Cover | 5 | 3 | na | 0.4 | 3 | na | 0.4 | 3 | na | 0.4 |
| Understorey | 25 | 15 | 1.5 | 2.5 | 15 | 1.5 | 2.5 | 15 | 1.5 | 2.5 |
| Lack of Weeds | 15 | 9 |  | 2 | 6 |  | 2 | 2 |  | 2 |
| Recruitment | 10 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 |
| Organic Litter | 5 | 5 | 0.5 | 0 | 4 | 0.4 | 1 | 4 | 0.4 | 1 |
| Logs | 5 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0.4 | 0 |
| Standardised Site Condition | 75 | 35 |  |  | 31 |  |  | 27 |  |  |
| Landscape Context | 25 | 14 |  |  | 14 |  |  | 14 |  |  |
| HabHa Score | 100 | 49 |  |  | 45 |  |  | 41 |  |  |
| Subtotal of gains | | |  | 2.4 | 6.9 |  | 2.3 | 7.9 |  | 2.3 | 7.9 |
| Standardised Sum Main + Impr Gain/Ha | | | 9.3 | | | 10.2 | | | 10.2 | | |
| Prior Mgt Gain/Ha | | | 4.9 | | | 4.5 | | | 4.1 | | |
| Security Gain/Ha | | | 4.9 | | | 4.5 | | | 4.1 | | |
| Total Gain/Ha | | | 19.1 | | | 19.2 | | | 18.4 | | |
| Size of habitat zone (Ha) | | | 4.09 | | | 21.52 | | | 9.9 | | |
| TOTAL GAIN (HHa) | | | 0.78 | | | 4.13 | | | 1.82 | | |

## Summary of Available Gains

The gains available within the proposed offset site were calculated based on the quality and condition of the remnant native vegetation as well as applicable management actions and objectives. The following gains are available within the offset site (Table 11, Figure 2):

* 6.73 habitat hectares of Very High conservation significance Plains Grassy Woodland (EVC 55).

All remnant vegetation within the offset site is proposed to be protected as part of this OMP, except for an area of approximately 4.8 hectares for a potential dwelling site and approximately one hectare in the north east corner to provide access to a farm dam (Figure 2).

## Allocation of Native Vegetation Gains

Based upon the retained vegetation and the potential gains available within the offset site, Table 12 documents how the Net Gain targets can be partially met via the retention, protection and management of the offset site. The total gains available within the offset site (6.73 habitat hectares) form part of the offset strategy for the total gain targets required. As such, additional gains must be secured at other offset sites to meet total gain targets for the proposed losses.

Table . Allocation of native vegetation gains for clearing a remnant patch

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gain Target | | | | Trading Up | Gain Target | Source of gains to meet targets | | Outcome | |
| Target # | EVC | Conservation significance | Target (HHa) | Discount | Gain Target | Offset Zone | Gain (Hha) | Total Gains from designated offset area (Hha) | Surplus/Deficit (Hha) |
| 1 | PGW | Very High | 5.64 | 0 | 5.64 | PGW1 | 0.78 | 0.78 | -4.86 |
| PGW2 | 4.13 | 4.13 | -0.73 |
| PGW3 | 1.82 | 0.73 | +1.09 |
| 2 | PGW | High | 12.32 | 0.75 | 9.24 | PGW3 | (+1.09)^ | 1.09 | -8.15 ( 10.87\*) |
| **Total** |  |  | **17.96** |  | **14.88** |  | **6.73** | **6.73** | **-8.15 (10.87\*)** |

Notes: ^Carry over from previous line, indicates surplus from PGW3. \* Remaining deficit without Trading-up applied.

# Part B – Offset Implementation

This section presents the actions required to implement the OMP. The plan details methods for the management and conservation of native vegetation at the offset site over the requisite ten year management period and in perpetuity.

It is anticipated that the offset management works will begin prior to the clearing of native vegetation associated with the proposed development. It is envisaged that all works would be conducted by a suitably qualified and experienced contractor.

The plan aims to achieve vegetation gains through on-ground actions and therefore is required to be simple and practical. However, the management actions must be measurable against the commitments made in the calculation of habitat gain scoring (i.e. measures to achieve the Net Gain target).

## Details of Offset Site

Table 13 provides details of the offset site.

Table . Offset Site Details

|  |  |
| --- | --- |
| Offset Site Details | |
| Landowner of offset site | Adam Merrick |
| Type of offset (onsite, 3rd party) | 3rd Party |
| Location and address of offset site | 9 Mahoneys Lane, Dunkeld 3294 |
| Total area of property (ha) | 40.5 hectares |
| Area of offset site (ha) | 35.51 hectares in total |
| Offset site number (if applicable) | N/A |
| Volume | - |
| Folio | - |
| Parish | Dunkeld |
| Allotment | Lot 3 PS428763 |
| Local Government Area | Southern Grampians Shire Council |
| Responsible Authority | DoE and DELWP |
| Bioregion | Victorian Volcanic Plain |

## Strategy for Offset Site

The offset site is to be secured and managed for conservation purposes in perpetuity. The management strategy for the proposed offset site consists of implementing a vegetation offset management plan incorporating weed control and regular monitoring. Details of security and management responsibility are shown in Table 14.

Table . Security and Management Responsibility

|  |  |
| --- | --- |
| Offset Security and Management Responsibility | |
| Who is liable/responsible for meeting offset requirements? | VicRoads |
| Type of security i.e. Planning Permit Condition, Section 69 of the *Conservation, Forest and Lands Act 1987 (Vic),* Section 173 of the *Planning and Environment Act 1987 (Vic)* Covenant under the *Victorian Conservation Trust Act 1972 (Vic)* | TBC |
| Agreement or Planning Permit Number (ID) | TBC |
| Date 10-year offset management to commence | TBC |
| Date 10-year offset management expires | TBC |
| Registered on title? (Yes/No) | Yes |
| Offset site management responsibility (i.e. Landowner, Authority Name) | Landowner |
| Offset Monitoring Responsibility (i.e. Responsible Authority, DELWP) | DoE and DELWP |

## Management Objectives

The offset site will be managed for the purposes of conservation. Management of this site will be in accordance with Condition 8 of the EPBC Act approval conditions and aims to achieve an improvement in the overall condition of vegetation in accordance with the EPBC Act offset Calculator (Appendix 1). Actions will involve physical protection of the proposed offset site, the control of pest animals and a number of high threat environmental weeds, biomass reduction and the general objective of improving the character and quality of the native vegetation, consistent with its occurrence in an area of remnant grassy woodland. 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.

## Adaptive management

This Plan provides actions for a period of 10 years. The timing of actions and whether they occur is based on adaptive management. By monitoring the outcomes of actions, management may be adapted to ensure the stated commitments in the Plan are upheld. For example, new techniques for controlling high threat weeds may become available, or further information on the ecology and status of the vegetation communities may necessitate adjustment to management actions. The western districts of Victoria are known to be highly seasonal and conditions can vary greatly from year to year. This seasonality is acknowledged in this offset plan by allowing for flexibility around timing of actions at the discretion of the land manager.

## On-going Land Use Commitments

This section presents the actions required to implement the management strategy for remnant grassy woodland within the offset site to satisfy the requirements of Condition 8 of the EPBC Act approval conditions. The 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 in accordance with Condition 9 of the EPBC Act approval conditions. The landowners will continue to manage the offset site after the completion of year 10 as specified in this plan, such that:

* weed cover is managed in perpetuity to ensure it does not increase beyond the level attained at year 10 of management;
* pest animals are controlled in perpetuity to the level attained at year 10 of the management; and,
* the health and condition of large old trees is maintained.

Any proposed uses or development of the site which conflict with the landowners commitments are not permitted under this plan.

### Security Arrangements

The offset site will have on-title legal agreements put in place in accordance with Condition 7a of the EPBC Act approval conditions (conservation covenant [*Victorian Conservation Trust Act 1972*] or Section 173 [*Planning and Environment Act 1987*] in accordance with the relevant Responsible Authority) to ensure it is secured and managed appropriately in perpetuity.

### Access Control

Without active management and appropriate fencing, unrestricted access into the offset site may result in loss of native vegetation cover, soil disturbance and compaction, and weed facilitation. The perimeter of the property is currently enclosed by permanent post-and-wire fencing, with several internal fences that have been severed and require maintenance or removal. Access control will proceed in accordance with the following:

* Maintain permanent fences surrounding the offset. Any new fencing should be permanent post-and-wire fencing and constructed with minimal impact to the offset site (i.e. no stock piling of fencing materials or soil during construction); and,
* Fence condition will be monitored on an annual basis with any gaps or holes repaired immediately.

*Key Performance Indicators*

The following key performance indicator has been provided to measure the success of the access control:

* Permanent stock-proof fence prevents all unauthorised access to the offset site.

### Pest Control

#### Weed Control

The control of weed species is a key management action within the offset area and is critical to achieving a Net Gain. Effective weed control should promote the regeneration of existing populations of indigenous species and encourage recruitment from soil stored seed. Care should therefore be taken to ensure this ultimate objective is not compromised by excessive treatment. Weed control work should be carried out by a suitably qualified contractor.

Whilst all weeds should be treated, emphasis is placed on priority weeds within the offset site. Priority weeds include woody weeds, all noxious weeds listed under the *Catchment and Land Protection Act 1994* (CaLP) and high threat perennial grasses. High priority weeds that require immediate attention within the offset site are listed in Table 15. The control of high threat weed species is a key management action within the offset site and must be adequately addressed if Net Gain is to be achieved.

The following key management actions will be undertaken to ensure success of the weed management program:

* Eliminate priority weeds (cover reduced to <1%) within all habitat zones (Table 15);
* Control high threat perennial grasses (cover reduced to <50% within PGW3)
* Identify new infestations of weed species and implement control as appropriate;
* Control all other weeds within all habitat zones (cover maintained at current level);

Table . High priority weeds to be controlled

| Common Name | Scientific Name | Control Method | Timing | Current Cover | Threat Level | Habitat Zone | Goal |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Herbaceous Weeds** | | | | | | | |
| Thistles\* | *Cirsium spp.* | SS, CH | SS – Winter-Spring, CH - All Year | 1% | High | All | Eliminate (<1%) |
| Horehound\* | *Marrubium vulgare* | SS, CH | SS – Winter-Spring, CH - All Year | 1% | High | All | Eliminate (<1%) |
| Ox-tongue | *Helminthotheca echioides* | SS, CH | Winter-Spring | 1% | High | All | Maintain at current levels |
| **Grassy Weeds** | | | | | | | |
| Brown-top Bent-grass | *Agrostis capillaris* | M, SS | Mid-winter to late spring | 5% | Medium | PGW1, PGW2 | Maintain at current levels |
| 50% | High | PGW3a | Control (<50%) |
| 75% | High | PGW3b, PGW3c | Control (<50%) |
| Annual Grasses – Fescue, Barley | *Vulpia, Hordeum spp.* | M, SS | Mid-winter to late spring | 5% | Medium | All | Maintain at current levels |
| Perennial Grasses –Yorkshire Fog, Paspalum, Phalaris | *Holcus, Paspalum, Phalaris,* spp. | MR, SS, M | SS – Winter-Spring, M, MR - All year | 15% | Medium | All | Maintain at current levels |

**Notes:** SS = Spot-spray; M = Frequent Mowing/Grazing; MR = Manual removal; CH = Chip Out or Hand Pull.

Weed Status: \* = Declared Noxious Weed (DPI 2008)

The following guidelines should be taken as general management principles in regards to weed control:

* Weed control methodology for managing graminoid and herbaceous weeds will consist of manual removal and/or spot spraying weeds with an appropriate herbicide. Care should be taken when spraying herbicide to ensure that the poison does not affect native vegetation in the local application area. Weed species should be treated before seed is set, which may involve localised slashing if spot-spraying proves ineffective. A dye should be used in the spray to mark where the spraying has occurred;
* Selective herbicide application is preferable to broad area application but clearly the loss of non-target species needs to be balanced with the threat of incomplete control of the existing weed population;
* Strategic crash-grazing of paddocks dominated by Brown-top Bent-grass may be considered during appropriate seasons to enable other species including native perennial grasses to increase in cover;
* Weed control to be conducted outside of the normal active period for Golden Sun Moth (October to February) and activities will be conducted in a mosaic fashion to avoid any unexpected impacts affecting the entire population at the same time, and consideration to the application of herbicides as the effects of such chemicals on Golden Sun Moth larvae remain unknown;
* Any weed control should be done in a manner that minimises soil disturbance;
* Where herbicide application is employed, waterway sensitive products and non-residual herbicides are to be employed;
* Pest plants that reproduce sexually (by seed) are best controlled before seed set. If herbicide application is proposed after seed set, slashing should be undertaken to ensure seed does not reach maturity;
* To reduce the amounts of herbicide used, the target biomass should be reduced (e.g. slashed) before application so the herbicide can also be absorbed by the actively regrowing plants. Herbicides are only effective when plants are actively growing; and,
* Weed control works should be monitored regularly to assess their effectiveness, perform follow up works and evaluate the feasibility of management objectives.

*Key Performance Indicators*

The following key performance indicators have been provided to measure the success of the weed management program:

* Reduce priority noxious weed cover to <1%;
* Reduce priority perennial grass weed cover to <50%; and,
* Maintain all other weed cover at current levels.

#### Pest Animal Control

There is currently no evidence of any large populations of pest animals such as European Rabbit within the offset site, nevertheless, the occurrence of pest animals and potential habitat should be monitored during management works. Rabbits remain a threat for the regeneration/recruitment of native species throughout western Victoria. All vermin harbour (i.e. burrows) should be removed, without disturbance to native vegetation or significant soil disturbance. The land owner/contractor is to monitor pest animal use of the offset site whilst undertaking vegetation management works. Any changes in the influences of pest animals may require a change in the management actions.

The following key management actions will be undertaken to ensure success of the pest animal program:

* Monitor the population of pest animals (namely rabbits, hares, feral cats and foxes) during weed control works and adapt management as considered appropriate (i.e. if an increase in pest animal activity is observed then a targeted pest animal control program should be implemented.).
* Identify potential harbour and burrows, and destroy if soil disturbance can be minimised and all native vegetation retained; and,
* If necessary, undertake a pest animal control program (e.g. baiting, trapping and shooting of foxes, hares, rabbits or feral cats).

*Key Performance Indicators*

The following key performance indicators have been provided to measure the success of the pest animal management:

* No increase in pest animal activity from approval of this plan; and,
* Minimal soil disturbance and no native vegetation loss from pest animal management activities.

### Biomass Control

The current biomass reduction method applied throughout the site consists of low-intensity grazing by sheep. However, this method is not considered appropriate as the grazing regime does not allow for the recruitment of any new trees or regeneration of any shrub layer/midstorey. If stock is to continue grazing the site, a stock grazing regime with appropriate frequency and density must be implemented to maintain and enhance native biodiversity, ensuring that livestock grazing that does not detrimentally affect the remnant woodland, allowing for suitable biomass reduction while permitting the regeneration of key vegetation components. Crash grazing at a high stock density for short periods (up to one week), particularly during summer to reduce biomass, may be acceptable, however, it is important to minimise stock ‘camping’ around scattered trees during grazing periods and enable sufficient tree recruitment. Recruitment of woody species, particularly River Red-gum, is essential for this site so it is also important to allow adequate ‘rest’ between grazing periods to ensure seedlings are able to be become established and survive future grazing pressure.

Alternatively, low intensity mosaic burns can be used to maintain biomass levels as well as aid in the recruitment of indigenous species. Given the presence of suitable habitat for Golden Sun Moth, these activities should be conducted outside of the normal activity period (from October to February) for the species (e.g. employing cool autumn burns). Biomass reduction via ecological burning may be implemented on an as-needed basis, with consideration of the success of stock grazing and based on recommendations presented in vegetation monitoring reports (see Section 7.5).

*Key Performance Indicators*

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

* Biomass is managed and maintained at current levels; and,
* Large Old trees and recruits are retained and not impacted by stock.

### Supplementary Planting

It is anticipated that natural regeneration of remnant native vegetation and implementation of weed control measures are likely to improve the overall cover and diversity of indigenous flora within the offset site and hence contribute to Net Gain targets. As such, direct seeding and supplementary planting is not essential at this stage of proceeding and has not been included as a required management action as part of this plan.

### Native Vegetation, Logs and Coarse Woody Debris

Native vegetation, logs and coarse woody debris contribute to the ecological value and character of the offset site, including providing habitat for native fauna species. Management actions for the site will include the following:

* Ensure all native vegetation, both dead or alive, is retained including standing dead trees, fallen logs, branches and leaf litter;
* Harvesting or collecting of timber for fire wood or other uses is not permitted. Removal of exotic trees and shrubs for weed control is permitted;
* Ecological thinning of regenerated canopy trees, or recruits from other species of native vegetation is recommended should the survival of existing individuals be negatively impacted, or if the fire risk within the site is significantly increased from current levels.
* Installation of logs is permitted to increase habitat value for fauna, and achieve gains targets specified;
* Fire risk within the site is not increased; and,
* Only weeds or out of balance native species are removed.

*Key Performance Indicators*

The following key performance indicators have been provided to measure the success of the enhancement of fauna habitat:

* All native vegetation is retained within the offset site; and,
* At least five new trees will be recruited in the vicinity of each protected Large Old Tree, including dead trees.

## Monitoring and Reporting

Monitoring of native vegetation should be undertaken by a suitably qualified ecologist to ensure key performance targets are met and the responsible authorities notified of the successes and failures of works through regular progress reports. Progress reports will be provided to the responsible authority at the end of year 2, 5 and 10 of the program (Table 16).

### Monitoring

#### Native vegetation

Monitoring is required to assess the positive and negative impacts of management actions on the integrity of the offset site, and to implement change if required. Vegetation monitoring will be conducted in years 2, 5 and 10, with progress reports provided to the responsible authority at the end of these years.

This monitoring will be undertaken by a suitably qualified ecologist, with some input from the landowners. However, the frequency of monitoring may need to vary to allow for seasonal variations and to target periods of active weed growth. Similarly, pest animal monitoring should be undertaken at a time of year when these animals are most active so that an accurate assessment of population sizes can be made.

It is recommended that monitoring be undertaken by a qualified ecological consultant familiar with the methodology for assessing the quality of vegetation as well as any offset and EPBC Act referral requirements. This plan provides the baseline data to be used as a reference point to assess the impacts of the management actions.

Monitoring and progress reports should include the following:

* Overall condition and composition of vegetation as well as consideration of measurable vegetation quality outcomes i.e. habitat hectare assessment;
* Condition and health of scattered trees;
* Biomass levels;
* The extent, severity, trend and presence of current weed species and any new and emerging weed species; and,
* Implementation of permanent photo points. Photographs must be taken at the same location and during the same time of each year. Photo points will allow monitoring of weed populations and maintenance of the current condition of native vegetation within the offset site. Details of photo points and photographs will be provided to DELWP where required as evidence of progress.

#### Other Monitoring

Information relating to fencing, weed control and pest animal control will be provided by landowners and the relevant contractors, with a landowner monitoring form completed on an annual basis (see below). This information will be included in the progress report, discussed below.

#### Corrective Action

If monitoring identifies a trending degradation of vegetation and habitat quality within the offset site, taking into account seasonal environmental conditions or fluctuations, corrective actions and contingency measures may be required. Such corrective actions may comprise a change in management techniques, timing and/or frequency from those outlined in this plan. Corrective actions should be discussed with the ecological consultants prior to implementation and included in the annual report. Any significant issues should be raised with DoE and DELWP prior to implementation of corrective action.

Triggers for corrective action include:

* Security of the site is unable to be maintained (both physical and on-title arrangements);
* Noxious weed species cover exceeds Year 1 baseline levels or increase in cover is recorded over two consecutive years;
* Pest animal activity exceeds Year 1 baseline levels or an increase in activity is recorded over two consecutive years;
* Unexpected loss of greater than 50% of Large Old Trees within the offset site.

### Reporting

Progress reports will be provided to the responsible authority at the end of year 2, 5 and 10 of the program. Information to be provided in the progress report includes:

* A copy of the Management Actions Table (Table 16) detailing actions completed during the reporting period;
* Landowner monitoring and reporting forms;
* A description of the specific monitoring results from ecological surveys undertaken;
* Results of weed and pest animal control work;
* Successful management tools (i.e. techniques used to control weed species, protection of new recruits, monitoring technique, etc.);
* Any problems or issues experienced (i.e. new infestation of weed species, etc.);and,
* Photographs showing evidence of works.

In order to meet EPBC Act referral conditions, all records/evidence of management actions must be maintained, and be submitted to DoE upon request, and any proposed management changes must be submitted to DoE prior to the changes being undertaken.

If any agreed management actions or commitments are incomplete or have not been undertaken in the times specified, the landowner is to document the justification and the actions that will be undertaken to implement the requirement.

#### Landowner Monitoring and Reporting Form

Information relating to fencing, weed control and pest animal control will be provided by landowners and the relevant contractors, with a landowner monitoring form completed on an annual basis (see below) and submitted with the progress reports at the end of year 2, 5 and 10 of the program. The template for a landowner monitoring and reporting form is shown in Table 17.

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

## Management Actions Table

Management actions are summarised in Table 16. The actions constitute the minimum management requirements for the offset site over the mandatory 10 year management period.

Table . Management Actions Table

| Year | Action | Management action | Responsible authority / personnel | Timing of action | Report reference | Date completed |
| --- | --- | --- | --- | --- | --- | --- |
| 0 | 0.1 | Implement on-title legal agreements for offset site | Liaise between the landowner, DELWP and Council. | Within three months of this plan being approved by DELWP and DoE | Section 7.5.1 |  |
| 1 | 1.1 | Maintain permanent fences surrounding the offset site and construct internal fencing of offset site, as required. | Landowner | Within three months of this plan being approved by DELWP and DoE | Section 7.5.2 |  |
| 1 | 1.2 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 1 | 1.3 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 1 | 1.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 1 | 1.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6 |  |
| 2 | 2.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 2 | 2.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 2 | 2.3 | Conduct monitoring for vegetation including natural regeneration | Landowner/Suitably qualified ecological specialist | Two years after commencement of OMP | Section 7.6.1 and 7.5.4 |  |
| 2 | 2.4 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 2 | 2.5 | Monitor biomass density and implement stock grazing regime or develop ecological burn/ fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 2 | 2.6 | Monitor and assess works, and prepare progress report | Suitably qualified ecological specialist | Two years after commencement of OMP | Section 7.6.1 |  |
| 2 | 2.7 | Complete landowner monitoring form and submit progress report | Landowner | Two years after commencement of OMP | Section 7.6.2 |  |
| 3 | 3.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 3 | 3.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 3 | 3.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 3 | 3.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 3 | 3.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 4 | 4.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 4 | 4.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 4 | 4.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 4 | 4.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 4 | 4.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 5 | 5.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 5 | 5.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 5 | 5.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 5 | 5.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 5 | 5.5 | Conduct monitoring of vegetation including natural regeneration and prepare progress report | Landowner/Suitably qualified ecological specialist | Five years after commencement of OMP | Section 7.6.1 |  |
| 5 | 5.6 | Complete landowner monitoring form and submit progress report | Landowner | Five years after commencement of OMP | Section 7.6.2 |  |
| 6 | 6.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 6 | 6.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 6 | 6.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 6 | 6.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 6 | 6.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 7 | 7.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 7 | 7.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 7 | 7.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 7 | 7.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 7 | 7.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 8 | 8.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 8 | 8.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 8 | 8.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 8 | 8.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 8 | 8.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 9 | 9.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 9 | 9.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 9 | 9.3 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 9 | 9.4 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.4 |  |
| 9 | 9.5 | Complete landowner monitoring form | Landowner | During Autumn each year | Section 7.6.2 |  |
| 10 | 10.1 | Conduct weed control | Landowner/Bushland Management Contractor | Refer to Table 15. | Section 7.5.3.1 |  |
| 10 | 10.2 | Monitor populations of pest animals and conduct control works if required | Landowner/Pest Animal Contractor | After peak breeding season - late summer/early autumn | Section 7.5.3.2 |  |
| 10 | 10.3 | Conduct monitoring of vegetation including natural regeneration and prepare progress report | Landowner/Suitably qualified ecological specialist | Ten years after commencement of OMP | Section 7.6.1 |  |
| 10 | 10.4 | Maintain fences | Landowner/Fencing Contractor | As required | Section 7.5.2 |  |
| 10 | 10.5 | Monitor biomass density and implement stock grazing regime or develop ecological burn or fuel reduction plan if appropriate | Landowner/Bushland Management Contractor/CFA | Summer/Autumn | Section 7.5.3 |  |
| 10 | 10.6 | Complete landowner monitoring form and submit progress report | Landowner | Ten years after commencement of OMP | Section 7.6.1 |  |
| 10 | 10.7 | Monitor and assess works, and prepare final report | Suitably qualified ecological specialist | Ten years after commencement of OMP | Section 7.6.2 |  |

Table . Landowner Monitoring and Reporting Form

|  |  |  |
| --- | --- | --- |
| Landowner of offset site |  | |
| Location and address of offset site |  | |
| Offset site number (if applicable) |  | |
| Offset plan reference number (if applicable) |  | |
| Responsible Authority | Greater Dandenong City Council | |
| Report # |  | |
| Actions completed within the offset site during the management year | Date and details of action | Key performance target met (Y/N) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| Signature |  | |
| Date |  | |

# References

DEPI 2014a. EVC Benchmarks, www.depi.vic.gov.au. Accessed 28 February 2014. Department of Environment and Primary Industries, Melbourne, Victoria.

DEPI 2014b. Biodiversity Interactive Map 3.1., available from URL: [www.dse.vic.gov.au/about-dse/interactive-maps](http://www.dse.vic.gov.au/about-dse/interactive-maps). Department of Sustainability and Environment, Melbourne, Victoria.

DNRE 2002. Victoria's Native Vegetation Management: A Framework for Action. Department of Natural Resources and Environment, Victoria.

DPI 2008. Declared Noxious Weeds – Listed by Common Name. Landcare Notes. Department of Primary Industries.

DSE 2004. Vegetation Quality Assessment Manual: Guidelines for Applying the Habitat Hectares Scoring Method, Biodiversity and Natural Resources Division, Department of Sustainability & Environment, East Melbourne, Victoria.

DSE 2006a. Vegetation Gain Approach – Technical basis for calculating gains through improved native vegetation management and revegetation. Victorian Government, Department of Sustainability and Environment, East Melbourne.

DSE 2006b. Native Vegetation: Scoring Gain from an offset – DSE Gain Calculator user instructions. Victorian Government, Department of Sustainability and Environment, East Melbourne.

DSE 2006c. Native Vegetation Revegetation planting standards – Guidelines for establishing native vegetation for net gain accounting. Victorian Government, Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2007. Native Vegetation: Guide for Assessment of Referred Planning Permit Applications, Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2010. Net Gain Calculator, Version 1.2.5., Department of Sustainability and Environment, East Melbourne.

DSE 2011a. Victorian Biodiversity Atlas (VBA).  Sourced from: ‘VBA\_FLORA25’ and ‘VBA\_FLORA100’, Department of Sustainability and Environment, Victoria.

DSE 2011b. Victorian Biodiversity Atlas (VBA).  Sourced from: ‘VBA\_FAUNA25’ and ‘VBA\_FAUNA100’, Department of Sustainability and Environment, Victoria.

DSE 2011c. Native Vegetation – Technical Information Sheet September 2011: Defining an acceptable distance for tree retention during construction works. Department of Sustainability and Environment, 8 Nicholson Street, East Melbourne.

Ecology and Heritage Partners Pty Ltd 2012. Western Highway Project: Section 2, Beaufort to Ararat, Victoria. Impact Assessment Report – Flora, Fauna and Ecological Communities. Report prepared for VicRoads.

GHCMA 2006. Glenelg Hopkins Catchment Management Authority Native Vegetation Plan. Glenelg Hopkins Catchment Management Authority, Victoria.

Threatened Species Scientific Committee 2008. Commonwealth listing advice on Grassy Eucalypt Woodland of the Victorian Volcanic Plain. Threatened Species Scientific Committee, Canberra

VBA 2014. Victorian Biodiversity Atlas (VBA). Available online: <https://vba.dse.vic.gov.au/vba/>. Department Environment and Primary Industries, Victoria. Date accessed: 28/02/2014.

Viridans 2012a. Flora Information System (FIS), Viridians Biological Databases Pty Ltd, Department of Sustainability and Environment, East Melbourne, Victoria.

Viridans 2012b. Victorian Fauna Database (VFD), Viridians Biological Databases Pty Ltd, Department of Sustainability and Environment, East Melbourne, Victoria.

# Figures

# Appendix 1 – EPBC Act Offset Calculators

# Appendix 2 – Habitat Hectare Assessment

Table A2.1. Habitat Hectares results for remnant vegetation recorded within the study area.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vegetation Zone |  | PGW1 | PGW2 | PGW3 |
| Bioregion |  | Victorian Volcanic Plain | Victorian Volcanic Plain | Victorian Volcanic Plain |
| EVC / Tree |  | Plains Grassy Woodland | Plains Grassy Woodland | Plains Grassy Woodland |
| EVC Number |  | 55\_61 | 55\_61 | 55\_61 |
| EVC Conservation Status | | Endangered | Endangered | Endangered |
|  | Large Old Trees /10 | 3 | 3 | 3 |
|  | Canopy Cover /5 | 3 | 3 | 3 |
|  | Under storey /25 | 15 | 15 | 15 |
|  | Lack of Weeds /15 | 9 | 6 | 2 |
| Patch | Recruitment /10 | 0 | 0 | 0 |
| Condition | Organic Matter /5 | 5 | 4 | 4 |
|  | Logs /5 | 0 | 0 | 0 |
|  | Treeless EVC Multiplier | 1 | 1 | 1 |
|  | Subtotal = | 35 | 31 | 27 |
| Landscape Value /25 | | 14 | 14 | 14 |
| Habitat Points /100 | | 49 | 45 | 41 |
| Habitat Score |  | 0.490 | 0.45 | 0.41 |
| Total Area (ha) | | 4.09 | 21.50 | 9.90 |
| Total Habitat hectares | | 2.004 | 9.675 | 4.059 |
| Conservation Significance | | V. High | V. High | V. High |
| Large Old Trees | No. in Study Area | 7 | 33 | 10 |