Ajax Road, Altona:
Golden Sun Moth monitoring 2014 – 2015

Prepared for Axxcel Management Services

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Contents

1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Axxcel Management Services to undertake targeted survey for the *Environment Protection and Biodiversity Conservation Act 1999* (APBC Act) listed Golden Sun Moth *Synemon plana* within their proposed development site at Ajax Road, Altona.

The site is located south of the Werribee Rail line, approximately 15 km west south west of the Melbourne CBD (Figure 1). The Study area includes 16 ha of potential habitat for Golden Sun Moth which will be impacted by the development of the site. It is currently zoned Special Use Zone 4 (SUZ4) which is designated for industrial development.

Biosis previously undertook targeted surveys for Golden Sun Moth at this site in 2010 which failed to detect the species. However comments provided by the Department of the Environment (DoE) on the draft preliminary information documentation for this project indicate that they would require offsets for Golden Sun Moth unless additional survey data indicates more definitively that the species does not occupy the site.

This report presents the results of targeted survey for Golden Sun Moth during the 2014/15 survey season.

1.2 Objectives

The objectives of the Golden Sun Moth survey are to:

- Determine the presence/absence of Golden Sun Moth in the study area
- Record the location and number of any Golden Sun Moth recorded
- Provide a summary of all Golden Sun Moth observations within the study area
- Present the results of the survey program including pre-season checks, reference site checks, weather conditions on survey days, survey methods and habitat characteristics of the study area

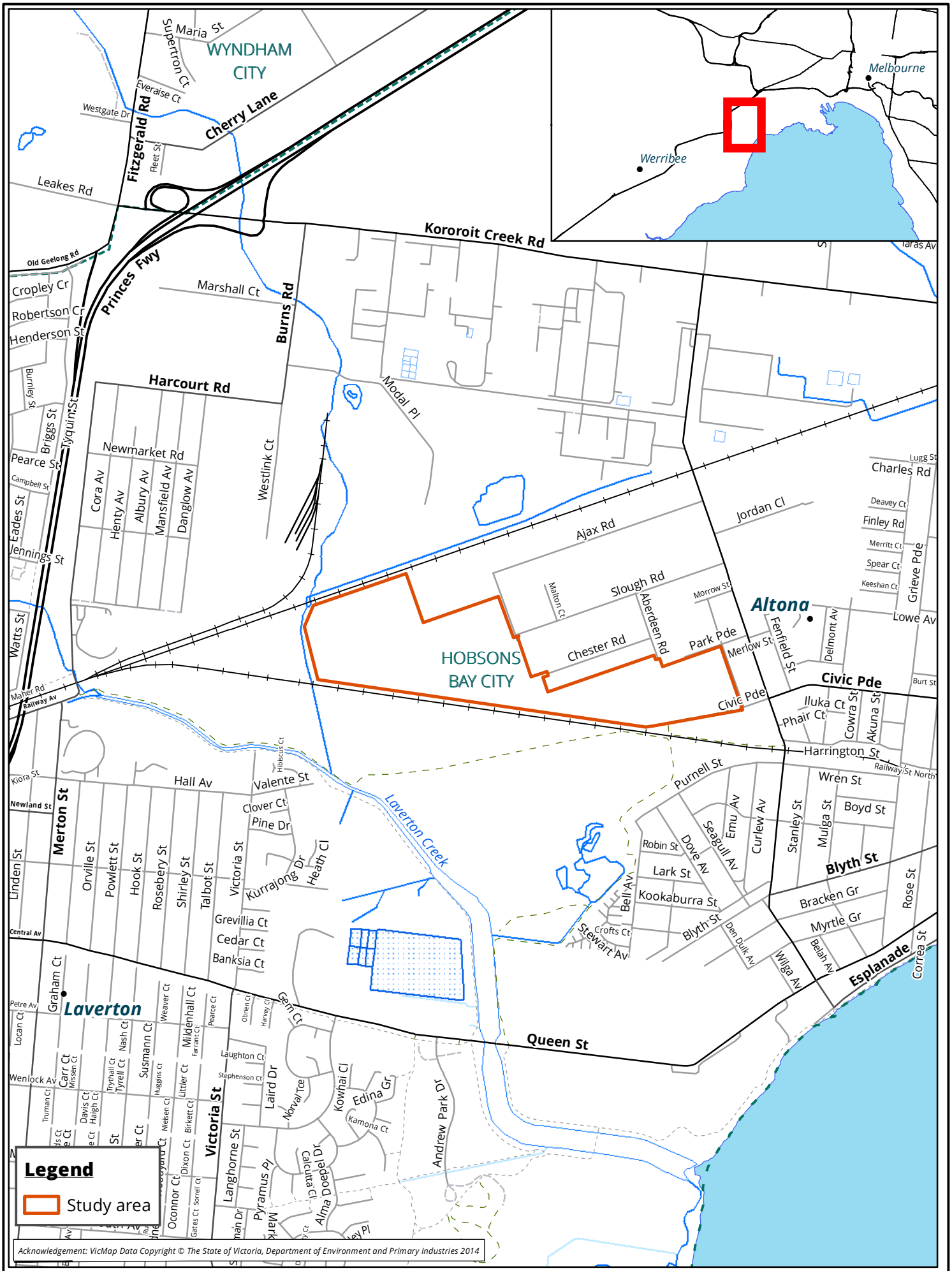

Figure 1: Location of the Study Area - Ajax Road, Altona, Victoria

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0 200 400 600 800
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2 Methods

2.1 Golden Sun Moth Survey

Targeted surveys were undertaken during the 2014 – 15 flight season for Golden Sun Moth. As the timing of the flight season varies annually and geographically, commencement of the flight season needed to be determined before survey could be undertaken.

2.1.1 Determining flight season commencement

The best indicator of the key survey period for Golden Sun Moth is the presence of flying males at known local sites. Pre-season checks were undertaken by Biosis and other ecological consultants at various known sites (reference sites) around Melbourne from late November to collaboratively determine the commencement of the Golden Sun Moth flight season for 2014–15. Golden Sun Moths began being reliably recorded flying at Melbourne reference sites from 12 November 2014.

2.1.2 Targeted survey

Surveys were undertaken in accordance with the *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth* (DEWHA 2009).

Survey was undertaken on 19 and 28 November, and 12 and 21December 2014. The surveys were spaced approximately one week apart to allow for variations in emergence patterns. Surveys took place when conditions were suitable for male flight (generally >20^{o}C, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs (see Appendix 1 for weather data for days on which survey was undertaken).

The site was surveyed systematically by at least two zoologist walking the site in a series of transects spaced approximately 50m apart. Tracks were recorded using a Garmin GPS. Each survey took between approximately 2 hours to complete.

General habitat characteristics of the study area were recorded during Golden Sun Moth survey.

2.2 Weather Conditions

Weather conditions, including temperature, humidity and wind speed were measured on site using a Kestrel Weather Meter (Model 4000). Weather data collected on site is provided in Appendix 1.

2.3 Mapping

Mapping was conducted using hand-held (uncorrected) GPS units (WGS84) and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the GPS units (generally ± 7 metres) and dependent on the limitations of aerial photo rectification and registration.

Mapping has been produced using a Geographic Information System (GIS).

2.4 Permits

Biosis undertook the targeted surveys under the following permit and approval:

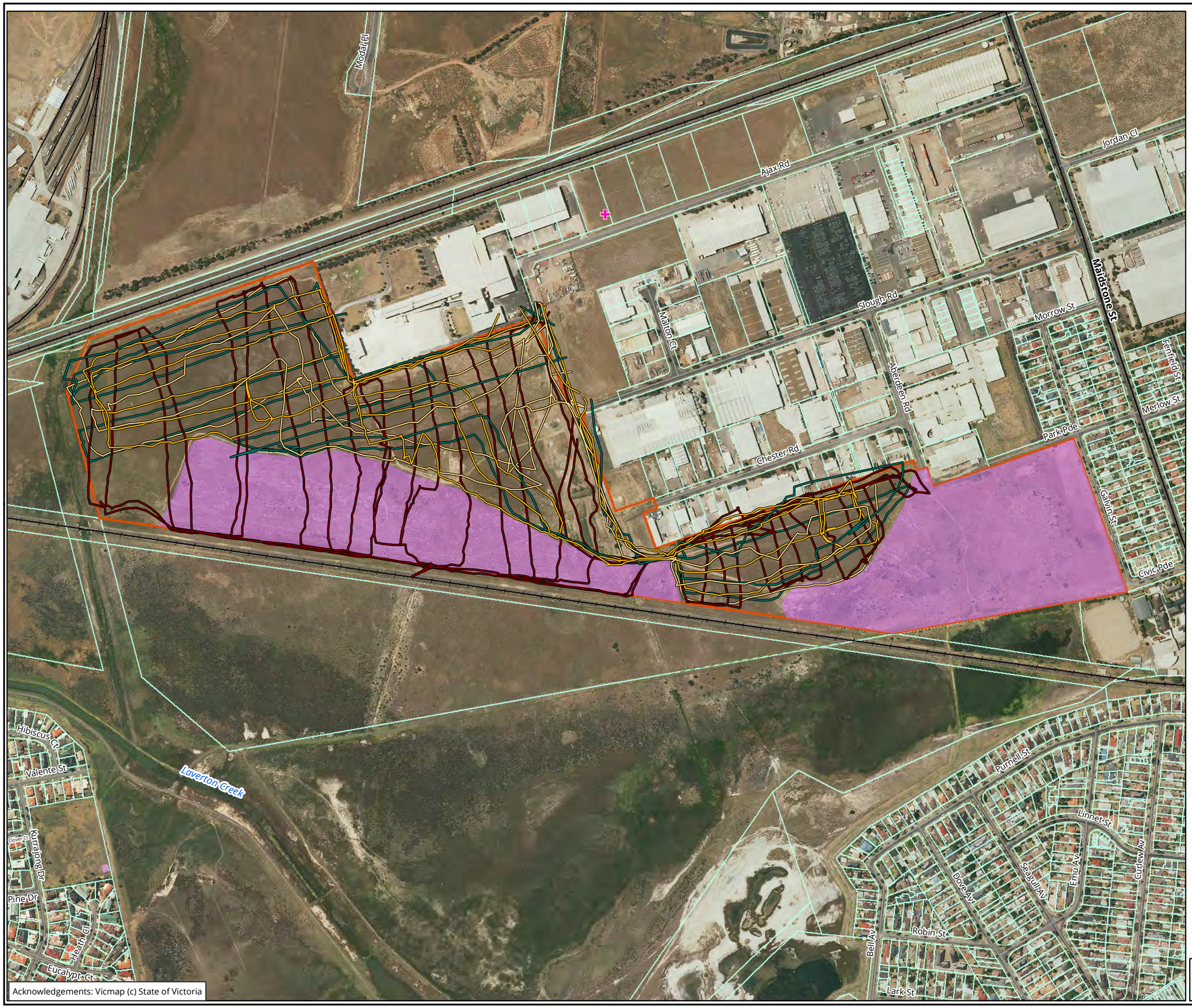
- Research Permit/Management Authorisation and Permit to Take Protected Flora & Protected Fish issued by the Department of Environment and Primary Industries under the *Wildlife Act 1975, Flora and Fauna Guarantee Act 1988* and *National Parks Act 1975* (Permit number 10006240, expiry date 9 May 2015).
- Approvals 04.12 and 14.12 from the DEPI Wildlife and Small Institutions Animal Ethics Committee.

2.5 Limitations

The difficulty in determining presence/absence of Golden Sun Moth within a given area is well documented, and it is known that emergence patterns in this species can vary markedly within and between seasons (Gibson and New 2007).

However, given that Golden Sun Moth were observed flying at reference sites on all days surveys were conducted, and the number of individuals recorded flying at reference sites was higher than the previous 2013 –2014 season, the likelihood of not recording Golden Sun Moth within the Ajax Road study area due to emergent patterns is considered to be minimal.

For further information regarding the limitations associated with Golden Sun Moth surveys see Gibson and New (2007).



Legend

- GSM record 2007
- Study area
- Habitat not suitable for GSM

GSM survey tracks by date

- 20141119
- 20141128
- 20141212
- 20141221

Figure 2: Golden Sun Moth survey effort

0 60 120 180 240 300

Metres

Scale: 1:6,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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3 Results & Discussion

No Golden Sun Moth were recorded during targeted surveys within the proposed development site at Ajax Road within the 2014 – 2015 flight season. Golden Sun Moth was reliably recorded flying at known reference sites prior to commencement of each survey on site. The conditions under which the survey was undertaken was suitable as outlined in the survey guidelines taken from the *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)* (DEWHA 2009p).

These results are analogous with the targeted surveys for Golden Sun Moth undertaken by Biosis in the 2010 – 2011 flight season, which also failed to detect this species within the Ajax Road proposed development site.

One Golden Sun Moth was recorded in 2007 near the Ajax Road site however this is outside the current proposed development area (Figure 2).

No Golden Sun Moth have been recorded within the proposed Ajax Road development site over the period of two separate flight seasons, despite the species being readily recorded within known reference sites before the commencement of each survey. Therefore it is considered that there is a very low likelihood that a population of Golden Sun Moth occurs within the site. Much of the habitat structure within the site is dominated by a dense cover of Kangaroo Grass *Themeda triandra*. Kangaroo Grass is not known to be a food plant for Golden Sun Moth and its dominance within the study area probably contributes to the unsuitability of this site as habitat for the species.

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Appendices

Appendix 1 – Golden Sun Moth survey details

Table A1.1: Golden Sun Moth survey details

Date	Time Start	Time Finish	Observer initials	GOLDEN SUN MOTH observed on site?	Temp (on site °C)	Cloud cover (%)	Wind direction	Average wind speed (km/hr)	Ground conditions	Humidity (%)
19/11/2014	12:30	13:30	MV,MG & DDL	No	24 / 25.3	<5 / <15	NE / E	15 / 17	Dry	36 / 38
28/11/2014	12:40	14:00	CPM & RM	No	23 / 22	<10 / 0	S	4.5	Dry	40 / 50
12/12/2014	10:55	13:01	DCG & DB	No	20.8 / 23	0	SE	10 / 20	Dry	63 / 50
21/12/2014	11:15	13:00	MG & BRH	No	23.3 / 26.7	5 / 30	ESE / SE	9 / 17	Dry	55 / 43