



# Abundance and Distribution of the Golden Sun Moth *Synemon plana*

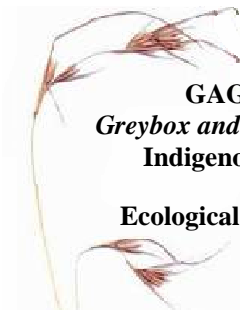
100 Vineyard Road Sunbury  
2008

Report Prepared For  
Keith Altmann & Associates



## Acknowledgements to the Authors and Contributors

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## **1.0            BACKGROUND**

Native Vegetation Management Services (NVMS), a division of Greybox and Grasslands Indigenous Nursery (GAGIN P/L), was commissioned by Keith Altmann in January 2005 to provide a botanical and habitat value assessment of the property 100 Vineyard Rd, located within the City of Hume, Sunbury. This site is proposed for development and the intention of the preliminary report was to assess the site for habitat values and to locate, qualify and quantify these values according to Victoria's Native Vegetation Management Framework (DNRE, 2002). This assessment found that the property contained large areas dominated by *Austrodanthonia sp.* (Wallaby Grass). In addition to meeting requirements outlined by the Native Vegetation Management Framework, it was noted in a meeting with DSE on-site in 2005, that the site has a high potential to be habitat for the federally and state listed Golden Sun Moth *Synemon plana*. An assessment of 100 Vineyard Rd, Sunbury was conducted in January 2006 and December 2007, on both occasions the presence of *Synemon plana* was confirmed.

The ongoing presence of *S. plana* inhabiting the areas of grassland located within 100 Vineyard Rd, Sunbury lead to a third assessment which was conducted with the intention of determining the abundance and distribution of *S. plana* throughout the property. This report outlines the assessment that was undertaken to verify the ongoing presence and determine the abundance and distribution of *S. plana* within 100 Vineyard Rd, Sunbury.

## **1.1 Objectives**

The objectives of this report are as follows;

1. Confirm the ongoing presence of *S. plana* within 100 Vineyard Rd, Sunbury.
2. If ongoing presence is confirmed; undertake an in depth assessment to determine the abundance of *S. plana* throughout 100 Vineyard rd.
3. If ongoing presence is confirmed; ascertain the approximate distribution of *S. plana* within the property 100 Vineyard Road, Sunbury.

## **1.2 Limitations**

The survey was conducted with the intention of confirming the ongoing presence of *S. plana*, quantifying the approximate number of *S. plana* and mapping the distribution of the population located within 100 Vineyard Road. The survey was to continue throughout the period of time the moth is active, until a moth(s) had been found or sufficient survey time had passed for which it could be considered absent. Limitations included, highly variable and fluctuating climatic conditions which made it difficult to conduct the survey over four consecutive weeks. The sheer numbers of *S. plana* observed on two separate occasions (12<sup>th</sup> November and the 4<sup>th</sup> December 2008) resulted in an inability to accurately count the number of *S. plana* observed, however in order to minimise the impacts of human error only those counted were recorded as opposed to estimating the numbers observed. Due to the biology of *S. plana* the survey imposed further limitations, as transects over such a large scale meant that majority of the observed individuals were in flight and therefore males. The financial and time restrictions placed upon on the survey did not allow for the survey to focus on those, not in flight namely females. Therefore the approximate abundance of *S. plana* consists of a largely male majority.

### 1.3 Significance of *Synemon plana*

#### Federal Significance

*S. plana* has been listed as **critically endangered** under the EPBC Act (1999) since December 2002 when only five populations were known throughout Victoria. Advice to the minister from the Threatened species Scientific committee (TSSC) found that *S. plana* was eligible for listing under Criterion 2 – Geographic distribution but not under any other criterion mostly due to lack of evidence. The concluding statement found that the destruction of specialised habitat due to urban expansion and agriculture had and continued to significantly reduce the distribution of the species to small and fragmented populations.

#### State Significance

The species is also listed as **threatened** under the *Flora and Fauna Guarantee (FFG) Act, 1988* (VIC) and an Action Statement has been prepared.

*S. plana* is also listed as **endangered** under the *Nature Conservation Act 1980* (ACT) and *Threatened Species Conservation Act 1995* (NSW).

## 2.0 METHODOLOGY

### 2.1 Study Site

The study site is located at 100 Vineyard Rd. Sunbury. Details of this property location and description of the vegetation and habitat zones are contained within the preliminary botanical and habitat significance report (Wlodarczyk & Williams, 2005) and addendums to this report are listed in the following section.

### 2.2 Previous Reports and Related Information

The previous reports regarding 100 Vineyard Rd are as follows;

Wlodarczyk, Hatt & Richards (2007) **Second Report: Presence & Density of *Synemon plana* (Golden Sun Moth) at 100 Vineyard Rd Sunbury (Amended August 2008)**. A report to Keith Altmann and Associates. Gagin Pty Ltd..

Wlodarczyk & Williams (January 2006) **Brief Report: Presence of *Synemon plana* (Golden Sun Moth) at 100 Vineyard Rd Sunbury**. A report to Keith Altmann and Associates. Gagin Pty Ltd.

Wlodarczyk & Williams (January 2005) **A botanical assessment and habitat significance of 100 vineyard road, city of Hume**. A report to Keith Altmann and Associates. Gagin Pty Ltd.

Wlodarczyk & Williams (June 2005) **A short report into the habitat hectare value and net gain analysis of habitat zone PG4. Addendum to – Botanical assessment and habitat significance of 100 Vineyard Road, Sunbury**. For Keith Altmann and Associates. Gagin Pty Ltd.

Wlodarczyk & Williams (June 2005) **A botanical assessment and habitat significance of 100 vineyard road, city of Hume. Addendum 2**. A report to Keith Altmann and Associates. Gagin Pty Ltd.

## **2.2 Survey Techniques**

A quantitative survey was conducted over 4 days within a 6 week period from the 12<sup>th</sup> November to the 21<sup>st</sup> December between the hours of 1000hrs – 1700hrs. Butterfly nets were used to capture potential samples to allow for accurate identification and confirmation of the presence of *S. plana*. Thirty seven (37) transects were recorded using a handheld GPS receiver across a total area of 67.3ha of the 100 Vineyard Road property. The southern paddocks were not surveyed as they had been subject to heavy grazing and did not contain patches of *Austrodanthonia sp.*. Each transect was traversed by a single person at a mean rate of 4.1m/min, with a total area of 66ha being surveyed. The total number of *S. plana* detected along the length of each transect was recorded irrespective of whether the individual was flying or at rest. Although it was noted that very few *S. plana* were observed on the ground the large majority were flying. The surveys were only conducted in conditions  $\geq 20^{\circ}\text{C}$  with a wind speed of less than 25km/h.

## **2.3 GPS and Mapping Capabilities**

The location of each transect was recorded using a Magellan eXplorist 600 handheld GPS receiver. The Magellan eXplorist 600 has an accuracy of <7m and uses multiple satellites which provide a 3D position fix. Thus recording the altitude, longitude and latitude of each position.

Maps were created using the mapping program TumAus. TumAus is a vector based map of the state of Victoria, Australia which provides a 1:25, 000 topographical vectorised data set (Sourced from VicMap, Department of Natural Resources and Environment). TumAus allows for the addition of information including uploading data from the handheld GPS receiver and the production of locally specific maps.



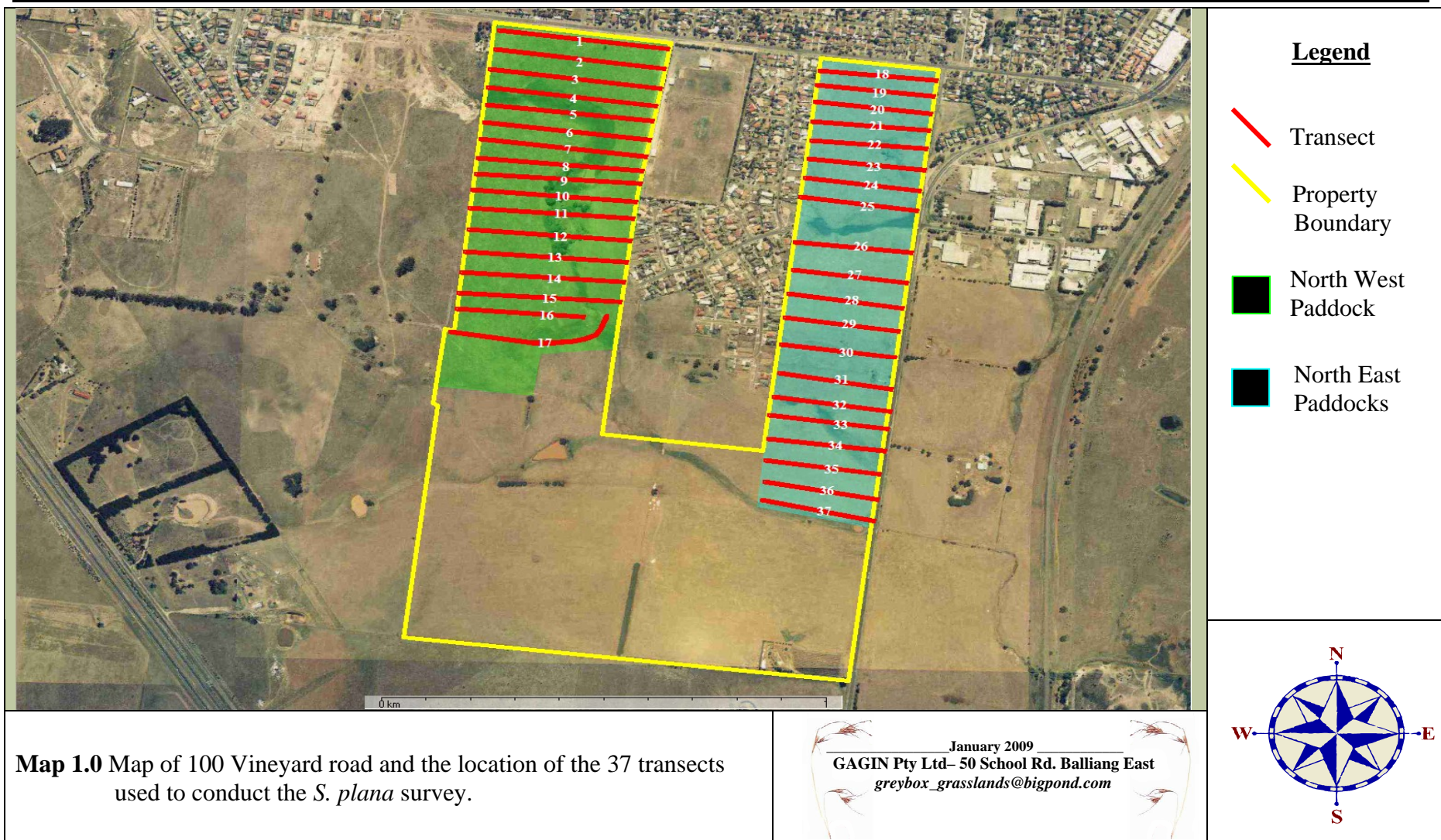
### 3.0 RESULTS

#### 3.1 Presence of *S. plana*

Three (3) moth specimens were captured and positively identified as being *S. plana* before being released. Other individuals within the survey area were then identified as being *S. plana* due to their physical characteristics and their unique flying behaviour.

Map 1.0 shows the location of the thirty seven (37) transects used to determine the approximate abundance and distribution of *S. plana* throughout 100 Vineyard Road.

Abundance and Distribution of the Golden Sun Moth *Synemon plana*  
 100 Vineyard Road, Sunbury



### 3.2 Abundance and Distribution of *S. plana*

Over the four (4) days that the survey was conducted *S. plana* was found to be present within all thirty seven (37) transects. Thus the distribution of *S. plana* extended throughout all the Northern paddocks denounced as the **green** and **blue** areas on Map 1.0.

Table 1.0 identifies the total number of *S. plana* observed along each of the transects during the four (4) day survey period.

The number of *S. plana* observed varied considerably between the North west paddock and the North east paddocks, as well as between the days that the surveys were conducted. High numbers were observed in the North west paddock on the 12<sup>th</sup> November 2008, with a total of 779 individuals identified across 17 transects (Table 1.0). Where as the highest number observed for the North east paddocks occurred on the 4<sup>th</sup> December 2008 with the identification of 1,127 individuals. (Table 1.0).

Figure 1.1 illustrates the number of *S. plana* identified in the North west paddock and the North east paddocks on each of the four (4) days that the survey was conducted. The graph also highlights the minimum and maximum temperatures (Bureau of Meteorology, 2009) reached during each day of survey.

**Table 1.0** Daily temperatures, rainfall and wind speed and direction for each of the days the survey was conducted (Bureau of Meteorology).

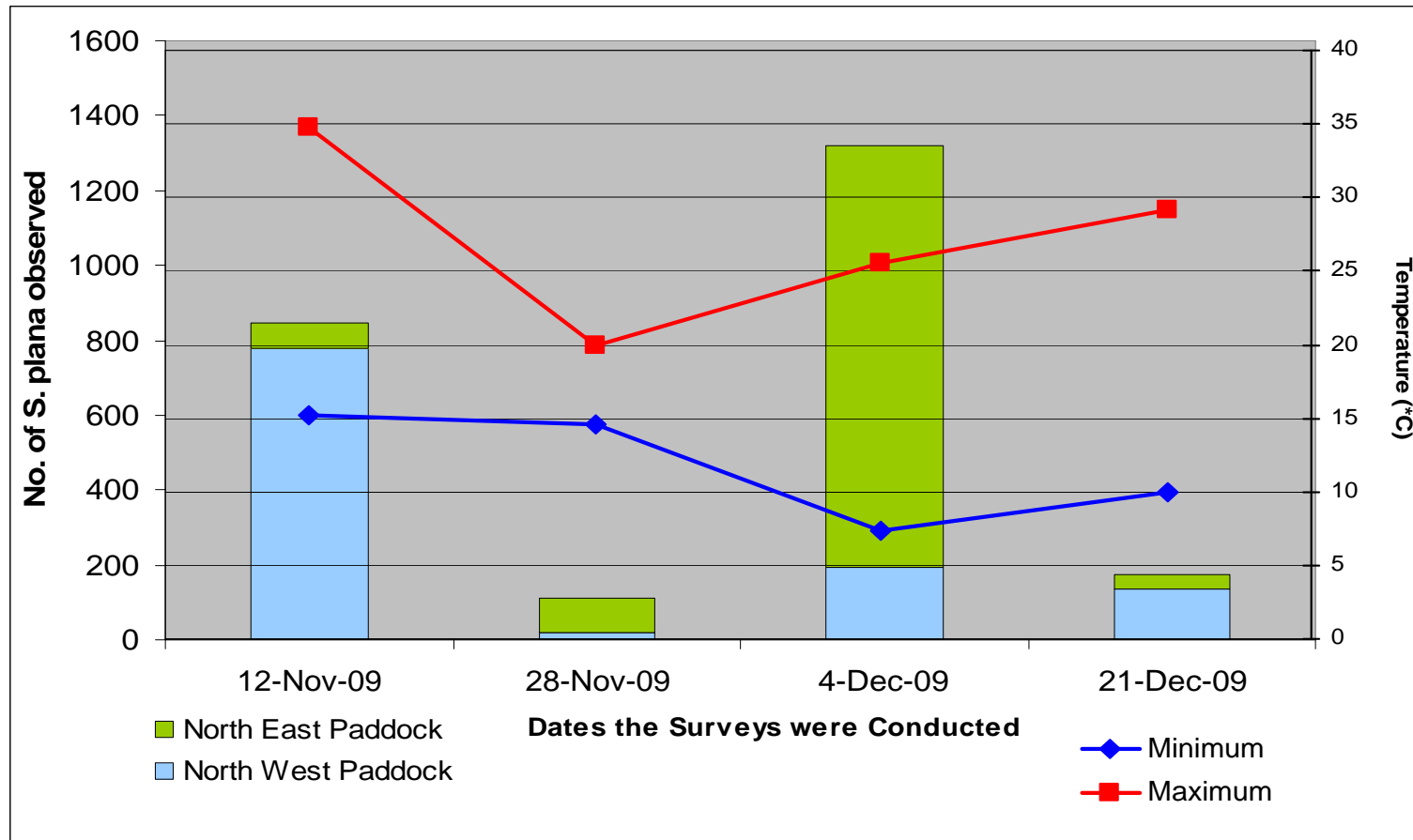
Date	Temperature		Rain in previous 24Hrs (mm)	Wind	
	Min (°C)	Max (°C)		Direction	Mean Speed (km/h)
12/11/08	15.2	34.8	0.0	N-NW	23.5
28/11/08	14.6	20.0	0.0	S-SSE	11.5
4/12/08	7.4	25.6	0.0	E-NNE	16.5
21/12/08	10.0	29.1	0.2	N-NNE	24.0

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**Table 1.1** Table identifying the total number of *S. plana* observed within the North west paddock and the North east paddocks, over the 4 days of survey.

Transect No.	Number of <i>S. plana</i>					Duration (Minutes)	Length of Transect (Meters)
	12/11/08	28/11/08	4/12/08	21/12/08	Total		
<b>North West Paddock</b>							
1	45	0	20	8	73	9	38
2	60	0	24	11	95	9	38
3	69	0	10	12	91	8	38
4	47	1	17	3	68	10	38
5	42	0	22	8	72	10	37
6	158	2	7	6	173	10	37
7	60	2	6	5	73	10	37
8	54	1	16	1	72	9	37
9	51	1	12	8	72	9	37
10	35	6	9	9	59	9	36
11	26	1	8	10	45	9	37
12	21	2	4	22	49	11	36
13	33	0	11	15	59	11	36
14	25	0	6	7	38	9	36
15	21	3	10	6	40	9	36
16	26	2	8	6	42	6	28
17	6	0	1	0	7	13	40
<b>Sub Total</b>	<b>779</b>	<b>21</b>	<b>191</b>	<b>137</b>	<b>1,128</b>	<b>161 min</b>	<b>622 m</b>
<b>North East Paddock</b>							
18	1	0	0	1	2	5	26
19	0	1	10	3	14	6	26
20	1	0	12	2	15	6	26
21	1	0	15	0	16	5	26
22	0	2	8	1	11	5	26
23	1	0	10	1	12	6	26
24	3	0	66	0	69	7	26
25	5	1	70	4	80	7	26
26	16	5	30	6	57	8	26
27	26	7	25	2	60	8	25
28	3	3	33	0	39	6	25
29	1	4	39	0	44	6	25
30	0	2	46	8	56	5	25
31	2	5	79	0	86	6	25
32	2	5	118	3	128	6	26
33	1	9	50	5	65	5	27
34	1	12	152	1	166	5	26
35	2	11	99	2	114	6	26
36	3	8	150	0	161	7	25
37	0	13	115	0	128	6	26
<b>Sub Total</b>	<b>69</b>	<b>88</b>	<b>1127</b>	<b>39</b>	<b>1,323</b>	<b>121 min</b>	<b>515 m</b>
<b>TOTAL</b>	<b>848</b>	<b>109</b>	<b>1318</b>	<b>176</b>	<b>2,451</b>	<b>282 min</b>	<b>1137 m</b>

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**Fig. 1.0** A graph illustrating the number of *S. plana* observed for the North west paddock, the North east paddocks and the total overall as well as the minimum and maximum daily temperature for each day of survey.

#### 4.0 IMPLICATIONS FOR DEVELOPMENT

The presence of the Golden Sun Moth adds to the conservation significance of the site. The significance of the vegetation has already been scored as HIGH according to the definitions within Victoria's Native Vegetation Management Framework (2002). As *Synemon plana* is listed as critically endangered under the EPBC Act (1999) any further applications for development must address this issue. The presence of *Synemon plana* is likely to result in any action considered to have a significant impact upon the population incurring strict civil and criminal penalties unless approval has been granted by the minister. It is advised that a referral be made to the Department of Environment and Heritage (DEH) regarding the proposed development prior to any works being issued. A referral to the minister has three potential paths;

➤ **Approval not required**

This is likely to occur where the actions are not considered to trigger the EPBC Act.

➤ **Approval not required (Manner Specified)**

The actions do not need EPBC approval and assessment providing the activity mitigates the potential impacts according to ministerial demands.

➤ **Approval required (Controlled Action)**

All relevant information must be provided for assessment under the EPBC Act or an accredited state processes. The minister is responsible for the approval or rejection of the activity and is likely to attach conditions to the approval.

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For manner specified, controlled actions and approvals, strict compliance rule operate. For those individuals or organisations that do not comply, jail terms of up to 2 years and/or fines from \$13,200 to \$1.1 million dollars can be incurred.

Where an action is likely to have a significant impact on a matter protected by the EPBC Act, such as the critically endangered Golden Sun Moth, the persons proposing the actions or a consultant acting on their behalf, is responsible for making a referral to DEH. A referral is the first step in the process and is important in clarifying any legal obligations that the proponent may have.

A referral form and referral guide is available on the EPBC website.

As *S. plana* is also listed under the state FFG Act (1988) the state authorities (DSE) Department of Sustainability and Environment, will also need to be notified of its presence.



## 5.0 REFERENCES

Australian Plants Society, Maroondah (2001) *Flora of Melbourne*, Hyland House, Melbourne.

(BOM) Bureau of Meteorology (2009) *Melbourne Airport Victoria-Daily Weather Observations*.

(Website – [www.bom.gov.au/climate/dwo](http://www.bom.gov.au/climate/dwo).)

(DEH) Department of Environment and Heritage (Feb, 2005) *Commonwealth listing advice on*

*Synemon plana* (Golden Sun Moth) (Website-

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(DEH) Department of Environment and Heritage. *DEH – Species profiles -Synemon plana* (Golden

*Sun Moth*) (Website - [www.deh.gov.au/cgi-](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25234)

[bin/sprat/public/publicspecies.pl?taxon\\_id=25234](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25234))

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Australia and the Tasmanian Conservation Trust, Canberra.



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Restoration Ecology, Vol. 8 (2) pg. 170-174.

# *Appendix 1*

**Daily Weather Observations  
for November and December 2008  
Melbourne Airport, Victoria**

Abundance and Distribution of the Golden Sun Moth *Synemon plana*  
100 Vineyard Road, Sunbury

Melbourne Airport, Victoria  
November 2008 Daily Weather Observations



Australian Government  
Bureau of Meteorology

Date	Day	Temps		Rain mm	Evap mm	Sun hours	Max wind gust			9am					3pm						
		Min °C	Max °C				Dirn	Spd km/h	Time local	Temp °C	RH %	Cld eighths	Dirn	Spd km/h	MSLP hPa	Temp °C	RH %	Cld eighths	Dirn	Spd km/h	MSLP hPa
1	Sa	10.2	19.7	1.2	4.4	3.4	S	37	00:55	12.5	67	7	S	17	1024.5	15.7	58	7	SSE	20	1023.0
2	Su	10.1	29.0	0	4.4	8.6	N	57	08:21	19.5	53	7	N	37	1018.0	27.5	22	7	NW	24	1013.4
3	Mo	13.4	17.8	8.0	6.6	0.2	N	56	23:33	14.4	78	8	SW	31	1014.3	16.5	64	7	SSW	31	1015.4
4	Tu	9.8	16.4	0	4.0	10.5	S	48	05:28	11.0	46	7	SSE	28	1021.5	14.9	45	1	S	19	1018.0
5	We	5.2	26.4	0	5.4	5.3	WSW	52	21:19	10.7	67	7	NNE	9	1012.6	24.6	18	7	NW	28	1007.7
6	Th	10.5	24.5	0	8.0	10.2	WSW	46	23:02	15.0	63	7	W	15	1010.3	22.9	25	3	W	24	1008.5
7	Fr	10.0	20.8	0	6.4	0.0	N	87	12:41	18.0	38	8	N	24	1007.8	15.7	82	8	N	46	1002.7
8	Sa	10.9	20.0	2.6	3.6	4.0	WSW	59	12:07	13.3	68	7	W	31	1005.6	17.0	41	7	WSW	33	1007.6
9	Su	7.5	27.0	0	4.4	11.8	WSW	33	07:58	14.9	58	7	W	22	1018.9	23.9	33	2	NW	11	1016.9
10	Mo	12.3	24.2	0	6.6	11.1	SSE	35	14:13	16.2	70	2	SSW	7	1023.0	23.2	40	7	SSE	20	1020.9
11	Tu	9.6	32.3	0	6.0	12.6	N	41	12:10	16.4	71	1	N	7	1020.4	31.5	16	5	NNW	19	1015.0
12	We	15.2	34.8	0	10.0	10.5	NNE	65	11:48	27.1	22	7	N	30	1015.1	33.2	12	6	NW	17	1012.6
13	Th	16.8	34.4	0	14.2	2.1	W	78	18:32	25.5	29	8	N	48	1008.6	31.7	16	7	N	50	1006.3
14	Fr	13.4	21.5	12.2	11.2	6.5	S	35	15:44	13.7	92	8	SSW	13	1012.1	19.7	53	6	S	20	1011.7
15	Sa	9.2	21.7	0	4.4	11.5	WSW	57	15:10	13.4	62	7	SW	20	1016.5	21.3	24	2	SW	19	1014.8
16	Su	8.7	16.8	0	8.4	8.4	SSE	50	11:18	11.4	47	7	SSW	28	1021.7	15.5	35	3	S	24	1021.3
17	Mo	9.5	18.8	0	4.2	10.0	SE	37	10:18	12.5	52	7	S	20	1020.5	17.9	39	1	ESE	19	1016.9
18	Tu	8.9	18.8	0	5.8	3.1	SSE	30	15:53	14.0	65	7	SE	7	1014.0	18.0	48	7	SSW	15	1011.8
19	We	12.4	21.5	0	2.8	0.1	SSE	30	15:44	13.4	97	8	S	15	1011.5	19.9	60	8	SW	13	1007.0
20	Th	13.3	17.9	0.8	2.4	6.0	WSW	52	09:46	13.9	82	8	WSW	31	1002.1	16.8	52	7	SW	31	1002.4
21	Fr	7.1	20.9	0	4.4	7.1	SW	61	17:14	12.6	51	7	WSW	19	1002.1	18.0	30	5	NW	31	996.8
22	Sa	6.5	13.8	3.2	6.4	6.1	S	72	14:57	10.2	64	7	WSW	41	996.7	9.2	64	7	SSW	35	996.6
23	Su	7.1	17.7	14.0	4.6	5.4	SSW	63	03:13	13.7	74	7	SSW	37	1003.6	17.0	49	7	S	33	1004.0
24	Mo	10.8	17.3	0	5.0	4.7	SW	37	10:34	11.5	69	8	SW	28	1009.7	15.6	56	7	SE	24	1009.7
25	Tu	7.7	25.5	0	4.4	13.3	S	39	17:59	13.6	73	1	W	7	1013.8	23.7	32	1	ENE	11	1011.4
26	We	9.3	29.7	0	7.4	11.4	N	54	13:40	17.4	59	2	E	7	1010.7	27.3	26	6	N	22	1006.5
27	Th	17.2	30.7	0	11.2	6.4	N	72	10:08	21.9	50	7	N	48	1004.9	30.0	33	6	N	35	1001.1
28	Fr	14.6	20.0	0	7.2	1.3	SSE	33	13:18	17.0	74	8	S	4	1004.9	18.1	60	8	SSE	19	1004.1
29	Sa	12.3	18.5	4.8	3.4	3.7	SSE	44	13:39	13.5	77	8	SSW	26	1008.2	16.2	58	7	S	24	1008.4
30	Su	6.8	24.9	0	3.6	9.7	NNW	59	14:25	13.7	56	5	WNW	13	1010.8	22.7	22	6	NNW	26	1005.8
Statistics for November 2008																					
Mean		10.5	22.8		6.0	6.8				15.1	62	6		22	1012.1	20.8	41	5		24	1010.0
Lowest		5.2	13.8		2.4	0.0				10.2	22	1	S	4	996.7	9.2	12	1	#	11	996.8
Highest		17.2	34.8	14.0	14.2	13.3	N	87		27.1	97	8	N	48	1024.5	33.2	64	8	N	50	1023.0
Total				46.8	180.8	205.0															

Observations were drawn from Melbourne Airport (station 086282)

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Melbourne Airport, Victoria  
December 2008 Daily Weather Observations



Date	Day	Temps		Rain mm	Evap mm	Sun hours	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Mo	8.9	21.1	2.0	7.2	10.1	WSW	56	23:18	13.7	56	5	WSW	24	1008.9	18.5	28	7	W	31	1007.8
2	Tu	8.9	22.2	0	6.8	7.5	WNNW	46	07:10	16.0	42	6	WNNW	30	1009.5	20.7	28	7	W	17	1007.2
3	We	13.4	21.3	0	5.6	6.7	SSW	48	12:19	14.8	62	7	WSW	22	1009.7	17.5	46	7	S	26	1011.7
4	Th	7.4	25.6	0	5.8	5.8	N	39	15:22	14.4	55	7	E	9	1018.4	24.4	19	8	NNE	24	1012.4
5	Fr	13.9	31.7	0	6.8	13.4	NW	67	12:38	24.0	43	3	NW	30	1006.4	29.9	23	1	NNW	31	1003.8
6	Sa	12.9	27.2	0	12.6	9.1	NW	63	15:26	17.1	59	3	SW	11	1009.6	25.3	27	7	W	30	1004.7
7	Su	7.8	19.0	0	7.0	11.2	SW	52	09:44	13.9	43	3	SW	26	1012.7	17.2	40	6	S	11	1012.3
8	Mo	6.8	22.7	0	8.0	11.9	S	37	14:36	13.4	52	4	S	13	1014.9	21.3	33	2	S	24	1010.7
9	Tu	7.7	19.2	0	5.6	0.0	S	41	12:11	13.4	77	8	WSW	13	1007.5	13.5	87	8	S	20	1007.9
10	We	11.6	18.0	4.4	1.2	10.3	S	48	13:09	12.5	65	7	SSE	28	1013.3	16.8	39	1	S	30	1012.6
11	Th	7.7	22.7	0	6.4	13.2	S	37	12:00	15.3	60	2	SSE	19	1015.1	21.4	41	1	S	24	1012.1
12	Fr	12.0	22.4	0	8.0	0.3	N	59	09:20	20.6	51	8	N	24	1007.1	17.0	89	8	ENE	15	1003.5
13	Sa	15.0	16.6	40.2	4.8	0.0	SW	76	16:24	16.2	97	8	NW	17	989.0	14.5	94	8	SSW	48	994.1
14	Su	10.9	18.2	39.0	6.6	7.3	SSW	50	08:49	14.1	90	7	SSW	31	1005.0	15.7	75	7	SSW	35	1007.3
15	Mo	11.2	20.4	0.4	5.8	5.7	S	35	17:31	11.9	59	8	WSW	24	1012.8	17.0	47	6	W	13	1012.0
16	Tu	10.7	19.3	0	4.0	2.0	SSE	33	15:01	15.8	67	7	NW	6	1012.8	18.4	65	7	S	9	1011.9
17	We	12.5	19.2	1.6	2.2	1.2	SSE	28	16:11	14.3	81	7			1012.9	18.6	61	7	N	4	1009.7
18	Th	12.8	20.4	0	3.8	4.3	SW	41	12:11	15.0	79	7	W	9	1006.2	16.8	70	7	S	26	1005.2
19	Fr	8.9	17.7	0.2	4.2	10.2	SSE	56	13:55	11.0	72	7	SSW	20	1014.2	15.2	46	5	SSE	35	1015.8
20	Sa	7.6	21.4	0.2	4.6	13.1	SSE	41	12:24	14.2	62	2	SE	15	1021.4	19.8	43	5	SSE	22	1019.2
21	Su	10.0	29.1	0	6.0	10.8	N	48	08:22	18.5	58	1	N	22	1018.4	27.7	27	3	NNE	26	1013.9
22	Mo	18.3	34.5	0	14.8	7.5	N	85	09:52	22.5	39	7	N	48	1007.6	33.3	20	7	NNW	41	1003.3
23	Tu	13.8	19.7	0.2	9.8	7.9	SSW	41	08:25	14.9	76	8	SSW	28	1013.6	18.5	50	5	S	24	1013.7
24	We	10.2	23.2	0.2	5.4	13.8	SE	31	00:17	15.6	54	4	SE	19	1013.6	21.9	39	1	SSW	13	1011.7
25	Th	11.1	23.8	0	6.4	13.5	SE	37	12:43	16.6	61	3	SSW	9	1015.1	22.3	47	6	SSE	22	1013.1
26	Fr	11.4	29.7	0	7.8	9.9	S	67	11:57	23.8	42	7	N	22	1009.6	24.2	43	7	SE	17	1008.5
27	Sa	13.8	29.2	0	6.4	9.4	S	39	15:32	24.2	46	6	NNW	20	1006.0	21.1	73	6	S	20	1003.5
28	Su	11.2	28.5	1.4	6.0	10.5	SSE	48	17:42	20.1	58	5	NNE	9	1003.9	27.9	32	6	SE	22	1001.7
29	Mo	11.8	22.3	0	8.6	9.8	SW	54	16:19	15.7	54	6	SW	20	1008.0	19.6	33	7	SW	30	1007.9
30	Tu	13.3	23.5	0.2	6.2	8.0	WSW	59	14:18	14.5	86	7	W	24	1003.6	21.5	31	7	WSW	35	1002.3
31	We	12.0	23.3	0	9.4	8.4	WSW	48	03:38	16.0	47	7	W	22	1006.1	20.5	34	6	W	17	1004.8

Statistics for December 2008

Mean	11.1	23.0		6.6	8.2					16.3	61	5		20	1010.1	20.6	48	5		23	1008.6
Lowest	6.8	16.6		1.2	0.0					11.0	39	1	NW	6	989.0	13.5	19	1	N	4	994.1
Highest	18.3	34.5	40.2	14.8	13.8		N	85		24.2	97	8	N	48	1021.4	33.3	94	8	SSW	48	1019.2
Total			90.0	203.8	252.8																

Observations were drawn from Melbourne Airport (station 086282)

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**Abundance and Distribution of the Golden Sun Moth *Synemon plana*  
100 Vineyard Road, Sunbury**

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