

## Annual Management and Monitoring Report

Year 1 – October 2018– August 2019  
North-Western Grassland (EPBC2016/7734)

6165 Hamilton Highway, Cressy



Report prepared for Soho Living Pty Ltd

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6165 Hamilton Highway, Cressy

Report by Emma Wilkin

Cover images: "Long Paddock" Offset Site, 6165 Hamilton Highway, Cressy, 2017

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### **Acknowledgments:**

Practical Ecology acknowledges the Traditional Custodians of the land, the Wurundjeri Woi Wurrung people of the Kulin Nation, on which our office is located. We pay our respects to their Elders, past and present and emerging.

We also acknowledge the Traditional Custodians of the Lands on which we conduct our business throughout Australia. We pay our respects to their Elders, past and present and emerging, and the Aboriginal Elders of other communities who may be present on those lands.

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## **Preface**

This report has been written retrospectively in 2020, Year 3 of the 10-year Management Plan for biodiversity offsets for Copernicus Way (EPBC 2016/7734), located at 6165 Hamilton Hwy Cressy.

It is acknowledged first and foremost that the all of the required management, monitoring and reporting actions for the offsets located at the Hamilton Highway property has not been fully implemented since registration on title. Actions such as weed control, biomass management through sheep grazing and regular site visits for general monitoring have been implemented on an ongoing basis. However, there has been some difficulty in implementing appropriate site management and monitoring due to the number and location of different offset management zones within the single continuous grassland that is the Hamilton Highway Cressy Offset Site, now referred to as “Long Paddock”. It has been possible to sell offsets across the entire site over the last two years, which has now been achieved, but developing an overlapping site wide management approach while still satisfying each individual Offset Management Plan (OMP) has proven to be a difficult process that has been further complicated by recent events in 2020.

Land owners Lincoln Kern and Paul Guest have sought assistance from Practical Ecology consultants to develop a system to manage, monitor, record and process data that relates to each individual offset area within the single grassland property. The intent is to implement a management system that supports a best-practice site wide management and monitoring approach moving forward, so that all management actions of each of the Offset Management Plans will be completed to the satisfaction of all relevant stakeholders and independent auditing parties while being able to implement required management on a practical basis.

The complexity in management of this site stems from the allocation of particular areas within the property to numerous biodiversity offset agreements, all with similar but varying directions for management. There is a total of five offset management plans that detail the requirements for management, across six separate Offset Management Zones, which in some instances are split further into different regions within the property (refer Appendix 2: Map 2). The map below and Table 1 below summarises and highlights the various zones, areas, and timing relating to the offset areas currently established at the site.

**Table 1.** Overview of current offset agreements located on-site

	Zone Name	Offset Management Zone	Size	Date of Legal Execution
Tier 1	Northwest Grassland (NWG)	OMZ-01	5 ha	4th October 2018
Tier 2A	Central East Grassland (CEG)	OMZ -05	29.1 ha	17 <sup>th</sup> April 2019
Tier 2B	Seasonal Herbaceous Wetland Two (SHW2)	OMZ -04	11.86 ha	17 <sup>th</sup> April 2019
Tier 2C	Seasonal Herbaceous Wetland One (SHW1)	OMZ -03	2.52 ha	17 <sup>th</sup> April 2019
Tier 3	Far East Grassland (FEG)	OMZ -06	16 ha	TBD
	Southwest Grassland (SWG)	OMZ -02		

The practicality of managing each site separately has been determined to likely have an overall detrimental effect on the quality of the grassland long-term if this results in further non-compliance and difficulty in completing the required management actions. It has therefore been determined that the best course of action is to manage the entire site as one and to collect monitoring data that determines the effectiveness of management over time. Management will of course consider various conditions and values within the site and respond appropriately. In short, the site will be managed as whole, but monitored to report on the conditions of each individual Offset Management Zone, to as to accurately respond to the requirements of each individual management plan as required under the EPBC Offsets Policy (Commonwealth of Australia 2012).

As a response and solution to confusion in implementing multiple plans within a continues site, Practical Ecology have developed a system that includes a comprehensive manual for management requirements through compiling all directions of formal Offset Management Zones (OMZ 01– OMZ 06) into one clear and concise document. This overall management document has been developed to address inconsistency and non-compliance of management to date, that have occurred in part due to the complexity of management of the site as six different management zones.

The compilation of all OMP directives and necessary background information has been named *Long Paddock Offset Management and Monitoring Manual* and contains all necessary information, including methodology, for implementation of the management and monitoring actions at the site. This document is also now supported with systems for recording and processing data relating to completed tasks, so that adaptive management can be implement where required in specific management zones throughout the monitoring periods.

## 1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by Deep Lead Pty Ltd to undertake monitoring and associated annual reporting for Natural Temperate Grassland of the Victorian Volcanic Plains (NTGVVP) habitat offsets located at *Long Paddock Offset Site*, 6165 Hamilton Highway, Cressy.

The offset was created as part of infrastructure works undertaken by **Soho Living Pty Ltd**, requiring removal of vegetation that was identified NTGVVP as prescribed by the Department of Environment and Energy (DoEE) under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) in relation to **referral 2016/7734**.

This report presents information of the initial set-up, monitoring and works of the site for Year 1 of a 10-year management plan for Offset Management Zone 1 (OMZ-01), named the **Northwest Grassland**, located at the western edge of the broader offset property at Cressy,

The date of legal execution for the Offset Management Plan (OMP) for this site in **4<sup>th</sup> October 2018**. (Biosis 2018)

The requirements of annual reports state that submission to relevant authorities and stakeholders is required at least two months prior to the anniversary date of the execution of the OMP. As such, the reporting period for this site for Year 1 is **October 2018 – August 2019**

Subsequent monitoring periods will be from **August – August** each year.

## **2. METHODS – SITE MANAGEMENT AND MONITORING**

The following methods for monitoring and works have been implemented in response directions stated in the OMP (Ecology and Heritage Partners 2018) for the site Offset Management Zone 4 (OMZ-04) located within the Long Paddock Offset Site at Cressy. Actions stated within the OMP are required to be completed annually, with methodology and monitoring to be applied within an adaptive management framework.

Refer to supporting document Long Paddock Management and Monitoring Manual (Practical Ecology 2020) for detailed methodology in relation to site management and monitoring.

### **2.1 Fencing**

The fence along the Hamilton Highway denoting the northern boundary of the site is partially stone wall; while the rest of the boundaries are constructed of wire with sheep netting.

Stock and vehicle proof fencing was in place for the perimeter of the entire 75 ha property at the time of property purchase and remains functional.

#### **2.1.1 Offset Management Zone Demarcation**

On-site demarcation of OMZs is necessary to define the areas of the site to which varying OMPs apply, as shown in Appendix 2: Map 2

Given the susceptibility of SLL and GSM to predation by birds, the amount of on-site marking of OMZs has aimed to minimise bird perching opportunities. The OMZs across the site, have not been fenced. Instead, the intersections of the OMZs with boundary fencing has been marked with short (approx. 30 cm high) star pickets in the locations shown on Map 2. A yellow plastic cap has been placed on the top of each star picket to allow for easier visual observation; the purpose of each has also been labelled with a cattle tag.

Posts marking the intersect of the boundary for the extent of the site was completed, installed along the existing property fence line to identify the area of OMZs for monitoring and management (refer Appendix 2– Map 2)

Site Photo points were established at the boundary intersects of the OMZ across the extent of the site (refer Appendix 2– Map 3)

## 2.2 Weed Control

Weed management is required to be conducted by a suitably qualified contractor. The nominated contractor for the Long Paddock Offset Site is Seed2Leaves Pty Ltd.

The weed control program for the site is comprised of one grazing event in Autumn, and one treatment event in late Winter/early Spring. This timing is in line with considerations for impact of herbicide on eggs of Striped Legless Lizard. Eggs are laid in summer and hatch approximately 5 months later. This timing is also considerate of Golden Sun Moth, for impact to individual animals during the flight/breeding season in October–November, with eggs hatching approximately 21 days later.

Basic principles for weed management at the site are as follows;

- ☐ Careful Spot spraying will be default method for treatment within the site to minimise off target damage
- ☐ All weed control is to be conducted under appropriate conditions, in line with best practice protocols
- ☐ No off-label use of herbicide is permitted
- ☐ All contractors are required to complete a daily work record, identifying species targeted, herbicide type, rate and amount, and works areas, as well as diary/logbook entries as standard

### 2.2.1 Woody Weeds

- ☐ Woody weeds are treated as soon as possible, after identification, to reduce opportunity for maturity/flowering.
- ☐ Cut and paint method may be implemented any time of year, as appropriate of size/life cycle of species.
- ☐ Where spot spraying is required for woody weeds, this occurs in Spring

A focus on thistle control was prioritised in early 2019, and featured a sweep of the entire site, with all visible thistles targeted through spot spraying.

### 2.2.2 Herbaceous and Grassy Weeds

Where possible, main methods of control should be a combination of grazing and ecological burns as best practice, to limit the requirement of herbicide use within the site.

If herbicide is required, spot spraying is permitted, and can occur in late Winter/early Spring.



### **3. METHODS –MONITORING**

#### **3.1 Site Log Book**

The site log book is an online record of times and dates that landowners, contractor, consultants or other relevant parties that have visited the site for the purposes of implementing management or monitoring actions within the property boundary.

This logbook may be maintained by the landowners, through correspondence with contractors, or may be accessed directly through a Dropbox account by approved personnel to record important information relating to site management.

Typical entries include date, name of personnel on site, activities being completed, general observations of flora or fauna, weather, presence of standing water, comment on biomass.

This logbook plays an important role in identifying the presence and extent of any management threats or observations, and is especially useful to present observations over extended periods of time that can be investigated further as required.

#### **3.2 Quarterly site visits**

Site is visited quarterly by the landowner, and can be combined with visiting the site to conduct other monitoring or management actions. The following activities must be undertaken at each quarterly visit;

- walk of boundary fencing, to assess any signs of damage or unauthorised entry.
- general observations are to be recorded during site boundary walk. This includes locations and notes as appropriate regarding;
  - woody or herbaceous weed infestations– species and location
  - estimates of percentage cover of inter-tussock space
  - signs of pest animals, or other tracks scats, or signs of predation
  - signs of erosion, damage to vegetation,

#### **3.3 Grazing Progress Monitoring**

Site should be checked regularly at times during stock grazing.

Notes should be taken regarding general site condition, grazing progress, signs of trampling, overgrazing, pugging etc.

## 4. RESULTS

### 4.1 Site Log Books

Refer Appendix 3 for all log book entries in the Year 1 management period.

### 4.2 Quarterly Site Visits

#### 4.2.1 General Observations

The key general observations that relate to OMZ-01 during Year 1 are summarised in the following table. Refer Appendix 3 for full logbook entries for Year 1.

**Table 2.** Key observations Year 1– OMZ-01

4 <sup>th</sup> Oct 18	OMP formalised – Commencement of 10-year management plan
28 <sup>th</sup> Oct 18	Sheep noted to have significantly reduced biomass levels across the site, including the western end
14 <sup>th</sup> Nov 18	Sheep removed from site
21 <sup>st</sup> Nov 18	15 x tile grids installed across entire site, ready for monitoring in Year 2 and in following years
12 <sup>th</sup> Feb 19	Biomass still low
9 <sup>th</sup> June 2019	Attempted ecological burn in area of dense Phalaris. Fire burnt edge of tussocks but did not spread– too wet

#### 4.2.2 Fence Condition

Stock and vehicle proof fencing was in place for the perimeter of the entire 75 ha property at the time of property purchase. Surveys of the property boundary and existing fence were conducted at each site visit and observations and have recorded no signs of damage or requirement for repair. There has been no evidence of any trespassing by vehicles or people on foot, and no signs of unpermitted stock access outside of the grazing period within the Year 1 period.

Posts marking the intersect of the boundary and the offset site have been installed along the existing property fence line to identify the area of OMZ-01 for monitoring and management (refer Appendix 1– Map 1)

### **4.2.1 Pest Animals**

Observations of pest animals are generally recorded in the property log book for any observations of pest animals occurring on site. There were no recorded sightings of pest animals at OMZ-05 within the Year 1 management period. There were no signs of active or inactive rabbit warrens, or areas that could be seen as intensely browsed. There are also no areas of rubbish, or harbour within the site.

Foxes are likely to occur within the area, but none have been observed within the property boundary.

Individual hares are sometimes sighted, but are not found to be creating disturbance, or any other impact to site values.

### **4.2.1 Site Photopoints**

Photopoints were not established or completed within the year 1 monitoring period.

## **4.3 Annual Vegetation Monitoring**

### **4.3.1 Site walkover**

Formal site walkover by a suitably qualified ecologist was not conducted in OMZ-01 within the year one monitoring period

No woody weeds were identified within OMZ-01 or the broader property at the time of baseline assessments for the OMP in 2018. Monitoring activities and site visits that have occurred since have similarly found no woody weed species within OMZ-01, Ongoing monitoring for woody weeds will occur at each site visit, with appropriate controls to be implemented in the case that they are found to occur within the property.

## **4.4 Targeted Fauna Surveys**

### **4.4.1 Golden Sun Moth**

Baseline monitoring not conducted within OMZ-01 during the year 1 monitoring period.

Golden Sun Moth surveys were conducted at the property during this period, at OMZ-06, Far East Grassland. Four surveys were completed by EcoAerial Consulting in November and December 2018. (Refer Appendix 4 for relevant reporting). Surveys completed by EcoAerial in 2018 found no occurrences of Golden Sun Moth. It was determined that biomass was too high at this time for sufficient inter-tussock space appropriate for Golden Sun Moth activity. These conditions of high biomass were consistent across the entire offset site.

## 5. DISCUSSION

### 5.1 Non-compliance

The following required management actions were not completed within the Year 1 management period, and are therefore considered non-compliance against the OMP requirements (Biosis 2018);

**Action 0.3** – Establish markers to identify boundary of the offset site to assist with management and monitoring of the area

**Action 0.5** – Baseline monitoring, establish monitoring points, Photopoints, and refine management actions based on baseline results

**Action 1.8** – Biometric Survey of Striped Legless Lizard– Including Habitat Hectare Assessments

**Action 1.9** – Baseline monitoring of Golden Sun Moth populations

**Action 1.10** – Preparation and submission of annual report by due date

It should be noted that given the timing of commencement of the OMP, on the 4<sup>th</sup> October 2018, it was not feasible to complete a survey season for striped legless lizard. The EPBC Act *referral guidelines for the vulnerable striped legless lizard, Delma impar* (DSEWPC 2011) require that tile grids are installed at least one month prior to surveys (by August). Tile grids are then required to be checked six times between October and November. Given that the OMZ-01 was formalised in early October, tile grids were not able to be installed or survey completed within the required timeframe in 2018/Year 1. It will therefore be at the discretion of the auditor as to whether this is deemed a non-compliance for Year 1 management period.

### 5.2 Biomass

There are ongoing issues that relate to biomass management at the site. Historically, prior to the purchase of the property for conservation, sheep grazed continually throughout the year and were based at the site permanently. It may be the case that this property has adapted well to the presence of sheep on a permanent basis, and that removal of sheep at certain times of the year has potential to dramatically increase biomass over a very short period.

The results of sheep grazing in October and November 2018 were recorded as successful in reducing the biomass across the extent of the property significantly (refer Appendix 3– Logbook). However, Golden Sun Moth (GSM) surveys conducted at the eastern end of the site in November– December 2018 found that biomass levels were overall too high;

*“Due to a lack of grazing / biomass reduction there is currently not habitat suitable for GSM. There is a lack of inter-tussock space that is considered important for supporting populations of GSM”* (EcoAerial 2019)

GSM surveys were not conducted within OMZ-01, due to miscommunication of the correct survey area to the consulting ecologist. However, given that the entire site was grazed in the lead up, including OMZ-01, it is likely that surveys conducted on the western end of the site would have yielded similar results, and identified unsuitable conditions for GSM due to high biomass.

Biomass management has therefore been noted as potentially problematic at this site, given that the use of ecological burns as management tool has also been difficult to implement thus far. The combination of generally high biomass levels, narrowing burn windows, proximity to agricultural land, as well as additional considerations of wetland areas and key fauna species, golden sun moth and striped legless lizard, all result in the requirement of an intricate and carefully considered burn plan. A draft burn plan has been developed for the site, however was not able to be implemented in the Year 1 period (refer Appendix 2– Map 3)

The default tool for biomass reduction will for the time being remain as grazing by sheep. In order to address concerns of biomass, it may be appropriate at certain times to either prolong grazing times, include additional pulse cycles, or allow grazing during the months currently excluded (August – February). Such action would be proposed and submitted to Trust for Nature for approval before implementation, as is required for any alteration to directives stated within the relevant management plans.

## 6. REFERENCES

Biosis (2018) *Copernicus Way EPBC Act (EPBC 2016/7734) Offset Management Plan: 6165 Hamilton Highway Cressy*. Melbourne.

Commonwealth of Australia (2012) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Commonwealth of Australia,.

DSEWPC (2011) *Environment Protection and Biodiversity Conservation Act 1999 referral guidelines for the vulnerable striped legless lizard, Delma impar* Department of Sustainability, Environment, Water, Population and Communities, Australian Government.

EcoAerial (2019) *Cressy Golden Sun Moth Survey*. Newport.

Practical Ecology (2020) *Long Paddock Management and Monitoring Manual*. Preston.

## Appendix 1. Summary of required management actions – Year 1

Year no.	Action no.	Activity Description	Timing	Standard to be achieved	Achieved?	Comments
0	0.1	Establish offset area	upon registration of agreement	Covenant as to part section 3A Victorian <i>Conservation Trust Act 1972</i> covering 5.0 hectares	Y	
0	0.2	Ensure appropriate fencing is established	start of management period	Site isolated from activities excluded by OMP.	Y	fencing is secure at the time of offset establishment. Internal fencing of 5ha not required
0	0.3	Establish markers to identify boundary of the offset site to assist with management and monitoring of the area	start of management period	Markers established to identify the boundary of the offset site. Guidance provided by a qualified ecologist to ensure impacts to native vegetation are avoided	Y	markers are attached at picket locations on boundary fence lines. No tall pickets have been installed inside site area, to reduce perching availability for birds, for consideration of predation of GSM and SLL
0	0.4	Where appropriate identify a person/company to control pest plants and animals. In this instance the Trust for Nature TfN will provide appropriate supervision for the land owner to conduct the pest plant and animal control works	Upon registration of the covenant between land owner and TfN	Appropriate personnel appointed to conduct works.	Y	Seeds to Leaves- ecological management company have been designated this role
0	0.5	Qualified ecologist to undertake baseline monitoring, establish monitoring points, photo points and refine management actions based on baseline results.	Oct-Nov monitoring	Prepare standard report including photos and confirm agreed performance measures outlined in Section 3.5.	N	Monitoring was not done in Year 1 monitoring period
1	1.1	Land owner to develop annual works plan in consultation with the TfN based on a site inspection.	Upon registration of the covenant.	Annual works plan prepared and approved for implementation by TfN.	Y	
1	1.2	Maintain fences and gates around broader offset area and markers around offset site in good working order. Remove any rubbish present within the offset site.	Continuous (inspection and management)	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.	Y	
1	1.3	Undertake pulse grazing to reduce biomass.	31st January – 31st July	Maintain an open tussock grassland with at least 30% cover of inter-tussock space.	Y	

North-Western Grassland Monitoring Year 1 – Long Paddock, 6165 Hamilton Highway, Cressy

1	1.4	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible).	Feb–Apr, Sep–Nov	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks)	Y	
1	1.5	Control all high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Monitor for new and emerging weeds and eliminate any found	July–Nov as detailed in the annual works plan	Minimise the occurrence of weeds with a reduction in total cover of weeds, including high threat weeds, beyond current levels. See Target percentage cover	Y	weed control implemented in the year 1- refer site log book
1	1.6	Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 20% of the offset area at least ten times during 10-year management period.	Sep-Oct or March - May (or as specified in the burn plan)	Medium intensity burns over 20% of the 5.0 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every three years. Follow up weed control will be undertaken within the burn area in accordance with section 3.9. Burns must also be undertaken to generate a mosaic pattern of burnt and unburnt areas	Y	Burn plan has been developed- however no opportunity to burn was available in the Year 1 period. Sheep were therefore used as the main biomass reduction tool in Year 1  Burn Plan map attached – refer Appendix 2
1	1.7	Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed.	Site inspections at an appropriate frequency	Reporting of management activities as agreed. This can consist of a series of notes of observations made by the land owner during site inspections.	Y	refer site log book – Appendix 3
1	1.8	Qualified ecologist to undertake vegetation and SLL monitoring (including Habitat hectare assessment), and refine management actions based on results. Identify any new high threat weeds for priority control. Report to regulator as directed.	Oct-Nov monitoring Dec Reporting	Prepare standard report including results from photos and agreed performance measures outlined in Section 3.9.	N	SLL biometric surveys were not conducted within the Year 1 monitoring period
1	1.9	Conduct baseline GSM surveys and document results.	Nov - Dec	Document baseline GSM population and distribution	N	Baseline GSM surveys were not undertaken in Year 1
1	1.10	Prepare annual report based on site inspections conducted throughout the year. Report to be provided to TfN, Soho and DoEE.	Nov	Report reviewing the success of management and level of implementation of OMP provided to TfN, DoE, and Soho.	N	Annual report was not prepared in time for submission
1	1.11	Review and update Annual Works Plan in consultation with TfN.	Dec	Following year's management tailored to current site conditions	Y	



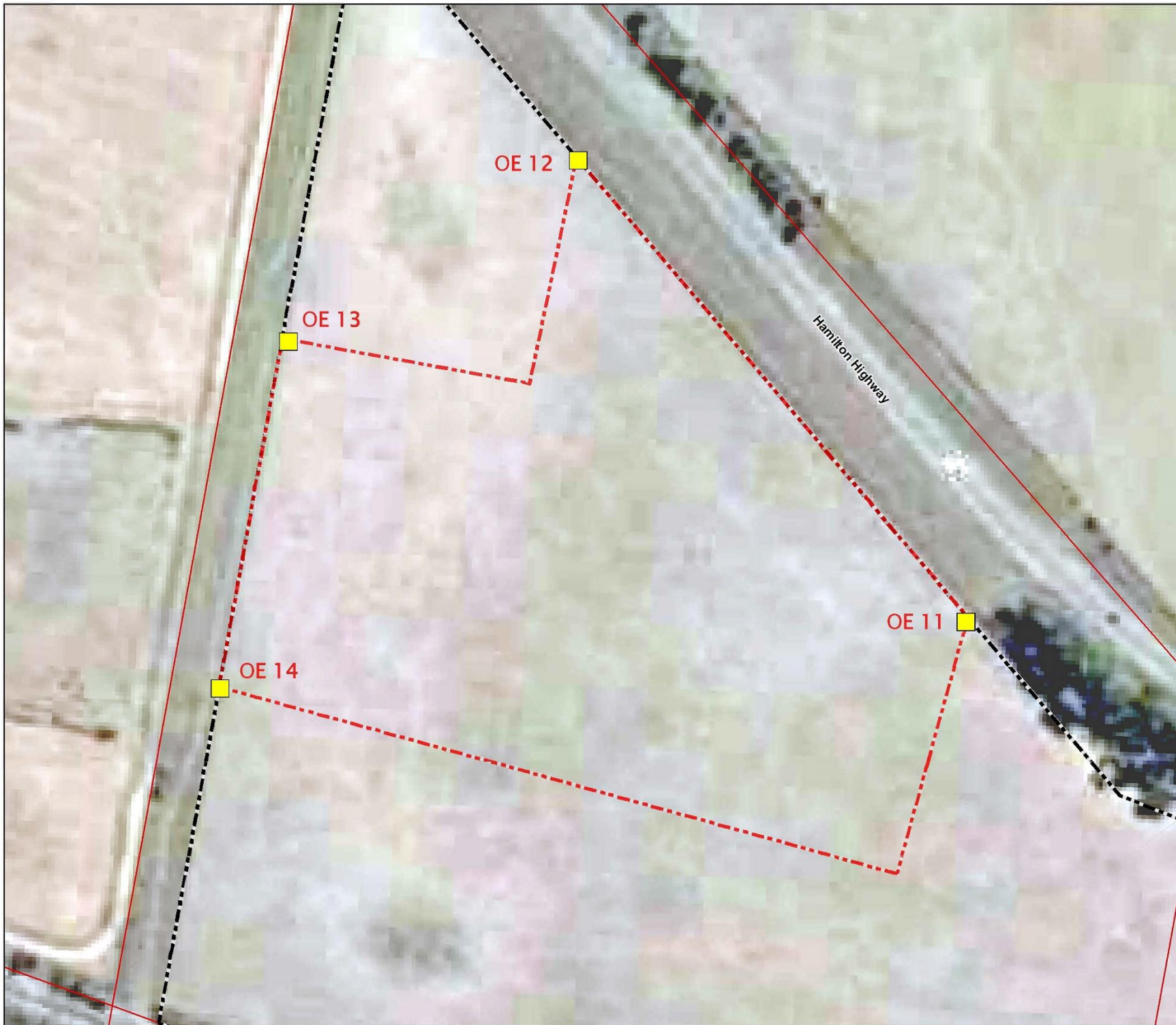
## Appendix 2. Maps

Map1: Tier 1– Northwest Grassland (OMZ–01)

Map2: Offset Management Zones– All

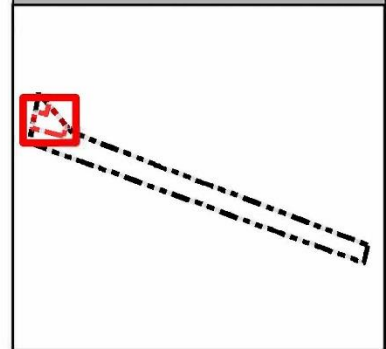
Map 3: Draft Burn Plan

**Tier 1 – Northwest Grassland**  
6165 Hamilton Highway, Cressy



**Legend**

- 6165 Hamilton Hwy, Cressy
- Tier 1 - Northwest Grassland
- Parcels
- Contours (10m)
- Watercourse
- Demarcation Point

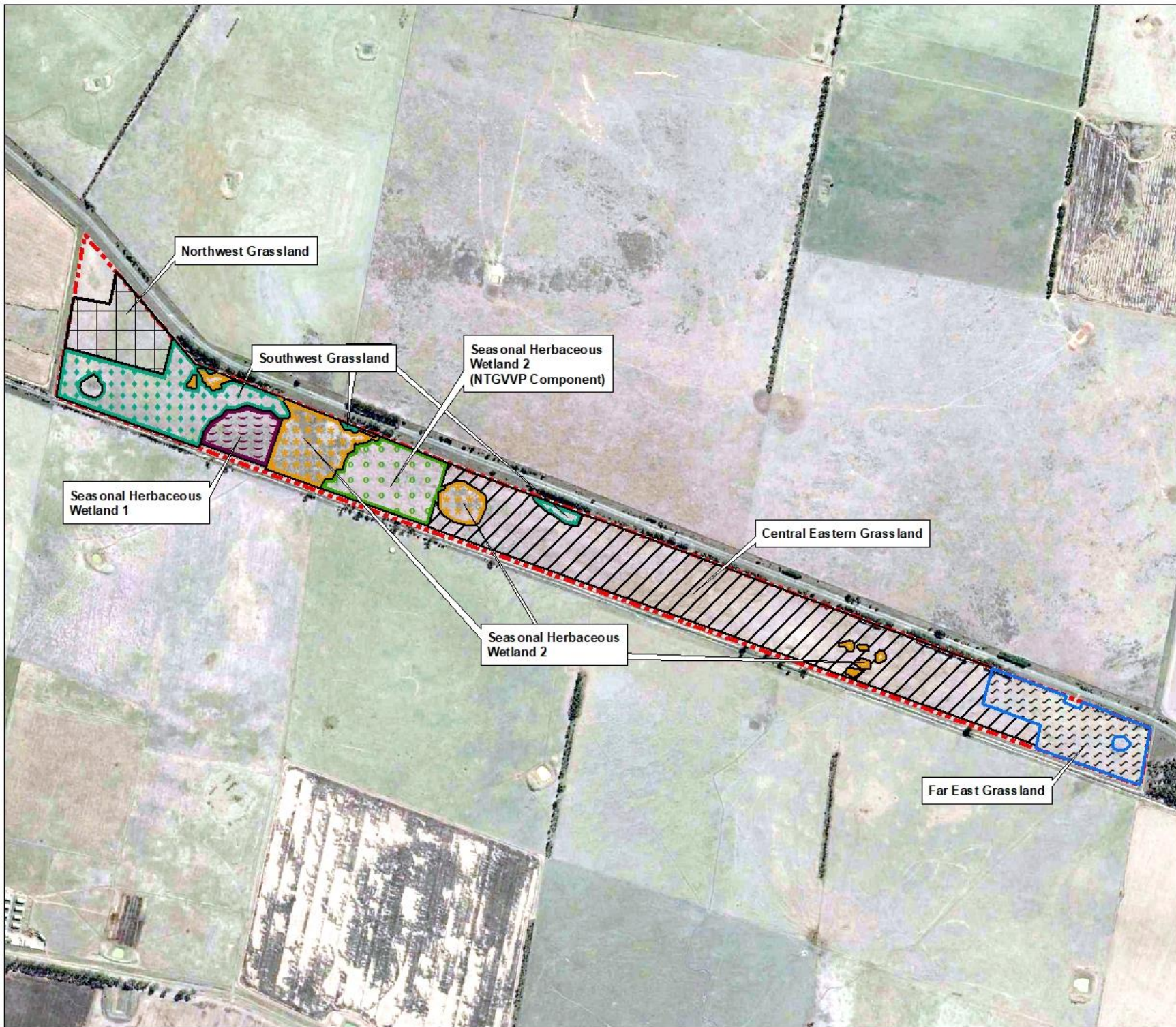


**Details**  
Date: 4/11/2020  
Aerial photography from Google Earth Pro (April 2015).  
Base map data Copyright © The State of Victoria.

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0 25 50 m

Scale 1:1,500 (Page size A3)



## Map 2. Offset Management Zones

6165 Hamilton Highway, Cressy

### Legend

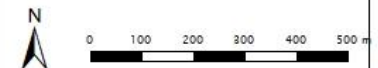
-  Subject site
-  Central Eastern Grassland
-  Far East Grassland
-  Northwest Grassland
-  Seasonal Herbaceous Wetland 1
-  Seasonal Herbaceous Wetland 2
-  Seasonal Herbaceous Wetland 2 (NTGVVP Component)
-  Seasonal Herbaceous Wetland 2 (NTGVVP Component)
-  Southwest Grassland

### Details

Date: 30/01/2020

Aerial photography from Google Earth Pro (April 2015).

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Scale 1:10,374 (Page size A3)

### Disclaimer

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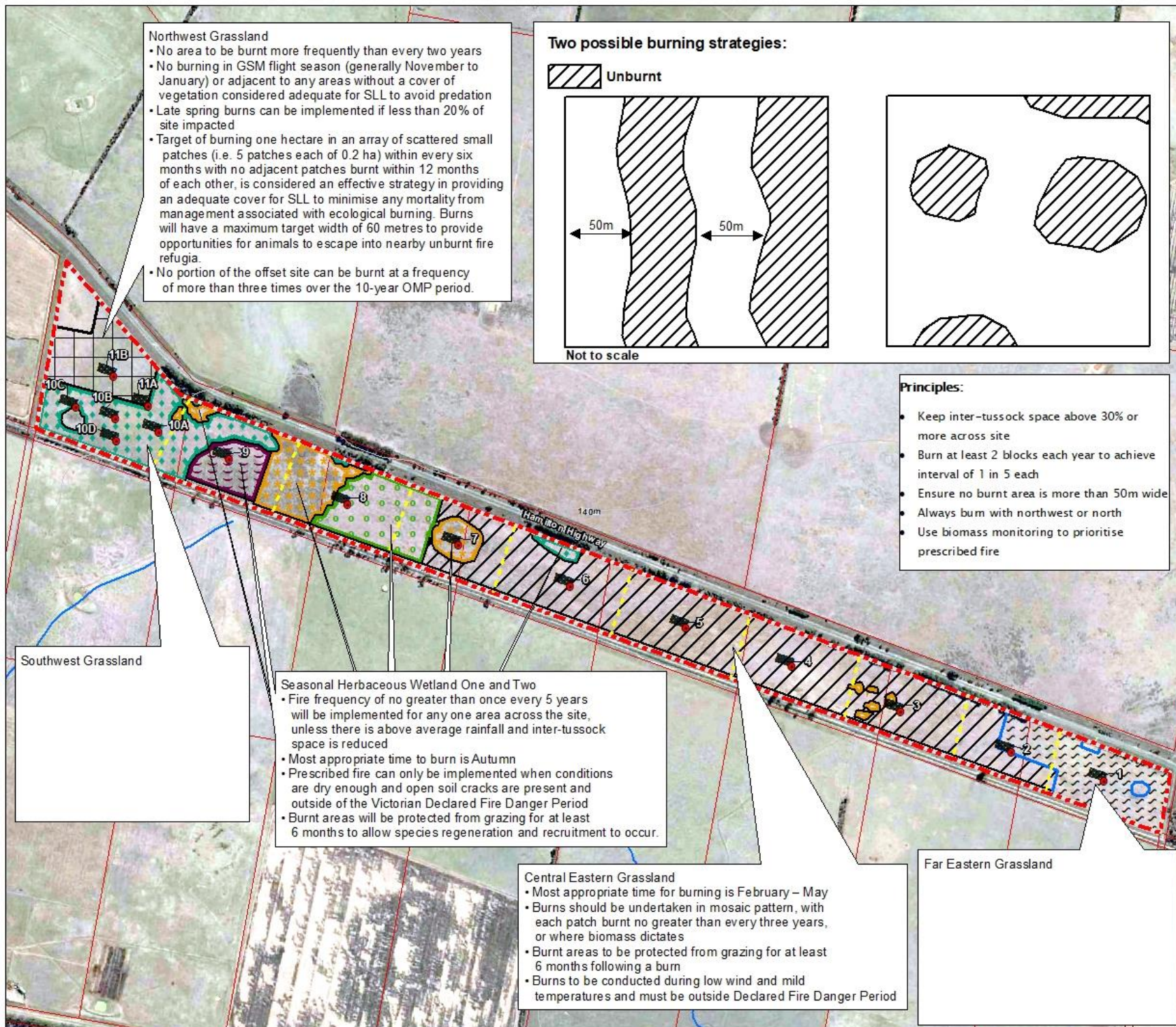
ecological restoration & consulting

ph: (03) 9484 1555 e: enquiries@practicalecology.com.au

# Map 8. Fire Management Strategy

## Strategy

6165 Hamilton Highway, Cressy

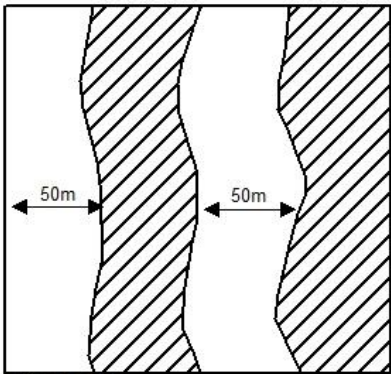


**Northwest Grassland**

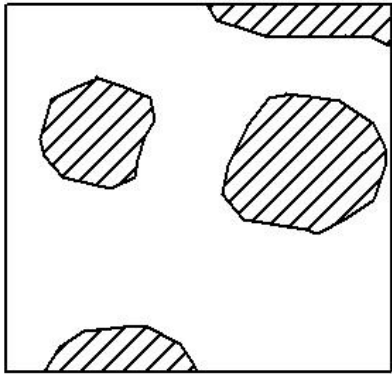
- No area to be burnt more frequently than every two years
- No burning in GSM flight season (generally November to January) or adjacent to any areas without a cover of vegetation considered adequate for SLL to avoid predation
- Late spring burns can be implemented if less than 20% of site impacted
- Target of burning one hectare in an array of scattered small patches (i.e. 5 patches each of 0.2 ha) within every six months with no adjacent patches burnt within 12 months of each other, is considered an effective strategy in providing an adequate cover for SLL to minimise any mortality from management associated with ecological burning. Burns will have a maximum target width of 60 metres to provide opportunities for animals to escape into nearby unburnt fire refugia.
- No portion of the offset site can be burnt at a frequency of more than three times over the 10-year OMP period.

### Two possible burning strategies:

Unburnt



Not to scale



### Principles:

- Keep inter-tussock space above 30% or more across site
- Burn at least 2 blocks each year to achieve interval of 1 in 5 each
- Ensure no burnt area is more than 50m wide
- Always burn with northwest or north
- Use biomass monitoring to prioritise prescribed fire

**Southwest Grassland**

**Seasonal Herbaceous Wetland One and Two**

- Fire frequency of no greater than once every 5 years will be implemented for any one area across the site, unless there is above average rainfall and inter-tussock space is reduced
- Most appropriate time to burn is Autumn
- Prescribed fire can only be implemented when conditions are dry enough and open soil cracks are present and outside of the Victorian Declared Fire Danger Period
- Burnt areas will be protected from grazing for at least 6 months to allow species regeneration and recruitment to occur.

**Central Eastern Grassland**

- Most appropriate time for burning is February – May
- Burns should be undertaken in mosaic pattern, with each patch burnt no greater than every three years, or where biomass dictates
- Burnt areas to be protected from grazing for at least 6 months following a burn
- Burns to be conducted during low wind and mild temperatures and must be outside Declared Fire Danger Period

**Far Eastern Grassland**

**Legend**

- Subject site
- Parcels
- Contours (10m)
- Watercourse
- Tile
- SE corner tile (recorded on GPS)
- Approximate burn block boundaries
- Central Eastern Grassland
- Far East Grassland
- Northwest Grassland
- Seasonal Herbaceous Wetland 1
- Seasonal Herbaceous Wetland 2
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Southwest Grassland

**Details**

Date: 6/02/2020  
 Aerial photography from Google Earth Pro (April 2015).  
 Base map data Copyright © The State of Victoria.

Scale 1:10,000 (Page size A3)

## Appendix 3. Log Book– Year 1

Date	Visitors/ Workers	Tasks completed	Flora/Fauna observed
19 Sept 2018	Lincoln Kern, Katie Sherman	Stopped in briefly to review sheep impacts. Sheep had reduced biomass but patchily across eastern end of site with some spots more disturbed. It looked to be time to shift the sheep west.	Striped Legless Lizard and Bluetongue Lizard (2) in tile grid SW of stockyard
4 Oct 2018		Covenant for area to be called Northwest Grassland Offset Management Zone approved. Offset Management Plan prepared by Steve Mueck for Soho Living becomes legal requirement.	
28 Oct 2018	Lincoln Kern	Inspected western end, centre and almost to stockyard. Sheep still on block with some significance grass reduction in selected areas but still lots of tall rank areas. Site was dry reflecting general reduced rainfall across region. Still cool and not much flowering but time to remove sheep.	
2 Nov 2018	Lincoln Kern Katie Sherman	<p><b>Worked on western end:</b>                      Marked out the Northwest Grassland Offset Management Zone (OMZ) placing short star pickets with yellow caps on fence for the northwest and southwest corners and north point.                      Placed two short star pickets away from fence lines: southeast corner of Domestic Zone or north-central corner of Northwest Grassland OMZ and southeast corner of Northwest Grassland OMZ.                      Installed two more Tile Grids for extra intensive SLL survey, the first just to northwest of southeast corner Northwest Grassland OMZ using new star picket as southeast corner marker and approximately halfway between Tile Grid* 2 and the western boundary, using a large rock as southeast corner marker.                      Also installed two short star pickets with yellow caps on southeast corners of Tile Grids* 2 and 3                      Left enough tiles on site just over fence for two more grids and one more grid and replacing tin sheets.                      *SLL Tile Grid numbers based on EHP SLL Report 2017 – 1 in northwest progressing south and east to 11</p>	
14 Nov 2018	Lincoln Kern	Took walk in eastern end in the morning on way elsewhere. No sheep, they must have been removed on Monday as Paul Bath (farmer) promised. Significant reduction in biomass occurred on the east end as well as reported for the western half.	
21 Nov 2018	Lincoln Kern and Katie Sherman	Continued marking out boundaries SE corners of Tile Grids. Added tall wooden stake with survey tape on southeast corner of Domestic Zone and southeast corner of Northwest Grassland OMZ. Added short star picket and yellow cap to Tile 10C as per notes. Installed short star pickets and yellow caps plus tall wooden stakes with survey tape on new Tile Grids 10A and 10D. Installed 50 tiles in new Tile Grids (5 x 10 tiles 5 metres apart aligned generally east-west) called 10A and 10D. Then installed short star picket and yellow cap on all SE corner of all remaining Tile Grids across entire site, so all 15 (11 2 years old and 4 new this spring) are now marked to facilitate monitoring.	Observed 1 European Hare about 50 m west of stockyard on our way out.

12 Feb 2019	Lincoln Kern Paul Guest	General surveillance visit, inspected near stockyard and along road edge. Biomass still generally relatively low.	
5 March 2019	Seed2Leaves	Spot spray thistle rosettes	
15 March 2019	Lincoln Kern	Inspected eastern end; biomass still low and no breaches of fence. Saw some evidence of thistle control. Drove entire north boundary. Inspected west end selected site for shed (good distance from southern edge of domestic zone but as far as possible from road); marked out corners with orange paint.	It struck me that we should possibly replace the fence on the road to be strongly sheep-proof and throw the rocks back into the paddock for SLL habitat! No hares or rabbits observed.
3 May 2019	Lincoln Kern	Stopped by just after dawn and took a walk on the east end. Saw more evidence of thistle control and marking of tiles. Drove whole northern edge and no breaches of fence	Found a snake and a dunnart possibly under the 4 <sup>th</sup> and 6 <sup>th</sup> tile from the southwest corner in grid near the cypress tree. Photos taken to confirm ID.
3-Apr 2019	Seed2leaves	Cut/paint roadside tree species along entire Northern Fence line within property boundary	
9 June 2019	Lincoln Kern	Burnt small areas of taller drier grasses in far southeast corner, mostly patches of Kangaroo Grass. Fire wouldn't run much once it burnt taller drier patches. Then tried burning in NW Grassland just south of Domestic Zone. Lots of Phalaris tussocks that did burn to some small degree but the wet green areas in between wouldn't burn. Both burns in good string wind but didn't take off at all; I feel confident for burning with small crew in some conditions.	Black-shouldered Kite hovering near fire
11 August 2019	Lincoln Kern	Inspected west end first arriving in partly cloudy skies with cold winds intending to take brush cutter and start marking edges of domestic zone but by the time it was ready to use the rain and wind was too much. Observed no breaches of our fence on the north edge as I drove by. I then headed to the east end and walked in on the road reserve. Could hardly find the small areas I had burnt in the southwest corner of our grassland. I found a few dozen Spiny Rice Flower in the treeless northwest corner of the triangle of land dominated by Sugar Gums to the our east. Thinking that 60 m wide fire strips will be easy to set up with a crew of 3 or 4 brush cutting for a few hours before lighting at 11 or so AM. Thinking to schedule a burn the Friday before or Monday after the VVB Biosphere Weekend on 27-28 October.	Cute little B&W birds were hanging out on the west end perching on the wires, flying through the grassland and singing contentedly despite the cold.

## Appendix 4. GSM Monitoring Report – Far East Grassland

EcoAerial Environmental Services

Deep Lead Property Pty Ltd  
PO Box 228  
Preston 3072  
Attention: Paul Guest  
2/1/2019

**RE: Cressy Golden Sun Moth Survey**

**Introduction**

EcoAerial was commissioned by Deep Lead Property Pty Ltd to undertake targeted surveys for the nationally threatened Golden Sun Moth (GSM) *Synemon plana* on land east of Cressy. Two tile grids placed for Striped Legless Lizard were also inspected at the time of the first GSM survey.

The site is approximately 58km west of Geelong on the Hamilton Highway. The study area, 6165 Hamilton Highway, Cressy (refer to Figure 1), consists of approximately 10ha of Plains GrasslandEVC\_132.

**Methods**

EcoAerial followed the method as described by the Department of the Environment, Water, Heritage and the Arts (2009a; 2009b). The peak flight period is considered to occur from late October / early November through to late December. Surveys commenced only when the flight season in regional Victoria was confirmed i.e. the GSM email list administered by the Ecological consultants Association of Victoria. The GSM email list provides daily information on upcoming surveys, when and where GSM are flying. The method deployed is summarised below:

- Surveys were conducted by suitably experienced and trained observer/s.
- Surveys were carried across the 10ha site.
- Where applicable the following applied:
  - i. Surveys were undertaken on warm to hot days (above 20°C).
  - ii. Surveys were undertaken during days of clear or mostly cloudless sky.
  - iii. The Bureau of Meteorology website [www.bom.gov.au](http://www.bom.gov.au) was used as a guide for suitable survey conditions.
  - iv. Checked that moths were flying in regional Victoria as close as possible to the study area by checking the daily GSM email list notifications.
  - v. Surveys were undertaken between 9:30am and 12:00pm when the temperature was over 20°C and wind was at its minimum.
- The study site was surveyed on four occasions (Nov 18~Dec 18), spaced at least 1-week apart until four surveys were completed as per the guidelines (DEWHA, 2009b).
- Survey transects were recorded with a GPS to show where the survey was undertaken (refer to Figure 2).



#### *First survey-12/11/2018*

- First survey, 50m wide parallel transects.

#### *Second survey-1/12/2018*

- Survey transects were decreased to 25m parallel intervals.

#### *Third- 12/12/2018 and fourth survey-24/12/2018*

- The third and fourth surveys were undertaken with transects at 10m parallel intervals.

### **Results**

#### *Habitat*

The report by Ecology and Heritage Partners (2017) of the grassland abutting the study area identified native species consistent with Plains Grassland EVC\_132, they include:


- Common Tussock-grass *Poa labillardierei*,
- Spear-grass *Austrostipa spp.*,
- Wallaby-grass *Rytidosperma spp.*,
- Kangaroo-grass *Themeda triandra*,
- Lemon Beauty-heads *Calocephalus citreus*,
- Wiry Buttons *Leptorhynchos tenuifolius*,
- Blue Devil *Eryngium ovinum*,
- Blushing Bindweed *Convolvulus angustissimus*,
- Milkmaids *Burchardia umbellata*,
- Common Woodruff *Asperula conferta*
- Kidney-weed *Dichondra repens*.

All of the above species, with the exception of milkmaids, were observed within the study area. The *Environment Protection and Biodiversity and Conservation Act 1999* listed Spiny-rice Flower is also present within the study area.

The most prominent weeds were; Quaking-grass *Briza spp* and Toowoomba Canary-grass *Phalaris aquatica*. Other species present included Yorkshire Fog *Holcus lanatus*, Centaury *Centaureum erythraea*, Sow Thistle *Sonchus oleraceus* and Cat's Ear *Hypochoeris radicata*. These weeds appear to becoming more prevalent due to a lack of grazing.



Legend

 Study Area

**Figure 1: Study Area**



Drawn by: Rob Gratton  
Date: 31/12/18  
Version No: 1-00211-1



**Legend**

- GSM Survey 1
- GSM Survey 2
- GSM Survey 3 & 4
- ★ Striped Legless Lizard

**Figure 2: GSM Transects**



Drawn by: Rob Gratton  
 Date: 31/12/18  
 Version No: 1-00211-2

### Golden Sun Moth Survey

GSM is known to occur in native grassland vegetation dominated by Wallaby Grass *Rytidosperma* spp., Kangaroo Grass *Themeda triandra* and the introduced Chilean Needle Grass *Nassella neesiana* (Ecology Partners 2009). GSM appear to have a preference for Wallaby Grass dominated grassland (pers obs). Kangaroo Grass and Spear Grass spp were the dominant native grasses present with limited areas of Wallaby Grass. There is also lack of inter-tussock space preferred by GSM (refer to Photographs 1 & 2 below).

Photograph 1: Dense biomass of Toowoomba Canary-grass



Photograph 2: Native patch with suitable GSM inter-tussock space



GSM have previously been observed to the west within a contiguous patch of grassland abutting the study area and; the property on the northern side of Hamilton Highway.

GSM were not detected within the study area over the duration of the four surveys. This is notwithstanding GSM were flying in regional areas close to the study area and, twice at the property on the northern side of the Highway. Details of the climatic conditions and survey duration are provided in Table 1 below.

Table 1: Survey details

Assessor	Survey Dates/Time	Site Conditions	Type of Survey	Survey Duration	Results
<b>STUDY AREA AT CRESSY</b>					
Rob Gration Zoe Steven	12.11.2018 (12:20-12:50pm)	Clear sky, light breeze (6km/E), temperature 30°C	Walked 50m transects across study area	30-minutes	No moths observed during survey
Rob Gration	1.12.2018 (10:00am-11:15pm)	Clear sky, light breeze, (7km/NNW), temperature 25°C	Walked 25m transects across study area	1hr 15min	No moths observed during survey
Rob Gration	12.12.2018 (9:30am-11:45am)	Clear sky, moderate breeze (15km/NNW), temperature 24°C-29°C	Walked 10m transects across study area	2hrs 15min	No moths observed during survey
Rob Gration	24.12.2018 (9:30-11:50am)	Clear sky, strong breeze, (19km/NNW), temperature 25°C-31°C	Walked 10m transects across study area	2 hrs 20min	No moths observed during survey



### ***Striped Legless Lizard***

Three Striped legless Lizard (SLL) were observed under two tile grids; one at the most eastern grid within the study area and, two at the adjacent grid to the west outside of the study area (refer to Figure 3 below). Only two of the three SLL were measured as one escaped down a crack in the soil below the tile. Measurements and photographs of the head scale pattern are provided in Table 2 and Photographs 3 & 4.



**Figure 3: Striped Legless Lizard Locations**

**Legend**

-  Study Area
-  Striped Legless Lizard



Drawn by: Rob Gratton  
Date: 31/1/19  
Version No: 1-00211-3

Table 2: SLL body measurements

SLL	Tile Number	Weight (grams)	Snout to vent (mm)	Vent to tail (mm)	Comment
1	46	6	82	120	Appeared healthy
2	12	4	76	85	Appeared healthy as was the escaped SLL

Photograph 3: Striped Legless Lizard 1



Photograph 4: Striped Legless Lizard 2



## **Summary**

The study area provides very good habitat suitable for SLL. Due to a lack of grazing / biomass reduction there is currently not habitat suitable for GSM. There is a lack of inter-tussock space that is considered important for supporting populations of GSM (DEWHA, 2009b). Notwithstanding this, the existence of populations of GSM within the wider study area indicates that with suitable site management, GSM habitat can be re-established.

Should you have any queries in relation to this letter report please do not hesitate to contact me.

Regards,

A handwritten signature in black ink, appearing to read 'Rob Gration', with a long horizontal flourish extending to the right.

Rob Gration  
Principal Ecologist  
EcoAerial Pty Ltd



## **References**

Department of the Environment, Water, Heritage and the Arts. 2009a. Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (*Synemon plana*).

Department of the Environment, Water, Heritage and the Arts. 2009b. Background Paper to EPBC Act Policy Statement 3.12 – Nationally Threatened Species and Ecological Communities. Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (*Synemon plana*).

EHP 2017. *Offset Site Assessment, 6165 Hamilton Highway, Cressy, Victoria*. Unpublished report for Bush Blocks prepared by Dr. A. Warnock, EHP, Ascot Vale.