PRACTICAL ECOLOGY
ecological restoration & consulting

Annual Management and Monitoring Report

Year 2: August 2019 – August 2020

North-Western Grassland (EPBC2016/7734)

6165 Hamilton Highway, Cressy

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Report by Emma Wilkin
Cover images: "Long Paddock" Offset Site, 6165 Hamilton Highway, Cressy, 2017

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Acknowledgments:

Practical Ecology acknowledge 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.

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 the Aboriginal Elders of other communities who may be present on those lands.

Prepared for:	Deep Lead Property Pty Ltd	PE project number:	
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Version	Date	Version notes
0.1	11/11/20	Draft for client

Contents

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)	0MZ-01	5 ha	4th October 2018
Tier 2A	Central East Grassland (CEG)	0MZ -05	29.1 ha	17th April 2019
Tier 2B	Seasonal Herbaceous Wetland Two (SHW2)	0MZ -04	11.86	17th April 2019
Tier 2C	Seasonal Herbaceous Wetland One (SHW1)	0MZ -03	2.52 ha	17th April 2019
Tier 3	Far East Grassland (FEG)	0MZ -06	16 ha	TBD
	Southwest Grassland (SWG)	0MZ -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 2 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 **4th 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 2 is **August 2019 – August 2020.**

2. METHODS – Site Management

The following methods for monitoring and works have been implemented in response directions stated in the OMP (Biosis 2018) for the site Offset Management Zone 1 (OMZ-01) 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 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

2.2.2 Herbaceous and Grassy Weeds

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

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

3. METHODS – Monitoring

3.1 Site log book

The site log book in 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 personal 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 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,

3.2.1 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.

3.3 Annual vegetation monitoring

3.3.1 Biomass and inter-tussock space

In line with high biomass levels being identified in Year 1 management period, an additional monitoring methodology has been developed for assessment of biomass across the site.

This methodology utilises a total of 90 2x2 meter quadrats that are placed at 50m intervals along entire length the 75ha property (refer Long Paddock Manual- Practical Ecology 2020 for full methodology).

There are two systems in place to measure biomass at each quadrat. Using both systems gives more depth to the data collected and a clearer picture of how the landscape is changing and if management goals are fulfilling their objectives.

Indicator Species (Lunt 2003)

Lunt's system has been written specifically for the degraded grasslands in the western basalt plains of Melbourne. The three species chosen from this area as indicator species are Lemon Beauty-head *Calocephalus citreus,* Common Everlasting *Chrysocephalum apiculatum,* and Scaly Buttons *Leptorynchos squamatus,* all of which occur on the offset sites. By measuring the abundance of these species over the quadrats, it will show where native and exotic grasses have not out-competed native herbs. This serves as an indicator of sufficient inter-tussock space for biodiversity and species abundance. The goal is to attain a score of 3 on the Braun-Blanquet scale or 25-50% cover of indicator species.

Inter-tussock space.

The percentage of bare ground present will be separated into five categories: 1-20%, 20-40%, 40-60%, 60-80%, and 80-100%. The objective range that must be maintained across the grassland over time is 20-40% bare ground with closer to 40% being the desirable goal. If the amount of bare ground reaches 50% pulse grazing should halt. This measurement of bare ground provides a clearer assessment of what areas should be targeted for biomass reduction and when mapped can show areas where controlled burns are a higher priority.

3.3.1 Photo points

Site photo points are located at the boundary intercepts of each of the management zone areas.

Photos are to be taken in spring each year.

4. RESULTS

4.1 Site Log Books

Refer Appendix 3 for all log book entries in the Year 2 management period.

4.2 Quarterly Site Visits

4.2.1 General Observations

The key general observations that relate to OMZ-01 during Year 2 are summarised in the following table. Refer Appendix 3 for full logbook entries for Year 2.

Table 2. Key observations Year 2- OMZ-01

11-Aug-19	Standing water in gilgais- likely that seasonal herbaceous wetlands are full of water
4-Oct-19	Biomass ok, likely that sheep grazing necessary in autumn/summer
17-Dec-19	Photo points taken Biomass assessment completed – biomass generally high across the site
6-Jan-20	Site green and lush from rain and warmth
16-March-20	700 sheep arrive on site
7-June – 20	Sheep removed – lack of rain – no green feed/losing weight

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 2 period.

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 1- Map 2)

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-01 within the Year 2 management period. Foxes are likely to occur within the area, but none have been observed within the property boundary. Hares are sometimes spotted in the sight but are rare and not seen to be causing disturbance.

4.3 Annual Vegetation Monitoring

4.3.1 Site Assessment

A formal site assessment "walkover" by a suitably qualified ecologist was not conducted in OMZ-01 within the Year 2 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.

4.3.2 Biomass Quadrats

Biomass quadrats were assessed on 17th December 2019 by Emma Wilkin of Practical Ecology.

The results of this survey are presented in Appendix 3- Map 3: Inter-tussock space.

- A total of 7 quadrats are located within or on the boundaries of OMZ-01.
- 100% of the quadrats located at the western end of the site, including all 7 quadrats within HZ-01, had very high biomass levels - between 2-10% inter-tussock space at the time of assessment. This was mostly due to the high cover of herbaceous weed *Phalaris sp* that is most notable through the western section of the site.

4.3.1 Photo points

Site photo points are established at the boundary intersects of the OMZ across the extent of the site

Photo points were taken on 17th December 2019 - refer Appendix 4-:Boundary Photopoints.

5. DISCUSSION

5.1 Non-compliance

The following required management actions were not completed within the Year 2 management period, and are therefore considered non-compliance against the OMP requirements (Biosis 2018);

- **Action X.8** – Develop burn plan and undertake ecological burn
- **Action X.5** Monitor for new and emerging weeds and eliminate any found and refine management actions based on results. Identify any new high threat weeds for priority control. Report to regulator as directed.
- **Action X.6**– Qualified ecologist to undertake vegetation and SLL monitoring (including Habitat hectare assessment
- **Action X.8**– Prepare and Submit Annual report by August 2020
- **Action X.9** –Review and update Annual Works Plan in consultation with TfN.
- **Action X.10**– Conduct GSM monitoring surveys

5.2 Biomass reduction

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.

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. Such a burn plan has not yet been developed for the site and has been highlighted for completion in 2021.

There has been additional biomass assessment methodology included in the Year 2 monitoring period within OMZ-01. This methodology utilises a total of 90 2x2 meter quadrats that are placed at 50m intervals along entire length the 75ha property (refer Long Paddock Manual- Practical Ecology 2020 for full methodology). Ideally, and in future years, this monitoring will take place in Spring as a measurement of success of completed biomass management as either grazing or burning, to accurately identify areas that require adaptive and tailored management.

This monitoring has been included as an addition to address an identified gap in annual data, which is necessary to create a burn plan or grazing regime that is considerate of all variation in conditions and values within the site. This biomass data would be combined with mapped areas of Seasonal herbaceous wetland and Natural Temperate Grassland of the Victorian Volcanic Plains, as well as identified locations of SLL in particular, as well as other site value.

5.1 Biometric monitoring – Striped Legless Lizard

Landowners began the process of organising the monitoring for Striped Legless Lizards in mid-2019. Tile grids were established across the extent of the property in the initial set up of the offsets in 2018.

Practical Ecology did not have the capacity to conduct the required SLL surveys in 2019. External consultants with experience in monitoring SLL were therefore engaged to conduct the required surveys within OMZ-01, as well as other OMZs within the property that require SLL monitoring.

At the commencement of the survey season in October 2019, the landowners became aware that the required scientific licence permits were not in place to allow biometric surveying to go ahead at this site. The requirement of such permits was unknown to the landowners up to this point.

The process of acquiring the required permits is lengthy and requires an application and approval of unrestricted access to the Wildlife and Small Institutions Animal Ethics Committee (WSIAEC), as well as the application to Agriculture Victoria for a Scientific Procedures Fieldwork Licence (SPFL).

As these necessary steps were unable to be completed in late 2019 in time to commence surveys, no biometric surveys were completed.

A tile check/flip only (without the biometric component) was therefore conducted once during the 2019 survey period. A total of six (6) individual SLL were seen and eight (8) skins were identified across the extent of the property

The necessary steps for unrestricted WSIAEC access and an SPFL have been made, and Practical Ecology has been engaged pre-emptively to complete the required biometric surveys from September 2020.

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.

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

Appendix 1. Summary of required management actions – Year 2

Year no.	Action no.	Activity Description	Timing	Standard to be achieved	Achieved?	Comments
2-10	X.1	Maintain fences and gates around broader offset area and markers around offset site in good working order.	Continuous (inspection and management)	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.	**Y**	
2-10	X.2	Undertake pulse grazing to reduce biomass. biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing length at any one time is four weeks with a minimum two week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	16th January – 31st July	Maintain an open tussock grassland with at least 30% cover of inter-tussock space.	**Y**	
2-10	X.3	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 burn 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	**N**	No Burn plan has been developed or implemented since 2019 attempted burn
2-10	X.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**	

Year no.	Action no.	Activity Description	Timing	Standard to be achieved	Achieved?	
2-10	X.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	**N**	
2-10	X.6	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**	One survey out of the required six was completed during Year 2 Surveys incomplete No report submitted.
2-10	X.7	Undertake regular site inspections at a frequency to ensure management activities are conducted as prescribed. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. TfN to participate in site inspections at least four times over offset period.	Nov - Dec	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**	Site inspections have been recorded in site log book- refer Appendix 3
2-10	X.8	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 not prepared for submission by August 2020
2-10	X.9	Review and update Annual Works Plan in consultation with TfN.	Dec	Following year's management tailored to current site conditions	**N**	No annual works plan was prepared or reviewed in the Year 2 period
2, 4, 6, 8 & 10	X10	Conduct GSM monitoring surveys	GSM flight season (November to December)	Report documenting the results of the survey and comparisons with past surveys (see Section 3.8)	**N**	Biomass too high- not completed

Appendix 2. Maps

Map 1: Tier 1- Northwest Grassland (OMZ-01)

Map 2: Offset Management Zones- All

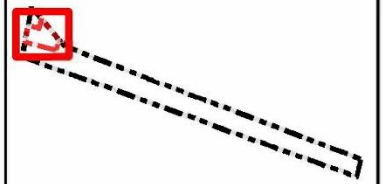
Map 3: Biomass Monitoring- 2x2m Quadrats

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).

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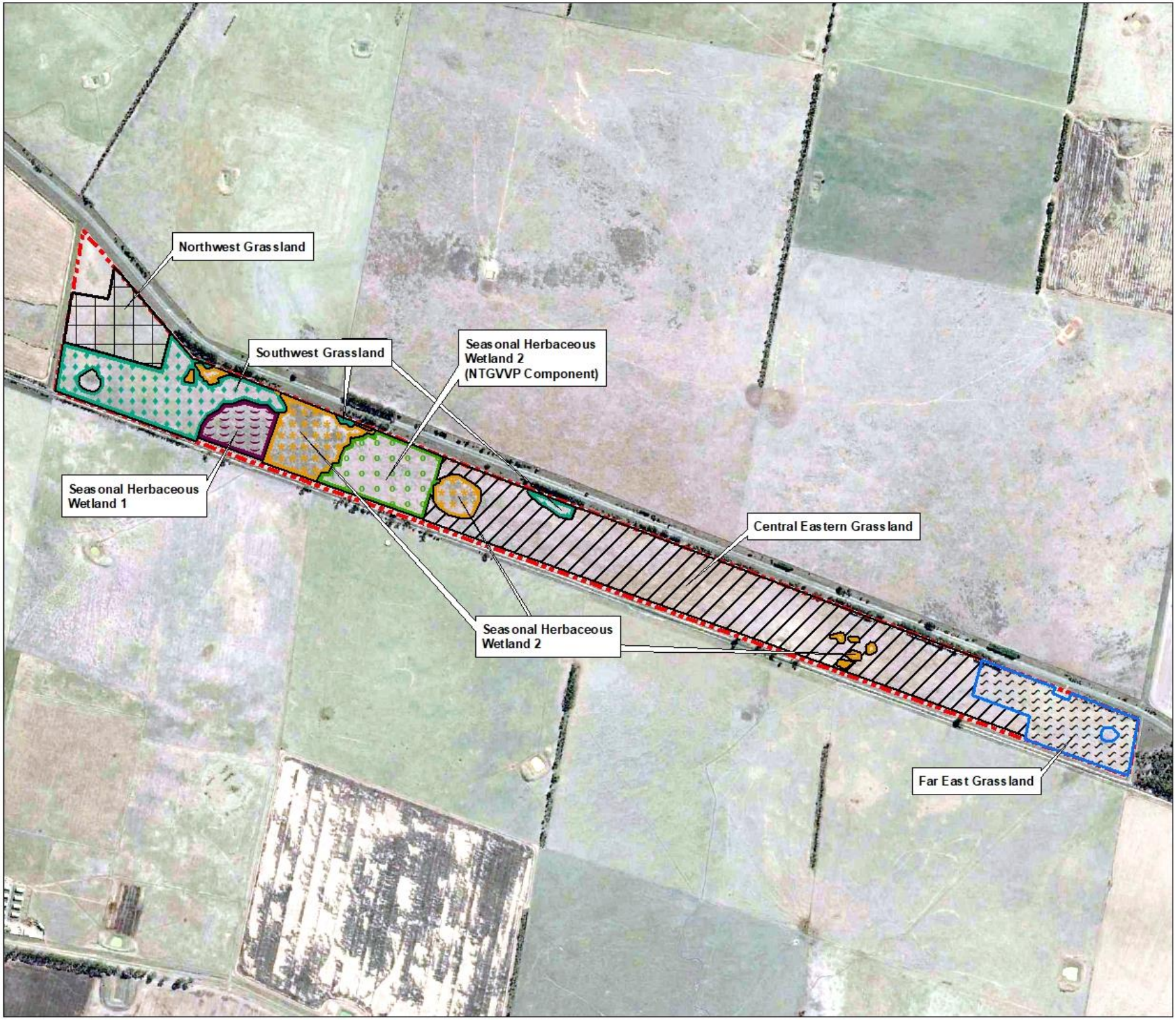

Map 2. Offset Management Zones

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)
- Southwest Grassland

Details

Date: 30/01/2020

Aerial photography from Google Earth Pro (April 2015).

N

0 100 200 300 400 500 m

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Disclaimer

Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.

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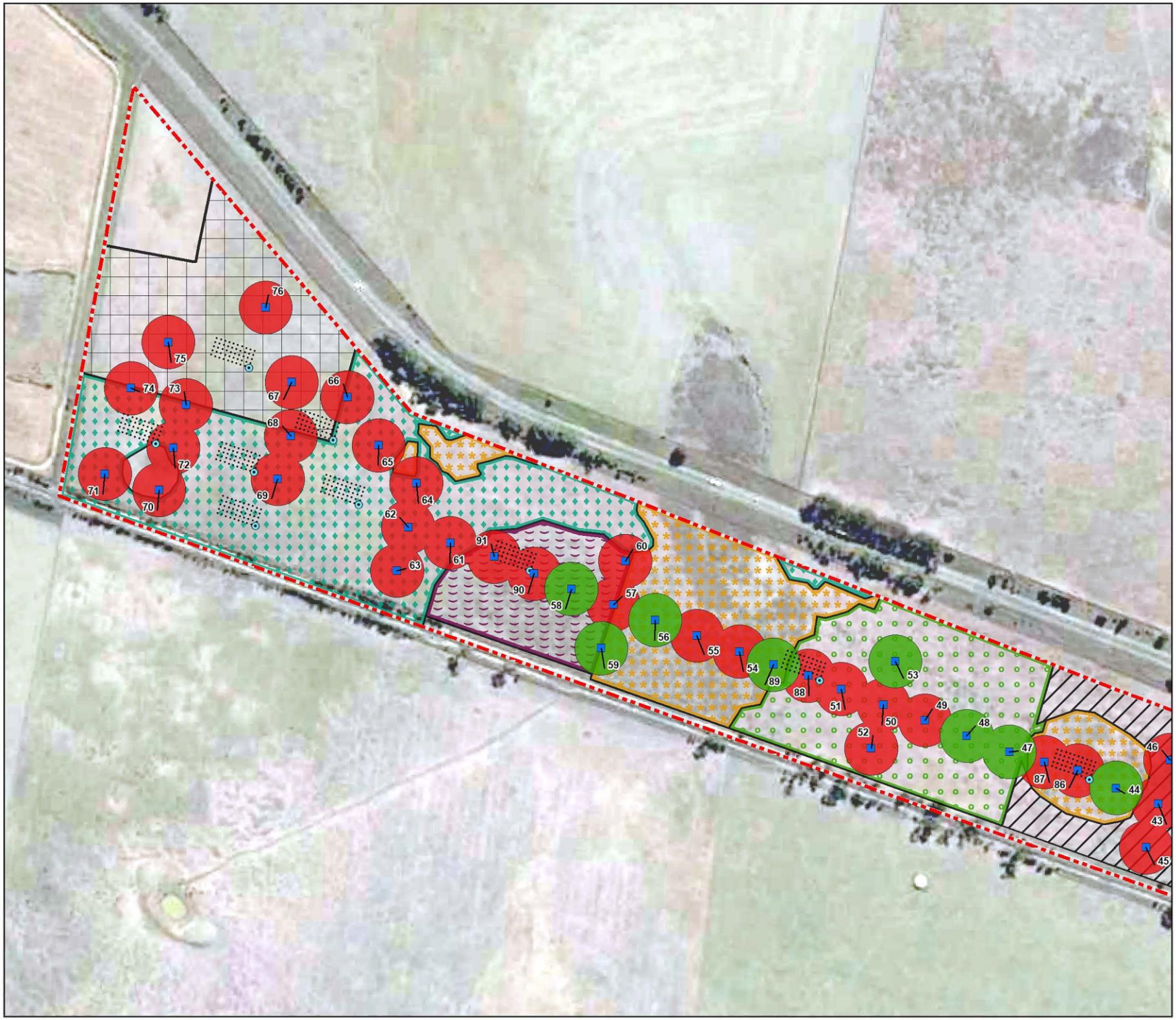

Map 4. Monitoring Results: Intertussock Space

6165 Hamilton Highway, Cressy
Map 1 of 3

Legend

- Subject site

Tiles

- Tile
- SE corner tile (recorded on GPS)
- 4x4m quadrat -Biomass

Inter-tussock Space

- 1-20%
- 21-40%

Management Zone

- 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: 4/11/2020
Aerial photography from Google Earth Pro (April 2015).

N

0 100 200 m

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Appendix 3. Log Book- Year 2

Date	Visitors/ Workers	Tasks completed	General Observations	Flora/Fauna observed
11-Aug-19	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.	Rain has been generous. I only directly inspected either end from the road reserves but found lots of water both on vehicle tracks and gilgais with good assurance the SHWs are full of water	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.
4-Oct-19	Lincoln Kern	Conducted general surveillance visit, driving along and periodically going for a walk. Phalaris looking lush at east end. Kangaroo Grass etc looking good across most of it as per usual. Biomass looks OK; sheep grazing probably still necessary in the summer/autumn.	Still very wet; burning on 18 or 21 October looks unlikely. Flowering observed: patches of *Stackhousia monogyna, Chrysocephalum apiculatum*.	
17-Dec-19	Lincoln Kern David Tsardakis Emma Wilkin	Conducted Biomass Assessment (EW) and collected photopoints and installed ID tags on Photopoint and Offset Edge posts (DT and LK). Included an entire boundary check of fence lines.	Biomass high across the entire site. quite green for this time of year, Blue devil and Blushing Bindweed currently flowering and consistent across site. *Comesperma polygaloides identified close to fence line (South-western area)*	
6-Jan-20	Lincoln Kern	General surveillance visit. All fences still intact. Site all green and lush from lots of rain and warmth.		

15-Mar-20	Lincoln Kern	General surveillance visit. All fences still intact. Lack of rain has caused grass to dry out and stop growing fortunately but biomass still high.		
16th March 2020	-	Sheep arrived on site- Paul Bath – 708 sheep in total- biomass to be checked for the duration by LK, EW, PG		
19-Mar	Emma Wilkin	Sheep checked- already some reduction in biomass since assessment Dec 2019, due to both sheep and lack of rain in last few months	very dry	
30-May-20	Lincoln Kern	Sheep checked and level of biomass. Biomass reduction is substantial but there is still room for more eating to get the biomass. The site still doesn't have standing water anywhere and the sheep are not causing pugging anywhere. The Seasonal Herbaceous Wetlands are still dry and can tolerate and even need more grazing; the management plan indicates that grazing should only continue in the SHW if it won't negative impacts and I don't believe it will. The plastic tags marking Offset boundaries and photo points are already deteriorating; good metal tags would be good improvement for longer term use. Also, boundary fences are all intact and in good condition.		
7-Jun-20	Paul Guest	Sheep removed by Goodman Transport. Supplements were used to encourage sheep to continue grazing but they were losing weight for the past 10 days according to Paul Bath. Short period this year but substantial reduction in Phalaris and biomass due to a larger sheep number. 708 this year vs. 300+ last year.		

Appendix 4. OMZ Photopoints

OE11- NW

OE11- S

OE12- SE

OE13- S

OE13- W

OE14- N