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# **Compliance Report**

## **Lawson South**

### **(EPBC 2010/5549)**

**11<sup>th</sup> December 2014 – 12<sup>th</sup> December 2015**

**Version 1 November 2015**

**Prepared by the Land Development Agency and the Territory and Municipal Services Directorate on  
behalf of the ACT Government**

This report demonstrates how the Land Development Agency (LDA) and the ACT Parks and Conservation Service (PCS) have complied with the conditions in the approval decision for the Lawson South Residential Development (EPBC 2010/5549).

Specifically, the LDA (the proponent) are responsible for complying with conditions 1-11, 14, 15 and 21 in the approval decision. PCS are responsible for complying with conditions 12 and 13. The LDA and the PCS are jointly responsible with for complying with conditions 16-20 and 23 in the approval decision.

In addition, this report also demonstrates how the ACT Parks and Conservation Service has implemented the management plan for the Jarramlee environmental offset site on behalf of the LDA (the proponent).

#### Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed: 

Full name: THOMAS GORDON

Position: EXECUTIVE DIRECTOR, GREENFIELD

Organisation: L.D.A.

Date: 8 December 2015

#### Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed: 

Full name: Daniel Iglesias

Position: Director

Organisation: ACT Parks and Conservation Service, Territory and Municipal Services Directorate

Date: 02 December 2015

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### Compliance with conditions in EPBC Approval Decision

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
1.	All ground disturbed as a result of construction within the Inner Asset Protection Zone (IAPZ) and Golden Sun Moth (GSM) habitat within Reservoir Hill must be rehabilitated, by re-establishment of native grass species, no later than 30 days after completion of construction within the IAPZ and GSM habitat within Reservoir Hill.	LDA	Compliant/not applicable	All ground within the IAPZ has been rehabilitated with native grass species nominated in the EPBC approval as part of the Stage 1 civil construction works.  Stage 2 has not commenced construction as yet so this is not applicable.  The landscape construction works in Reservoir Hill have not commenced as yet so this is not applicable.
2.	The person taking the action must not plant trees where they could shade GSM habitat within Reservoir Hill and GSM and Natural Temperate Grassland (NTG).	LDA	Compliant	No trees are proposed in the habitat area.
3.	The person taking the action must ensure that the GSM habitat within Reservoir Hill and Belconnen Naval Transmitting Station are separated from residential development by vehicular roads.	LDA	Compliant	The open space that the GSM habitat and NTG are located in are separated by either edge roads (Wanderlight Avenue and Dawn Crescent) or fire roads.
4.	The person taking the action must prevent sediment, eroded material, untreated and uncontrolled stormwater from entering the Belconnen Naval Transmitting Station and the GSM habitat within Reservoir Hill.	LDA	Compliant	Appropriate sediment and erosion control measures were in place during the civil construction of Stage 1 to ensure sediment, eroded material, untreated and uncontrolled stormwater did not enter the former Belconnen Naval Transmitting Station.  No measures were required during Stage 1 civil works to protect GSM habitat within Reservoir Hill as these works were downslope of the Hill.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
				The landscape construction works in Reservoir Hill have not commenced as yet so this is not applicable.
5.	<p>The person taking the action must engage a suitably qualified expert to prepare an Environmental Management Plan (EMP) to maintain or improve the GSM habitat within Reservoir Hill.</p> <p>The EMP must be submitted to the Minister for approval by 1 July 2013. The approved EMP must be implemented within 12 months of the date of this approval. The EMP must address, but not necessarily be limited to:</p> <p>a) measures to maintain or improve the quality and condition of the Golden Sun Moth habitat within Reservoir Hill through appropriate management actions, including, and not limited to, weed control and biomass management as informed by a suitably qualified expert;</p> <p>b) measures to prevent the access of unauthorised vehicles into the Golden Sun Moth habitat on Reservoir Hill, prior to, during and post construction. Measures must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>i) temporary fences to prevent access by unauthorised vehicles;</li> <li>ii) replacement of the temporary fences required in Condition 5) b) i) with permanent structures, such</li> </ul>	LDA	Compliant (non-compliant 5c(i))	<p>5c(i) The baseline survey was commissioned by the LDA. The report was not published on the LDA's website within the 30 day period. All reports are now centrally published on the TAMS environmental offsets website. This report was published on 6<sup>th</sup> August 2014.</p> <p>The EMP was approved on 11th December 2013.</p> <p>The EMP includes management recommendations for the pre-construction, construction and post construction period of the site, being Reservoir Hill. The following points address compliance against Section 4.1 Pre-construction and construction of the EMP.</p> <p>NB. Construction within the GSM habitat zone on Reservoir Hill has not commenced. Asbestos removal has occurred during the reporting period but this does not meet the definition of <i>construction</i> as defined in the EPBC 2010/5549 approval. Notwithstanding this, the responses below outline the management actions taken by the contractor undertaking the asbestos removal.</p> <p>PRE-CONSTRUCTION</p> <ul style="list-style-type: none"> <li>• S5.1.1 Site Induction – Site inductions by the contractor identified the protected habitat areas (a map of the habitat area is displayed in the Site Office). Regular Tool Box</li> </ul>

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	<p>as bollards, that will prevent access by unauthorised vehicles; and</p> <p>iii) maintenance of the permanent structures required in Condition 5) b) ii) so that the area remains inaccessible by unauthorised vehicles, with structures to be repaired or replaced as required.</p> <p>c) details of a baseline survey of the quality and condition of the Golden Sun Moth habitat within Reservoir Hill to be conducted by a suitably qualified expert during an optimal ecological time prior to the commencement of construction within Golden Sun Moth habitat within Reservoir Hill. The survey information, specifically the baseline data, must:</p> <p>i) be published and maintained on the person taking the action's website within 30 days of the surveys being completed. The baseline data must be sufficient to enable the active monitoring and maintenance of the Golden Sun Moth values; and</p> <p>ii) be used to ensure that the Golden Sun Moth habitat quality and condition are maintained or improved as required by Condition 5) a).</p> <p>d) details of an annual monitoring survey to determine the quality and condition of the Golden Sun Moth habitat within Reservoir Hill to be conducted by a suitably</p>			<p>meetings reinforce the importance of the habitat area and instructions given that anyone not involved in the asbestos removal is not permitted in this area.</p> <ul style="list-style-type: none"> <li>• S5.1.2 Fencing and Signage – Prior to construction commencing in Stages 1a, b and c the habitat area on Reservoir Hill was cordoned off from the rest of the site with star picket posts and flagging and “Do Not Enter” signage. This barrier option was chosen, in liaison with the ACT Conservator for Flora and Fauna, to ensure kangaroo mobility on site would not be impeded whilst clearly delineating the boundary of the GSM habitat.</li> <li>• S5.1.3 Site hygiene and protocols – The only machinery that has been allowed within the habitat area are slashers (to undertake the initial biomass control in 2013-14 reporting period) and machinery for asbestos removal. All machinery was clean and used only in dry conditions. Surrounding construction works and the topography of the site mean that pedestrian activity within the habitat area is avoided. No soil was brought into Reservoir Hill from outside the site.</li> <li>• S5.1.4 Timing – Asbestos removal in the habitat areas occurred in September 2013, outside the breeding season for the GSM. No further work occurred in this reporting period.</li> <li>• S5.1.5 Asbestos removal – Asbestos pipes were removed in accordance with the approved Remedial Action Plan (RAP) which aimed to remove all Asbestos Containing Material (ACM) from the site whilst minimising the width of the</li> </ul>

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	<p>qualified expert during an optimal ecological time. The first annual survey must be undertaken within one year of commencement of construction within Golden Sun Moth habitat within Reservoir Hill. Annual monitoring surveys must continue to be undertaken unless cessation is agreed to in writing by the Minister;</p> <p>e) details of corrective actions to be undertaken should the monitoring required in Condition 5) d) indicate a decline, as determined by a suitably qualified expert, in the quality or condition of the Golden Sun Moth habitat within Reservoir Hill; and</p> <p>f) details of the administration arrangements for the measures referred to in Conditions 5) a) to 5) e).</p>			<p>trench, as far as practical. All work occurred during the 2013-14 reporting period and no work occurred in this reporting period.</p> <ul style="list-style-type: none"> <li>• S5.1.6 Path and facility construction and revegetation – No action required as landscape construction works have not commenced.</li> <li>• S5.1.7 Biomass and fuel management – Slashing of Reservoir Hill occurred in July 2013, after stock was removed from site and prior to construction commencing in September 2013. Slashing occurred in accordance with the prescriptions of the EMP. Kangaroos have maintained adequate levels of biomass on site since this date.</li> <li>• S5.1.8 Weed control – all disturbed areas have been seeded with the nominated mix of grass species from Condition 1 EPBC 2010/5549 and have been regularly monitored for weed invasion.</li> <li>• S5.1.9 Landscaping – No action required as landscape construction works have not commenced.</li> <li>• S5.1.10 GSM Corridor – A corridor has been retained in the subdivision plans and zoned open space. No action required as landscape construction works have not commenced.</li> <li>• S5.1.11 Administration – These requirements have been delegated to the Superintendent during construction works and monitored by the LDA at fortnightly site meetings.</li> </ul>

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
				<p>POST CONSTRUCTION</p> <p>No action required as construction works in Reservoir Hill have not yet commenced.</p> <p>The first annual monitoring of GSM within Reservoir Hill is not required until one year after the commencement of construction within the GSM habitat on Reservoir Hill. No action is required as landscape construction works have not commenced within Reservoir Hill.</p>
6.	The person taking the action must install interpretive educational signage at no less than five locations along the boundary of GSM habitat within Reservoir Hill.	LDA	Not applicable	No action required as landscape construction works have not commenced within Reservoir Hill.
7.	<p>The person taking the action must ensure that, during the management of the Outer Asset Protection Zone (OAPZ):</p> <ul style="list-style-type: none"> <li>a) Grass and other flora is not slashed to a height less than 300mm above the ground</li> <li>b) The removal or movement of rocks to facilitate the slashing of grass and other flora is prevented</li> <li>c) The slashing of grass and other flora be restricted to occurring within the OAPZ</li> <li>d) All grass clippings and biomass removed must be mulched and spread or caught and removed to prevent windrows or clumps of slashed biomass</li> </ul>	LDA	Not applicable	The site was still under construction during the reporting period. Residents are just starting to move into their homes. Kangaroos have grazed Reservoir Hill and no bushfire management is required for this coming season.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	<p>forming on top of grassland flora</p> <p>e) All machinery and equipment involved in the slashing of grass and flora are free from flora reproductive matter (for example seeds) prior to entering the OAPZ</p> <p>f) A log book is maintained that records all management actions including date, time and details of machinery, equipment and personnel as well as details of hygiene measures undertaken to demonstrate compliance with this condition.</p> <p>g) Slashing or any other biomass management must not be undertaken:</p> <p>i) When the use of vehicles or machinery could result in the churn or compaction of soil due to high levels of soil moisture</p> <p>ii) During peak times of significant weed seeding as determined by a suitably qualified expert</p>			
8.	Prior to the commencement of actions to manage or reduce biomass within the OAPZ, a detailed baseline ecological survey must be undertaken by a suitably qualified expert at an optimal ecological time within the OAPZ to gain sufficient baseline ecological information to identify and map the extent and condition of all listed threatened species and ecological communities or their habitat and any weed species, This information must be	LDA	Not applicable	No bushfire management was undertaken during the reporting period.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	published and maintained on the person taking the action's website within 30 days after the completion of surveys.			
9.	The person taking the action must control weed species detected in the baseline ecological survey required by Conditions 2C) and 8 to ensure that the abundance and cover of weed species does not increase. Weed control must be informed by a suitably qualified expert and be undertaken in a manner that does not impact non-target flora or listed threatened species and ecological communities.	LDA	Compliant	Weed control has been undertaken by the relevant civil contractor for adjacent works.
10.	Should biomass management within the OAPZ be undertaken three or more times in any two year period, the person taking the action must conduct an ecological assessment using a suitably qualified expert. The ecological assessment must be undertaken at an optimal ecological time no earlier than six months following the last biomass management activity, and be sufficient to detect any changes in ecological condition from the baseline survey required by condition 8.	LDA	Not applicable	No bushfire management was undertaken during the reporting period.
11.	Within 30 days of the surveys required by Condition 5d) and 10, a suitably qualified expert must assess whether there has been a decline in the ecological condition of habitat for the GSM and NTG within the OAPZ and or GSM habitat within Reservoir Hill, if a decline is	LDA	Not applicable	The site is still under construction and monitoring is not required yet.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	detected, the person taking the action must prepare, within 30 days for the approval of the Minister, a Restoration Plan for the restoration of the ecological condition of the OAPZ and of the GSM habitat within Reservoir Hill.			
12.	To compensate for impacts from the action to the GSM and NTG, the person taking the action must develop an Offset Strategy. The Offset Strategy must be submitted to the Minister for approval within six months of the commencement of construction.	PCS	Compliant	Approved 11 December 2013.
13.	To manage the McGregor West Offset area, the person taking the action must develop an Offset Management Plan (OMP), for approval by the Minister.	PCS	Compliant	Approved 11 December 2013.
14.	If, after two years, the monitoring required by Condition 11c) identifies that the actions outlined in the Restoration Plan for restoration of the ecological condition of the OAPZ and/or the GSM habitat within Reservoir Hill have been unsuccessful as determined by a suitably qualified expert, then the person taking the action must develop an Additional Offset Strategy (AOS). The AOS must be submitted to the Minister for approval within six months of determining that actions were unsuccessful.	LDA	Not applicable	The site is still under construction and monitoring is not required yet.
15.	Within 30 days after the commencement of the action,	LDA	Compliant	DSEWPAC advised on 24 September 2013 that construction

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	the person taking the action must advise the department in writing of the actual date of commencement.			commenced on 12 September 2013.
16.	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the offset, OMP and, if required the Restoration Plan and any other report, strategies, agreements however described required by this approval, and make them available upon request to the department.	LDA / PCS	Compliant	All relevant documentation is maintained on ACT Government files.
17.	Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish and maintain a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published.	LDA/ PCS	2013-14 report non-compliant 2014-15 report complaint	The 2013-14 compliance reports (due 12 <sup>th</sup> December 2014) was published to the TAMS website on the 20 <sup>th</sup> January 2015.  In this case, no documentary evidence of publication was provided to the Department. To address this non-compliance, TAMS has developed formal procedures for the preparation and publication of EPBC compliance reports. These procedures have been approved by TAMS Executive and will be implemented by TAMS staff.
18.	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of the compliance with the conditions of approval is conducted	LDA / PCS	Not Applicable	No direction given.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	and report submitted to the Minister.			
19.	If the person taking the action wishes to carry out an activity otherwise than in accordance with the Offset Strategy, OMP and, if required, the Restoration Plan or AOS, and any other report, strategies, agreements however described as specified in the conditions, the person taking the action must submit to the department for the Minister's written approval a revised version of the Offset Strategy, OMP and, if required, the Restoration Plan or AOS, and any other report, strategies, agreements however described.	LDA / PCS	Compliant	Due to proposed changes to the actions within the Jarramlee offset area (please see table below for details), PCS is preparing a revised version of the Jarramlee Offset Management Plan. This plan will be submitted to the Department of Environment for approval.
20.	If the Minister believes that it is necessary or convenient for the better protection of the listed threatened species and communities and Commonwealth land to do so, the Minister may request that the person taking the action make specified revisions to the Offset Strategy, OMP and, if required, the Restoration Plan or AOS, and any other report, strategies, agreements however described as specified in the conditions and submit the revised Offset Strategy, OMP and, if required, the Restoration Plan or AOS, and any other report, strategies, agreements however described for the Minister's written approval.	LDA / PCS	Not Applicable	No request made.
21.	If, at any time after five years from the date of this approval, the person taking the action has not	LDA	Compliant	Action commenced on 12 September 2013 and substantially commenced by January 2014.

Condition Number	Condition	Responsibility	Compliant / Non-compliant / Not applicable	Description
	substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.			
22.	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans, ecological surveys, reports, strategy and agreement however described referred to in these conditions of approval on their website. Each management plan, ecological surveys, reports, strategy and agreement must be published on the website within 30 days of being approved.	LDA/PCS	Non-compliant	<p>The publication dates for reports prepared as part of this approval decision are as follows:</p> <ul style="list-style-type: none"> <li>• The Jarramlee Offset Management Plan – 13<sup>th</sup> May 2014</li> <li>• The Offset Strategy – 18<sup>th</sup> June 2014</li> <li>• The Environmental Management Plan for Reservoir Hill – 6<sup>th</sup> August 2014</li> </ul> <p>These reports were published outside the 30 day publishing timeline. All reports are now centrally published on the TAMS environmental offsets website.</p>

## Implementation of the Offset Management Plan

The following table describes how the ACT Parks and Conservation Service (Territory and Municipal Services Directorate) has undertaken the management actions described within the Offset Management Plan for the 2014-15 reporting season on behalf of the Land Development Agency (the proponent).

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
Biomass management plan	<p>The plan will guide:</p> <ul style="list-style-type: none"> <li>The grazing and/or burning regime to maintain understory biomass at levels that benefit the golden sun moth (GSM) and natural temperate grassland (NTG) as well as comply with the requirements of a strategic fire fighting advantage zone.</li> <li>The location of internal fences along Ginninderra Creek and/or Gooromon Ponds Creek to ensure the biomass within the GSM habitat along the riparian corridor can be appropriately managed.</li> <li>The installation of stock grazing infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>The draft biomass management plan is being implemented.</li> <li>PCS is also currently developing a Biomass Management Planning Framework that will guide biomass management across multiple environmental offset sites.</li> <li>An updated biomass management plan will be developed for Jarramlee in 2016.</li> <li>Stock fencing was constructed along the Bicentennial National Trail (BNT) section on the southern side of the offset.</li> <li>This section was crash grazed for two weeks in September 2015 to reduce the biomass to a suitable height for the GSM flight season.</li> <li>Cattle have been excluded from the NTG area on the western side of the reserve during spring 2015.</li> </ul>	2013-14	See fencing expenditure
Consult with ACT Heritage Unit	<ul style="list-style-type: none"> <li>Inform the ACT Heritage Unit of operational or habitat restoration works which could impact Aboriginal scatters recorded in Jarramlee.</li> <li>Seek advice from the ACT Heritage Unit prior to upgrading the fence on the ACT/NSW border along the Bicentennial National Trail.</li> </ul>	<ul style="list-style-type: none"> <li>The ACT Heritage unit were consulted on the replacement of the ACT/NSW border fence to the west of the sealed road to Jarramlee Homestead in September 2015. Construction of the new fence will commence in early 2016.</li> </ul>	As is required	-

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
Fencing	<ul style="list-style-type: none"> <li>Upgrade to 'vandal resistant' gates along the BNT.</li> <li>Repair or replace other boundary fences as needed.</li> <li>Fence off Ginninderra and/or Gooromon Ponds Creek as guided by the biomass management plan to protect stream banks from stock trampling.</li> <li>The ACT Heritage Unit needs to be advised of any planned upgrade or replacement to the heritage fence on the ACT/NSW border fence along the BNT.</li> </ul>	<ul style="list-style-type: none"> <li>Stock fencing was constructed in March 2015 around 4 revegetation plots.</li> <li>Plans are in place to replace the ACT/NSW border fence to the west of the sealed road to Jarramlee Homestead in early 2016.</li> <li>Fencing along the western side Jarramlee road was replaced in August 2015.</li> <li>Stock fencing was constructed along the BNT in September 2015. This will assist manage grazing within the GSM habitat.</li> </ul>	2014-15	\$32,400.83
Stock grazing preparation	<ul style="list-style-type: none"> <li>Install mains fed troughs to supply stock water from Ginninderra Creek and Gooromon Ponds Creek.</li> </ul>	<ul style="list-style-type: none"> <li>Two temporary water tanks were placed in the BNT to provide water for crash grazing.</li> <li>These tanks provide greater flexibility for providing stock water and are being trialled as an alternative to fixed, mains-fed water sources.</li> </ul>	2014-15	\$1090.91
Signage	<ul style="list-style-type: none"> <li>Design, construct and install reserve signage to identify the reserve to the public including use related information.</li> </ul>	<ul style="list-style-type: none"> <li>Signage installation has been postponed until the nature reserve is formally established.</li> </ul>	2014-15	-
Riparian restoration	<ul style="list-style-type: none"> <li>Undertake stream bank protection works at the confluence of Ginninderra Creek and Gooromon Ponds Creek to protect GSM habitat from erosion.</li> <li>Revegetate with indigenous shrubs within other sections of the riparian zone to provide habitat for woodland and migratory birds. Planting should be done in small patches along the riparian corridor avoiding GSM habitat.</li> </ul> <p>Seed advice from ACT Government ecologists</p>	<ul style="list-style-type: none"> <li>Four habitat plots were planted in May 2015, in consultation with ACT Government ecologists and Greening Australia within existing woodlots across the wider Jarramlee offset to increase connectivity for woodland birds.</li> <li>A conflict exists between the requirement to graze the GSM habitat along the riparian corridor to maintain suitable habitat structure and the need to protect the riparian corridor from stock to minimise</li> </ul>	2015-16	\$9828.00

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
	on plant species selection and on the location of the revegetation works.	<p>erosion and impact to the riparian environment.</p> <ul style="list-style-type: none"> <li>• Further advice is required from an expert on alternative means of protecting and restoring the riparian corridor. This advice will be included in the updated biomass management plan for Jarramlee.</li> <li>• Riparian restoration works will continue once this advice is received.</li> </ul>		
Connectivity and GSM habitat restoration	<ul style="list-style-type: none"> <li>• Engage an external contractor to rehabilitate the area between Jarramlee and Dunlop Grasslands Nature Reserve to improve GSM habitat connectivity.</li> </ul>	<p>The Golden Sun Moth habitat connectivity project has been postponed as quotes received were significantly greater than the allocated budget (greater than \$250,000).</p> <p>By its nature, the revegetation project did not carry any guarantee of success and therefore, provided no guarantee that improved GSM habitat connectivity between the Jarramlee offset area and Dunlop grasslands could be achieved. The overall cost when compared to the potential benefits was deemed too high.</p> <p>The Jarramlee offset area now forms part of the study area for the West Belconnen Strategic Assessment. Alternative measures to improve the GSM habitat connectively are being included as part of the commitments within this program. This includes the protection and management of Lot 2 Wallaroo Road, which has recently been purchased by</p>	2016-17	\$1556.62

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
		the ACT Government. This site has an established population of GSM and the protection and management of this land provides greater value for the long-term conservation of the GSM and improved GSM habitat connectivity.		
Weed control	<ul style="list-style-type: none"> <li>• Reduce the impact of weeds of concern, namely: serrated tussock, St John’s wort, African love grass, Patterson’s curse, sweet briar, blackberry and saffron and scotch thistles.</li> <li>• Until results on the current research on Chilean needle grass control within golden sun moth habitat are available, Chilean needle grass control should be limited to areas outside of GSM habitat.</li> <li>• To minimise impact on woodland bird habitat, control large woody weeds in a phased approach including control methods such as stem injection or frill poison to leave temporary standing structure. Protect native plant species from off-target damage.</li> <li>• To maintain an open grassland structure regenerating trees and shrubs should be removed from outside woodlots.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed control was undertaken across Jarramlee for: <ul style="list-style-type: none"> <li>– Blackberry/woody weeds – Jan 2015</li> <li>– St John’s wort – Feb 2015</li> <li>– Chilean needle grass – June &amp; Aug/Sept 2015</li> <li>– Serrated tussock – June &amp; Aug/Sept 2015</li> <li>– African love grass – June 2015</li> <li>– Paterson’s curse – Oct 2015</li> <li>– Scotch/Saffron thistle – Nov 2015</li> </ul> </li> <li>• Chilean needle grass and serrated tussock were treated twice during this period due to their abundance and invasiveness.</li> <li>• Chilean needle grass control was limited to areas outside of the riparian corridor where it is the primary habitat for the GSM.</li> <li>• A phased program for removing/treating Blackberry and other woody weeds was started in 2014 to minimise impacts on woodland bird habitat. Plants were sprayed but not removed to leave structure for nesting birds. Some large plants were not treated to provide foliage for nesting</li> </ul>	On-going	\$63,985.96

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
		<p>birds. Further control and removal of plants will continue in 2015-16.</p> <ul style="list-style-type: none"> <li>• Four habitat connectivity plots were planted in May 2015 to increase native habitat for woodland birds as the woody weeds are gradually reduced.</li> </ul>		
Golden sun moth research	<ul style="list-style-type: none"> <li>• Research into golden sun moth life cycle, habitat requirements or translocation</li> </ul>	<ul style="list-style-type: none"> <li>• Golden Sun Moth translocation research was completed in 2013-14 and 2014-15. This was co-ordinated by PCS and funded by the Land Development Agency.</li> <li>• The ACT Government has committed \$100,000 p.a. for research involving matters of national environmental significance (MNES) as part of the Gungahlin Strategic Assessment. This includes additional funding to test GSM translocation methods.</li> <li>• The ACT Government is currently identifying research priorities, which will guide a long-term research program utilising these funds (including those for GSM).</li> <li>• PCS is currently working to identify the research priorities that will assist us to address the management issues and better manage the MNES within the Jarramlee offset area. Potential research includes identifying techniques to manage Chilean needle grass (CNG) and/or increase the cover of native grasses where CNG is present within GSM habitat areas. Further discussion is required with ACT</li> </ul>	2015-16	-

Activity	Description	Comments	Estimated Timeframe for Completion (as described in OMP)	Expenditure (ex. GST) Total expenditure to date (from 2014-15)
		<p>Government ecologists.</p> <ul style="list-style-type: none"> <li>A revised research program will be included in the revised offset management plan.</li> </ul>		
Vertebrate pest control (rabbits)	<ul style="list-style-type: none"> <li>Undertake a low risk control program</li> <li>Spotlight counts in spring and autumn</li> <li>Map active warrens in winter and control rabbits in spring</li> <li>Follow up control may be necessary</li> </ul>	<ul style="list-style-type: none"> <li>Only a few active warrens present. These are primarily in blackberry bushes.</li> <li>The blackberries are currently being controlled to reduced blackberry harbour.</li> </ul>	On-going	-
Monitoring golden sun moth population	<ul style="list-style-type: none"> <li>The golden sun moth population will also be surveyed once in every five year period. Priority will be given to undertaking these surveys in years where emergence of golden sun moth in other sites in the ACT is high.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring was undertaken in Dec 2014.</li> <li>Results attached in Appendix A.</li> </ul>	By the end of the 2014 flight season and then once in every 5 year period thereafter	\$8485.40
Monitor extent and quality of golden sun moth habitat and natural temperate grassland	<ul style="list-style-type: none"> <li>The extent and quality of golden sun moth habitat and natural temperate grassland will be re-mapped in 2015 and then every four years thereafter</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring underway.</li> </ul>	2015 then every 4 years thereafter	Invoice not yet received.
Staff resources	<ul style="list-style-type: none"> <li>Engage 0.5 FTE Senior Ranger position and vehicle are required for the first 3 years and 0.2 FTE each year after.</li> </ul>	A 0.5 FTE Senior Ranger has been engaged to deliver on the actions outlined in the Offset Management Plan.	On-going	\$43,343.00

Final – 02 February 2015

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### Golden Sun Moth Monitoring Report Jarramlee Nature Reserve

Project no. 19031

Dear Ms Lashko,

This letter-form report presents the methodology and results of the 2014 monitoring for the Golden Sun Moth (*Synemon plana*) within Jarramlee Nature Reserve, ACT (the study area). The location of the study area is shown as Figure 1.

The purpose of the monitoring program is to provide information regarding the relative numbers of *S. plana* within the reserve, which has been established as an offset for the development of South Lawson. *S. plana* is listed as 'Critically Endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and 'Endangered' under the Australian Capital Territory (ACT) *Nature Conservation Act 1980* (NC Act). The species is known to occur and has been previously surveyed for within the study area (e.g. Biosis Research 2010) however, extensive detailed surveys have not been undertaken. Habitat mapping for the species was undertaken by Alison Rowell (Rowell 2013) based predominantly upon vegetative characteristics, and was included within the Jarramlee Offset Management Plan (TAMSD 2013). The 2014 monitoring program will help to inform future management of the species within the reserve.

This letter-form report has been prepared on the basis of:

- the survey guidelines provided in the Background Paper to EPBC Act Policy Statement 3.12 - *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)* (DEWHA 2009);
- approximately 26 person-hours of on-ground survey effort; and
- the knowledge of the authors regarding the ecology of the species and its habitat within the wider locality.

#### 1. Methodology

Targeted surveys for the Golden Sun Moth were undertaken in accordance with the survey guidelines provided in the Background Paper to EPBC Act Policy Statement 3.12 - *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)* (DEWHA 2009).

The surveys were undertaken across the entire study area. Although habitat mapping has previously been undertaken, given the shape of the mapped polygons of potential habitat, surveying the entire study area was considered to be more practical and efficient.

As detailed in DEWHA 2009, survey for *S. plana* should involve fixed point counts, transects and/or random meanders, as most suitable to the size and topography of each polygon of potential habitat. A combination of methods should be used if considered likely to increase the chances of detecting the species. Due to the large size of the study area, transects were used to best cover the area. This method is also easily repeatable in subsequent years.

The survey guidelines specify that to best determine presence/absence of the species, four surveys should be undertaken on days when moths are flying at a known population nearby, and with at least four days between surveys if possible. As this survey did not need to determine presence/absence, and due to the short peak flying season of the species in 2014, three detailed surveys were undertaken instead.

For each survey two Biosis ecologists walked separate transects (50 - 100 m apart) across the entire study area. The orientation of transects was varied between surveys to ensure good coverage of the study area. For each transect, the ecologist could see approximately 25 m or more to each side. Each ecologist held a GPS unit and one waypoint was taken for each *S. plana* flight observed along the transect. Due to the large area which was covered, the ecologists focused on recording flying males instead of females and pupal cases, which can be difficult to find, especially in long grass.

Surveys were undertaken at least four days apart on days when moths were known to be flying at other locations in the ACT. This was determined through survey of a nearby reference site or through communication with other ecologists surveying for the species in the ACT region. Dates and details of the surveys are provided under 'results'. The survey effort undertaken (i.e. our GPS track data) is shown on Figure 2.

## 2. Results

A total of 181 *S. plana* flights (likely all males) were recorded during the surveys. The ecologists attempted to take one waypoint for each animal, however as individuals frequently fly in and out of the transect, some animals may have been recorded more than once. The distribution of records is highly patchy, with no records made across much of the study area. The locations of all records from the surveys are shown on Figure 5. The survey conditions and total number of records from each survey day are shown in Table 1.

**Table 1. *S. plana* survey conditions and results (Max. temperature and wind speed data obtained from Bureau of Meteorology website)**

	Survey 1	Survey 2	Survey 3
Date	20/11/2014	28/11/2014	09/12/2014
Time Period	11am - 2:30 pm	10:30 am - 3:30 pm	11 am - 3:30 pm
No. Flights	84	83	14
Temperature	Max 31.4	Max 27.5	Max 29.4
Cloud Cover	Clear	Clear	Partly cloudy
Wind Speed (9 am – 3 pm)	Light: 0-26 km/h	Light: 11 – 13 km/h	Light: 9 – 15 km/h
Ground Conditions	Dry	Dry	Dry

### 3. Discussion

#### Survey Methods

This project was successful in providing data regarding the relative density of *S. plana* across the study area. The methodology selected (i.e. the use of transects to ensure coverage across the entire study area) provides a good indication of the relative densities of the species across the habitat within the study area. Due to the hilly topography of the study area, most of the transects are crooked or curved. This is considered unlikely to be an issue for the reliability of the data or the repeatability of the survey methodology.

Despite the apparently suitable conditions on the day of the third survey, only 14 flights were observed. This result, generally consistent with the results from other ecologists in the ACT, indicated that the peak season for the species was likely to be over. The high number of records from surveys 1 and 2 were considered to provide sufficient data regarding the relative density of the species across the study area. As an additional survey was considered unlikely to provide valuable data, a fourth survey was not undertaken.

#### Density

From the results, it can be seen that the density of recorded *S. plana* varies considerably across the study area. Areas of higher numbers of records are considered highly likely to correspond to areas of higher population density and reproductive output. Figure 5 presents a density figure, which illustrates the relative density of the species across the site. To develop this figure, a buffer of 40 m has been used around each point. Where buffers overlap, the number of points has been added together and the resulting values are displayed through a colour-code scale.

Density hotspots were observed to correspond predominantly with areas of low-lying land (i.e. banks and floodplains of Ginninderra Creek) where Chilean Needle Grass (*Nassella neesiana*) is the dominant species. Although Chilean Needle Grass is a noxious weed, it is also a favoured food source for *S. plana* larvae. Some moths were also recorded in higher quality native pasture dominated by wallaby grasses (*Rytidosperma* spp.), the roots of which are the primary native food source for the moth larvae, however these numbers were low. We noted during the survey that much of the high quality native-dominated pasture was predominantly Kangaroo Grass (*Themeda australis*) with lower density of suitable wallaby

grass species. This may partially explain why so few *S. plana* were recorded from native-dominated parts of the study area.

With regard to distribution of records across the study area, our results generally provide support for the habitat mapping undertaken by Rowell (2013) for the study area. Also, from our observations of the vegetative characteristics of the study area, we largely agree with the extent of habitat mapped. However, the classification of polygons of habitat into 'high', 'moderate' and 'low' quality categories should be revisited based upon the results of these surveys. In particular, the classification of the area of Natural Temperate Grassland as 'high' quality habitat for *S. plana* and the Chilean Needle Grass-dominated areas into the 'moderate' category should be reconsidered in light of the very high numbers recorded in the Chilean Needle Grass.

The data from this study indicate that the population within the study area is of a considerable size, and is likely to be a significant population in the context of the occurrence of the species in the ACT region. As the occurrence of the species within the study area or the persistence of the species into the future may be reliant upon the presence of a highly invasive exotic grass, this presents a conflict regarding the objectives of the weed management regime to be employed within the study area.

I trust this letter will meet your requirements. If, however, you should have any questions relating to this project, please do not hesitate to contact me to discuss.

Yours sincerely,



**Samantha Vertucci**

Ecologist

## References

- ACT Government (TAMSD) (2013) *Jarramlee Offset Management Plan*, Territory and Municipal Services
- Commonwealth Government (DEWHA) (2009) *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)*, Department of Environment, Water, Heritage and the Arts
- Biosis Research (2010) *Monitoring Study for Golden Sun Moth Synemon plana: Macgregor West, Macgregor and Dunlop*, Unpublished report for Village Building Co.
- Rowell, A. (2013) *Surveys of Natural Temperate Grassland and Golden Sun Moth at Lawson South Offset area, Jarramlee/West Macgregor*. INDESCO, Canberra

## Figures

Figure 1. Location of the Study Area

Figure 2. Survey Effort

Figure 3. Results

Figure 4. Density Analysis

Figure 1. Location of the Study Area

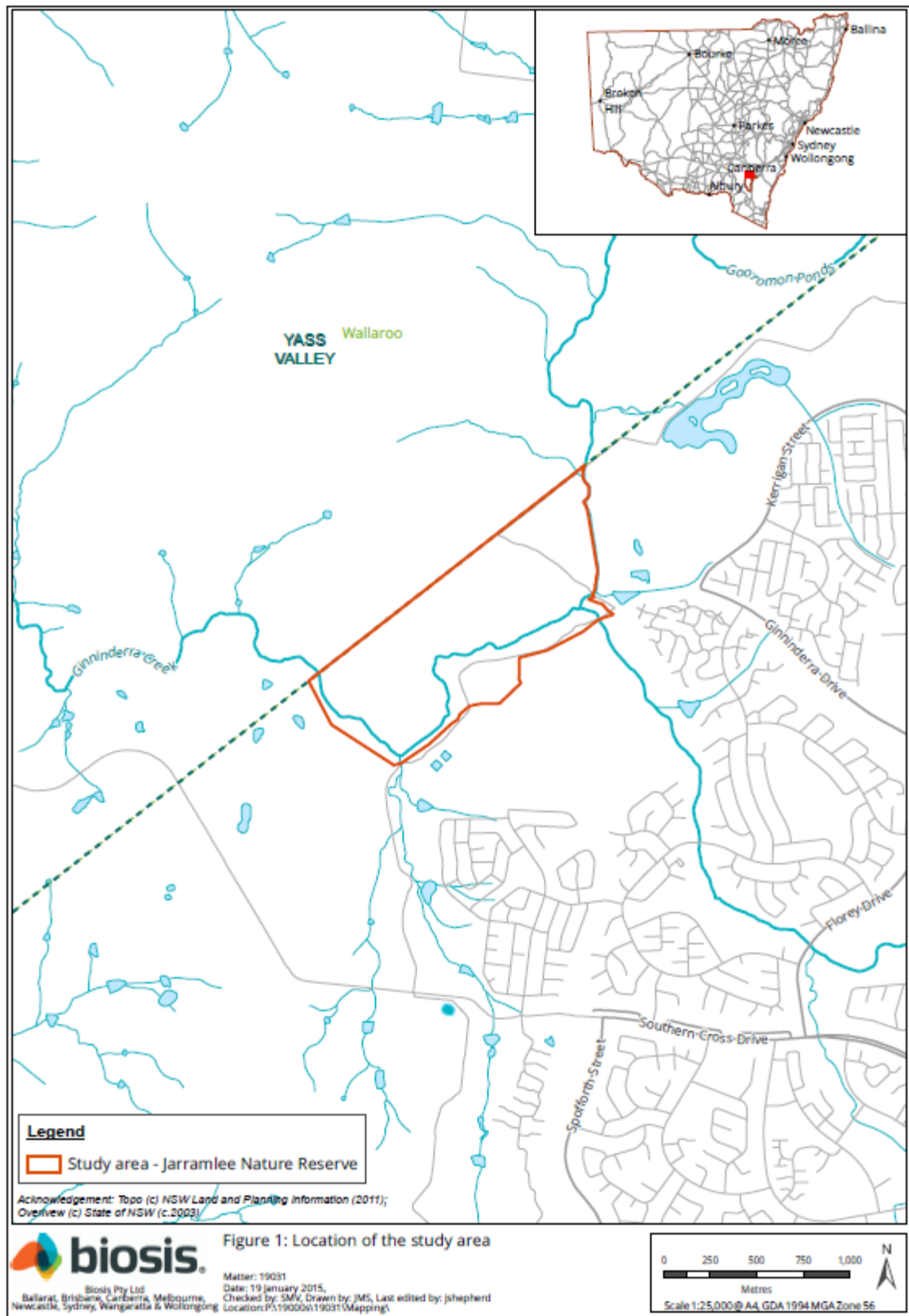


Figure 2.

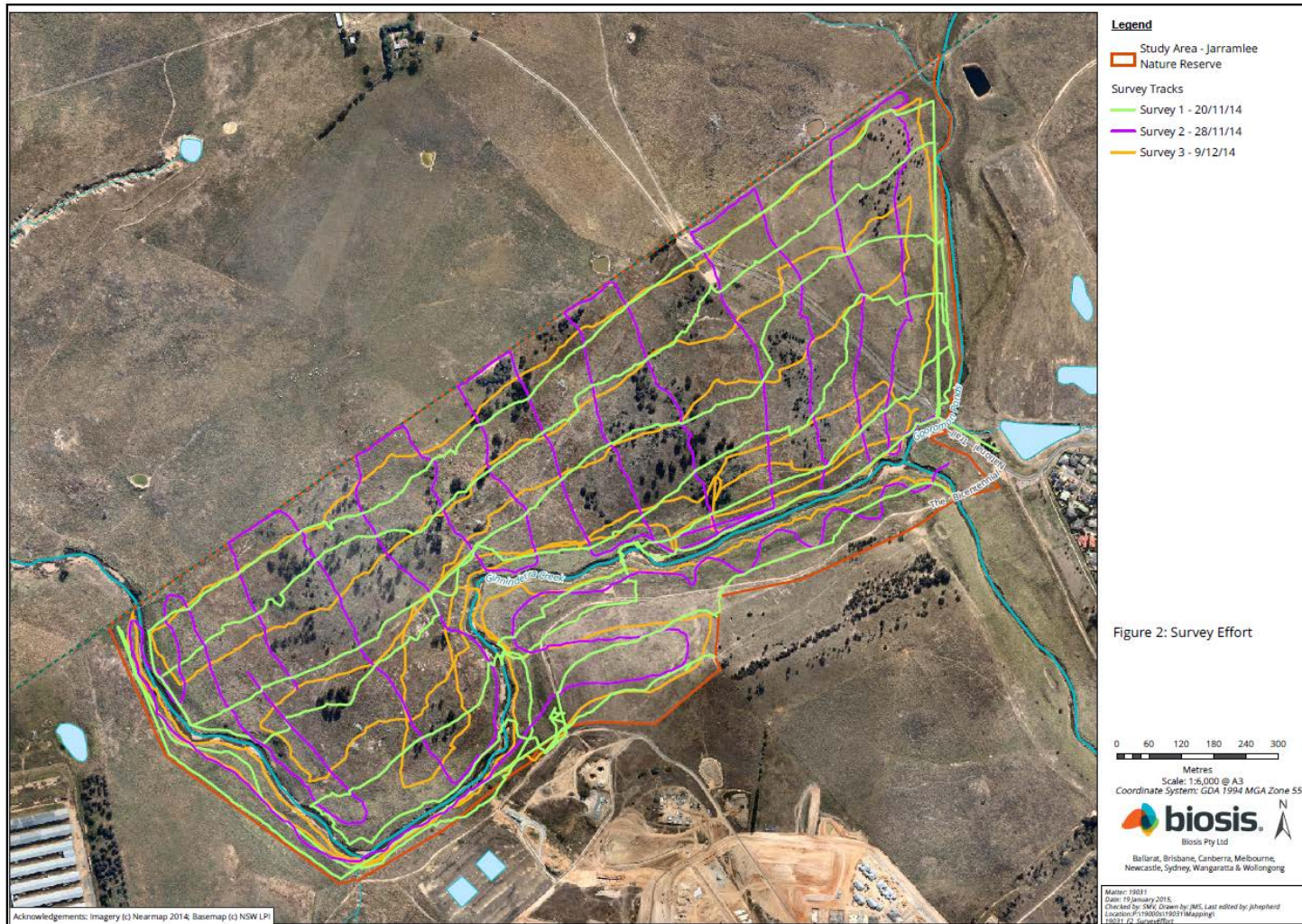


Figure 3.

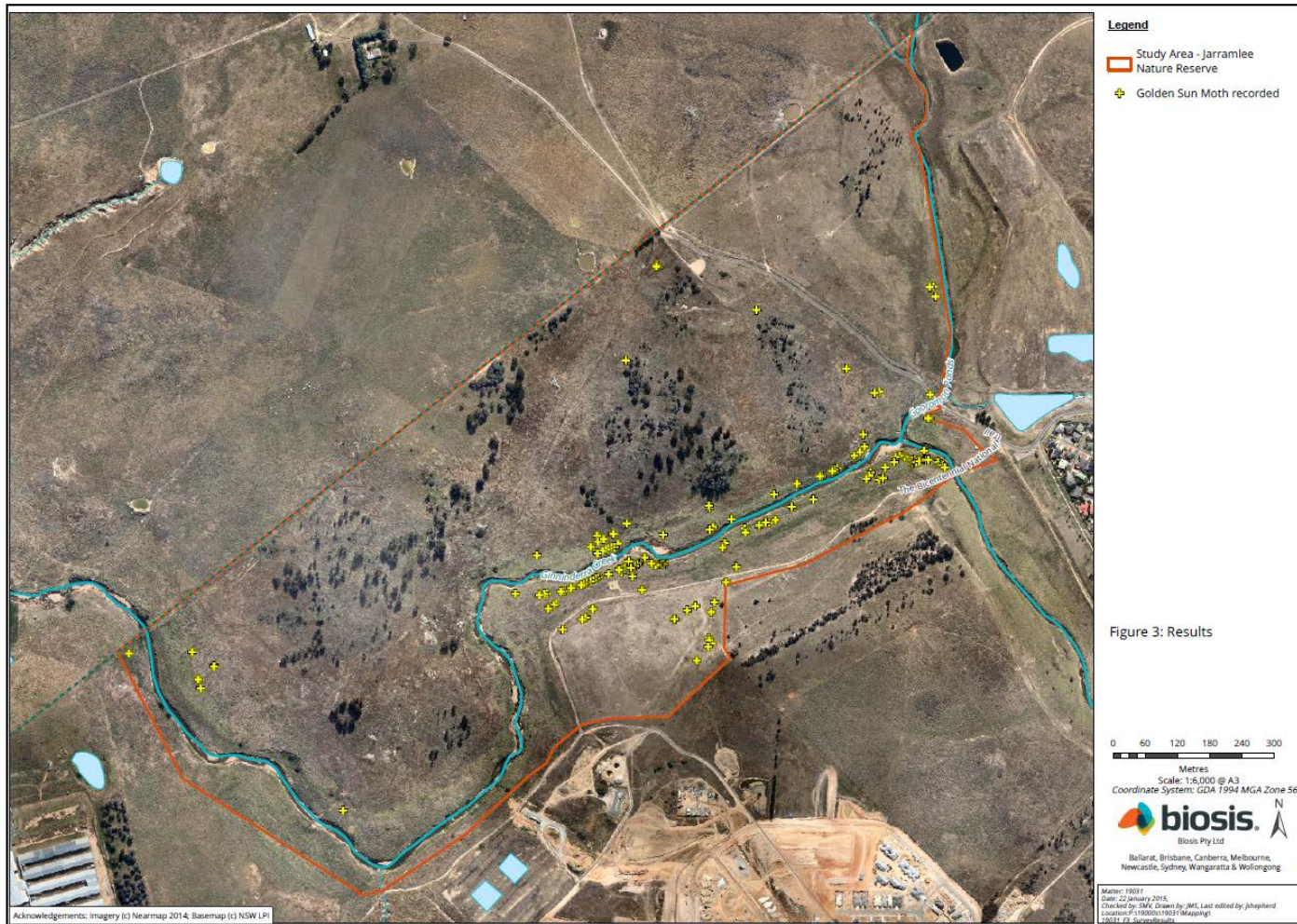


Figure 4.

