

# **Murrumbidgee to Googong Water Transfer:**

## **Landscape Rehabilitation & Terrestrial Ecology Management Plan**

Version 2

January 2014

## Certificate of approval for issue of documents

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### Document revision control

Version	Author	Date	Description	Approval
1	Craig Hardge	26/8/13	Consolidation of M2G Construction LRMP, TEMP & SWMP	
2	May McDonald-Cox	20/9/13	Revision	
3	Craig Hardge	11/10/13	Incorporate comments from Version 2	

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## Acronyms

ACT	Australian Capital Territory
ACTEW	ACTEW Water, ACTEW Corporation
ANBG	Australian National Botanical Gardens
AEMP	Aquatic Ecology Monitoring Plan
BWA	Bulk Water Alliance
CIP	Community Information Plan
CWLTH	Commonwealth
DECC(W)	NSW Department of Environment, Climate Change (and Water) – now NSW Office of Environment & Heritage and NSW Office of Water
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
ERG	Environmental Reference Group
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999 (Commonwealth)
KPI	Key Performance Indicator
LRMP	Landscape Rehabilitation Management Plan
LRTEMP	Landscape Rehabilitation & Terrestrial Ecology Management Plan
M2G	Murrumbidgee to Googong Water Transfer
NC (ACT)	Nature Conservation Act 1980
NSW	New South Wales
OEMP	Operation Environment Management Plan
PIP	Property Interaction Plan
PTWL	Pink-Tailed Worm Lizard
SFWQMP	Stream Flow & Water Quality Management Plan
SWMP	Soil and Water Management Plan
TEMP	Terrestrial Ecology Management Plan
TSC (NSW)	Threatened Species Conservation Act 1995

## Register of significant changes/additions to previous version(s) or previous relevant document(s)

**Previous relevant documents:** Terrestrial Ecology Management Plan (construction phase);  
Landscape Rehabilitation Management Plan (construction phase)

Subject	Description of change/addition	Reference
<b>General changes</b>	Items have been omitted or modified to reflect ACTEW responsibilities including; References to BWA Construction Documentation, Site personnel, Training & Reporting procedures Any other BWA referenced items regarding Soil & Water Management, Terrestrial Flora & Fauna management & Landscape Rehabilitation	All sections of this LRTEMP
<b>General changes</b>	The tense of the wording throughout the document has been changed to reflect operational, rather than construction phase of the project as outlined in the relevant plans	All sections of this LRTEMP
<b>Items not applicable to Terrestrial Ecology and Landscape Rehabilitation</b>	References to Aquatic Ecology, Aquatic Ecological Monitoring, Flow Rules & Geomorphological monitoring have been omitted from the this plan which focuses on operational phase management of Landscape Rehabilitation & awareness of Terrestrial Ecology (flora, fauna & ecological communities)	OEMP AEMP SFWQMP
<b>Commitments and Legislation</b>	Commitments and applicable legislation which reflect operational (post-construction) phase have been included in this document. Construction phase commitments & legislation (approvals) have not been referenced within this document where they are not applicable to the OEMP or this plan. Tables 1.1-1.3, and sections 2.1-2.4 of the M2G LRMP Tables 2.1-2.3 of the M2G TEMP Tables 1.1-1.4, and Tables 2.1-2.3 of the M2G SWMP	LRTEMP Section 2 (2.1-2.3) Appendix 1.
<b>Key risks to rehabilitation</b>	A section on the risk to rehabilitation from feral animals has been added to Table 3.3, derived from the LRMP. This table has also been generally modified to suit	LRTEMP Section 3.5, Table 3.3

Subject	Description of change/addition	Reference
	operational phase	
<b>Training, communication &amp; review</b>	Specific references in this document have been removed, with a general referral to the OEMP & CIP	OEMP CIP

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# 1. Introduction

## 1.1 Background

The Murrumbidgee to Googong (M2G) Water Transfer is one of the projects implemented by ACTEW Water for delivering improved security to the water supply for the ACT and region. It involves pumping water from the Murrumbidgee River (within the ACT) and transferring it via a 12km pipeline to Burra Creek (in NSW), from where it flows for approximately 13km to the Googong Reservoir.

Key infrastructure features of the project are described in more detail in the Operation Environmental Management Plan.

This Landscape Rehabilitation and Terrestrial Ecology Management Plan (LRTEMP) has been designed to guide operational management of landscape rehabilitation and terrestrial ecology along the pipeline easement, and to address risks related to ongoing landscape rehabilitation and management of terrestrial ecology.

ACTEW Water will ensure that rehabilitation and terrestrial ecology is adequately monitored and audited to assess effectiveness. Changes to the stipulated controls will be instigated if they are not achieving their objectives.

## 1.2 Purpose of the LRTEMP

The purposes of the LRTEMP are:

- to describe the post-construction rehabilitation management, objectives and activities necessary to successfully rehabilitate areas impacted by construction activities.
- to make operational personnel aware of potential impacts to native terrestrial flora and fauna as a consequence of operating the M2G.

This LRTEMP specifically addresses the methods, techniques and timing for rehabilitating and terrestrial flora and fauna management during the operational phase. It incorporates the recommendations contained within the EIS for landscape rehabilitation activities and management of terrestrial ecology.

## 1.3 Objectives of the LRTEMP

The objectives of the Landscape Rehabilitation & Terrestrial Ecology Management Plan are;

- delivery of post-construction landscape rehabilitation methods and techniques in rehabilitating the M2G pipeline corridor and associated construction areas;
- address commitments raised in the Murrumbidgee to Googong Water Transfer Environmental Impact Statement (EIS) relating to landscape rehabilitation and management of terrestrial ecology;
- comply with ACT, NSW and Commonwealth legislative requirements relating to landscape rehabilitation and management of terrestrial ecology, and for conservation and reinstatement of native vegetation communities;



- ensure existing landscape and ecological assets are protected wherever possible and the impact of operational activities on areas of native vegetation, particularly endangered ecological communities and threatened species are minimised;
- prevent the operational spread of noxious weeds and the dispersal of exotic plant and animal species;
- ensure erosion control measures are effective and maintained in erosion prone areas.

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## 2. Legislative & Regulatory Compliance

### 2.1 Relevant Legislation

Key legislation relating to landscape rehabilitation and terrestrial ecology management is detailed below in Table 2.1. Other legislation associated with the M2G project is outlined in the OEMP.

Table 2.1 M2G legislation: landscape rehabilitation and terrestrial ecology

Jurisdiction	Relevant Act
<b>Commonwealth</b>	Environmental Protection & Biodiversity Conservation Act 1999
	Water Act 2007
<b>Territory (ACT)</b>	Environmental Protection Act 1997
	Water Resources Act 2007
	Nature Conservation Act 1980
	Fisheries Act 2000
	Pest Plant & Animals Act 2005
<b>New South Wales (NSW)</b>	Environmental Planning & Assessment Act 1979 & Amendment 2008
	Protection of the Environment Operations Act (POEO Act) 1997
	Fisheries Act 1935
	Fisheries Management Act (1994) and Amendment 2009
	Water Management Act (2000)
	Noxious Weeds Act 1993
	Catchment Management Authorities Act 2003
	Native Vegetation Act 2003

### 2.2 Conditions of Approval

The conditions of approval relevant to operational phase Landscape Rehabilitation and Terrestrial Ecology are outlined in Appendix 1.

## 2.3 Licences and Permits

A licence to collect native seed will be required by the appointed revegetation contractor should collection of native seed occur on State or Territory land. This licence will be sought prior to undertaking any seed collection activities. Any fauna which is to be removed or relocated due to operational issues will be according to relevant state or territory guidelines, and by suitably qualified and licensed personnel.

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## 3. Landscape Rehabilitation

### 3.1 Inspection and Auditing

Monitoring, auditing and review of the LRTEMP and its implementation and rehabilitation outcomes will be carried out in accordance with this plan and according to the commitments relevant to Landscape Rehabilitation outlined in Appendix 1.

The schedule and methodology of monitoring under this plan is outlined in Section 3.3.

### 3.2 Landscape Rehabilitation Key Performance Indicators (KPI's)

Key performance indicators have been established for the M2G project to determine the success of rehabilitation as part of the monitoring process.

These targets are based on vegetation composition against broadly grouped vegetation community types found along the pipeline route.

Once these targets have been achieved at each property, the corresponding landholder will be notified and arrangements made to have fencing removed if required and the area handed over and signed off as to be managed by the landholder / leaseholder under the conditions of the Property Interaction Plans (PIPs) that are in place between ACTEW Water and the individual landholders.

These targets are outlined below in Table 3.1.

Table 3.1 M2G landscape rehabilitation KPIs

Vegetation community	Key Performance Targets
<b>Non-native vegetation</b>	<p><b>Ground cover</b> - &gt; 70% vegetation cover of the species sown</p> <p><b>Weeds</b> – better than or equal to the current presence of declared weeds and &lt; 20% cover of exotic species not sown.</p>
<b>Native vegetation</b>	<p><b>Ground cover</b> - &gt; 70% vegetation cover of the native species sown.</p> <p><b>Weeds</b> – better than or equal to the current presence of declared weeds and &lt; 20% cover of exotic species not sown.</p>
<b>High conservation value woodland</b>	<p><b>Ground cover</b> - &gt; 70% vegetation cover of the native species sown and survival of native ground and tree species.</p> <p><b>Weeds</b> – better than or equal to the current presence of declared weeds and &lt; 20% cover of exotic species not sown.</p> <p><b>Native species</b> (planting success) – all species listed for seeding and planting are present.</p>

### 3.3 Monitoring of Landscape Rehabilitation Performance

Monitoring will apply to all areas of landscape reinstatement such as vegetation cover (native vegetation and exotic/cover crop), stability of riparian / waterway areas and success of landscape planting elements.

In addition to the routine monitoring schedule outlined below in Section 3.4 and Table 3.2, environmental condition assessments of the pipeline will be undertaken by ACTEW Water personnel to identify additional issues which may include erosion, fencing or other impacts that could affect the pipeline easement and the ongoing rehabilitation and maintenance requirements.

### 3.4 Landscape Rehabilitation Monitoring Schedule and Methodology

Plots along the pipeline are to be monitored twice per year for the first five years, nominally in Spring and Autumn. Once plots are considered to be satisfactorily rehabilitated, the number of plots assessed as part of the rehabilitation monitoring may be reduced.

The performance of the M2G LRTEMP will be monitored through the use of plots (quadrats and transects) and photo reference points and will be undertaken by an independent and suitably qualified landscape ecologist according to the schedule below.

The plots will be a combination of 20m x 20m quadrat and two 50m transects.

The location of the fixed plots (quadrats and transects) will remain consistent throughout the 5 years of the monitoring program and once the plots identified have met the key performance targets as stipulated in Section 3.2 of this plan, then rehabilitation is deemed to be complete.

Results of monitoring will be reported to ACTEW at the required frequency, and made available to the Environmental Reference Group (ERG), the general public through the ACTEW Water website and to the respective NSW or ACT government agencies.

The schedule of monitoring frequency and the requirements of each phase are outlined below.

Table 3.2 M2G monitoring schedule for first 5 years after construction completion

Period	Monitoring Requirements	Frequency	Phase
<b>1<sup>st</sup> Year post-construction</b>	Intense monitoring undertaken twice during the first year.	Twice	Defect liability period
<b>2<sup>nd</sup> Year</b>	Repeat of first year monitoring at all identified quadrats	Twice	Operational
<b>3<sup>rd</sup> Year</b>	Repeat of previous monitoring at all identified quadrats	Twice	Operational
<b>4<sup>th</sup> Year</b>	Repeat of previous monitoring at all identified quadrats	Twice	Operational
<b>5<sup>th</sup> Year</b>	Repeat of previous monitoring at all identified quadrats	Twice	Operational

### 3.5 Key Risks to Post-construction Rehabilitation

Given the nature of the rehabilitation activities being undertaken along the M2G pipeline route, there are several key risks that may potentially impact on the success of rehabilitation works.

These may arise as a result of the prevailing climatic conditions, stakeholder feedback, impacts of weeds or damage by native or feral animals.

The key risks, and some potential mitigation measures are outlined below in Table 3.3.

Table 3.3 Key post-construction rehabilitation risks

Rehabilitation Aspect	Risk Level	Potential Mitigation measures	Residual Risk Level
<b>Poor germination of native and/or exotic species</b>	High	<ul style="list-style-type: none"> <li>• Maintenance of plantings such as watering during extended dry periods</li> <li>• Assess seeding methodology (incl. treatment of seed) and re-sow with same or alternative method depending on the assessment</li> <li>• Adaptively manage species type &amp; distribution</li> <li>• Avoid sowing during Summer months when rainfall is infrequent</li> <li>• Respond according to the prevailing climatic conditions (wet/dry etc.)</li> </ul>	Medium
<b>Infestation of weeds along the pipeline route</b>	High	<ul style="list-style-type: none"> <li>• Take appropriate action in accordance with the Weed Management Strategy</li> <li>• Training &amp; procedures/work instructions on presence of weed species, wash down procedures, &amp; notification</li> </ul>	Medium
<b>Damage from animals such as wombats, pigs, goats and rabbits</b>	High	<ul style="list-style-type: none"> <li>• Use deterrents such as tree guards, fencing or commercial chemical/biological products</li> <li>• Consider control methods or removal if required</li> </ul>	Medium
<b>Landholder feedback with respect to landscape rehabilitation</b>	Medium	<ul style="list-style-type: none"> <li>• Landholder engagement throughout the rehabilitation process</li> <li>• Outline expectations in PIP's</li> <li>• Within reason, landholder requests are to be considered and acted upon</li> </ul>	Low

### 3.6 Adaptive Management

The rehabilitation of the pipeline provides challenges due to;

- prevailing climatic conditions, or impacts such as bushfires
- the slow nature of germination and rehabilitation of native species,
- the shallow depth of the topsoil and low organic matter,
- the high number of weeds along the pipeline route,
- the compaction of soil,
- impact of native and feral animals on revegetation

Due to these challenges, the rehabilitation will be adaptively managed with the approval of the appropriate regulators. Actions will be driven by the results of monitoring and in consultation as necessary with ecologists, landholders and other relevant stakeholders, such as the ERG.

As part of this process, revision of the KPI's may be required with modifications made to the rehabilitation schedule and species list as considered appropriate.

## 4. Terrestrial Ecology

### 4.1 Overview

There are numerous flora and fauna species, and five main vegetation communities located along the pipeline route as surveyed during the pre-construction assessments by Biosis in 2009.

Information regarding obligations to avoid impacting terrestrial fauna and flora during operation and maintenance will form part of the toolbox talks and training delivered to operational personnel.

### 4.2 Vegetation Communities along the M2G pipeline route

The following vegetation communities are as identified for the M2G EIS pre-construction surveys;

The vegetation communities found along the pipeline route include;

- Natural Temperate Grassland;
- Box Gum Grassy Woodland;
- Dry Sclerophyll Woodland – other native vegetation;
- Snow Gum Grassy Woodland; and
- Non-native vegetation (mainly exotic pastures)

Table 4.1 Area of vegetation communities along the M2G pipeline route

Vegetation Type	Area
<b>Box Gum Grassy Woodland</b>	11.1 ha
<b>Natural Temperate Grassland</b>	1.7 ha
<b>Snow Gum Grassy Woodland</b>	0.3 ha
<b>Other Native Vegetation</b> (Native pastures, Kunzea/Acacia shrubland and <i>E.bridgesiana</i> , <i>E. dives</i> & <i>E. mannifera</i> woodland)	3.6 ha
<b>Non-native vegetation</b>	23.8 ha
<b>Total Native Vegetation (Habitat Areas)</b>	16.7 ha
<b>Total Area</b>	40.5 ha

The extent of each community provides the basis for the type and extent of rehabilitation to be undertaken post-construction and the total extent of the biodiversity offset package.

The mapped extent of each community along the pipeline route is shown in Figure 1.



The biodiversity offset package is dealt with separately and is detailed in the M2G Biodiversity Offsets Delivery Plan and associated Sub-plans.

#### 4.2.1 Natural Temperate Grassland

Small patches of Natural Temperate Grassland occur on the lower slopes in the ACT section.

Minor components may also occur south of Williamsdale Road though it is possible that these areas were once treed and formed part of a woodland/grassland mosaic.

#### 4.2.2 Native Woodland

Native Woodland broadly includes native vegetation communities meeting certain criteria and in the locality of the M2G project.

Box Gum Grassy Woodland is protected under separate legislation for each jurisdiction as outlined in Table 4.2 below.

Table 4.2 Protection status of Native Woodland along the M2G pipeline

Act	Classification	Criteria
<b>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</b>	White Box – Yellow Box - Red Gum Grassy Woodland and Derived Native Grassland: A Critically Endangered Ecological Community	Is or did have an overstorey of requisite tree species Has a predominantly native understorey Patch greater than 0.1ha Contains twelve or more native understorey species (excluding grasses)
<b>NSW Threatened Species Conservation Act 1995</b>	White Box – Yellow Box – Blakely's Red Gum Grassy Woodland EEC	Modified sites composed of one main tree species (e.g. <i>Eucalyptus melliodora</i> ) in various forms, or even treeless, with ground layers that are predominantly composed of exotic species with remnant grassy ground layers and some forbs may be sufficient.
<b>ACT Nature Conservation Act 1980</b>	Yellow Box/Red Gum Grassy Woodland EEC	According to the ACT Action Plan No. 27 (ACT Government 2004b) the Box Gum Grassy Woodland community may be partially or moderately modified and still meet the definition, whereas substantially or severely modified woodland would not.

#### 4.2.3 Non-native Vegetation

Non-native vegetation is a broad vegetation category and includes the following vegetation communities as identified and mapped;

- Non-native – consists of planted pasture grasses
- Non-native trees – introduced and invasive trees including poplars, pines and willows
- Non-native vegetation – exotic/weed dominated, consists of introduced weeds and other exotic shrub and ground cover vegetation

The vegetation within these areas is of little conservation significance and no requirements are in place to protect or maintain these vegetation types. The exotic/weed dominated sites have some value to existing land users as pasture crops for livestock, although in general they are of little merit in terms of native species habitat value.

### 4.3 Common Fauna

#### 4.3.1 Native fauna species

There are a number of important native fauna species which occur in the locality of the pipeline including;

- Short-beaked Echidna *Tachyglossus aculeatus*,
- Common Brush-tail Possum *Trichosurus vulpecula*,
- Sugar Glider *Petaurus breviceps*,
- *Antechinus* sp.,
- Common Dunnart *Sminthopsis murina*,
- microbats (such as the Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Gould's Wattled Bat *Chalinolobus gouldii* and White-striped Freetail Bat *Tadarida australis*),
- Common Wombat *Vombatus ursinus*,
- Eastern Grey Kangaroo *Macropus giganteus* and
- Wallaroo *M. robustus*.

#### 4.3.2 Non-native (Feral) species

Several introduced vertebrate pest species can be found in the locality of the pipeline and include:

- *Rattus* sp.,
- Feral Pig *Sus scrofa*
- Feral Goat *Capra hircus*
- European Fox *Vulpes vulpes*
- European Rabbit/ Hare *Oryctolagus cuniculus/ Lepus europaeus*

## 5. Significant Flora and Fauna

### 5.1 Overview

There are several species of threatened or endangered flora and fauna species located along the pipeline route as surveyed during the pre-construction assessments by Biosis in 2009.

The mapped location of these findings is found in Figures 2 & 3.

Specific activities have been undertaken to protect populations of the endangered plant species *Swainsona recta* (Small purple-pea), including micro-realignment of the pipeline route and a translocation and propagation program. Details of these activities are found in Section 5.3.

To avoid impacting fauna and flora of significance, the location and type of important species, and additional precautions which will be necessary to mitigate potential impacts during operation and maintenance will form part of the toolbox talks and training delivered to relevant personnel.

### 5.2 Significant Terrestrial Flora

Four plant species listed under the EPBC Act 1999, the NSW Threatened Species Act 1995 or the ACT Nature Conservation Act 1980 are known to occur locally. These species and their known occurrences are described in the table below.

Table 5.1 Significant terrestrial flora along the M2G pipeline

Species	CW EPBC Act	NSW TSC Act	ACT NC Act	Known Occurrences
<b><i>Leucochrysum albicans</i> var. <i>tricolor</i></b> Hoary Sunray	Endangered			Common on roadside reserves and lightly grazed paddocks. Previously recorded in the locality.
<b><i>Swainsona recta</i></b> Small Purple-pea	Endangered	Endangered	Endangered	Known within the Goulburn-Cooma Railway corridor between Royalla and Williamsdale. Also at Mt Taylor in the ACT. Recorded at Burra Creek.
<b><i>Swainsona sericea</i></b> Silky Swainson's Pea		Vulnerable		Previously recorded in locality. Widely recorded west of Gibraltar Hill and Burra Creek.
<b><i>Discaria pubescens</i></b> Hairy Anchor Plant		Vulnerable		Recorded east of Angle Crossing and Burra Creek.

### 5.3 *Swainsona recta* (Small purple-pea)

Specific and additional management actions undertaken to protect *Swainsona recta* include the following;

- recorded specimens along the pipeline fenced off with signage
- the pipeline was micro aligned to avoid impacting this species
- propagation and translocation of specimens to outside of the construction area through ACTEW partnerships with the Australian National Botanic Gardens (ANBG) and relevant stakeholders
- approximately 100 plants translocated into three plots on the Southern Biodiversity Offset site as of September 2013
- ongoing monitoring and research of translocation success, with potential scope for further plantings and plots

### 5.4 Significant Terrestrial Fauna

Significant fauna species potentially found in the area of the M2G are outlined in Table 5.2 below.

Table 5.2 Significant terrestrial fauna along the M2G pipeline

Species	CWLTH EPBC Act	NSW TSC Act	ACT NC Act
<b><i>Aprasia parapulchella</i></b> Pink Tailed Worm Lizard (PTWL)	Y	Y	Y
<b><i>Callocephalon fimbriatum</i></b> Gang Gang Cockatoo		Y	
<b><i>Chtohonichloa sagittata</i></b> Speckled Warbler		Y	
<b><i>Stagonopleura guttata</i></b> Diamond Firetail		Y	
<b><i>Lalage sueurii</i></b> White-winged Triller			Y
<b><i>Daphoenositta chrysoptera</i></b> Varied Sitella		Y	Y
<b><i>Myotis macropus</i></b> Large Footed Myotis		Y	
<b><i>Miniopterus schreibersii oceanensis</i></b>		Y	

Species	CWLTH EPBC Act	NSW TSC Act	ACT NC Act
Eastern bent-wing Bat			

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## 6. Weed Management

### 6.1 Weed Management Objectives

Weed management along the pipeline is necessary to address the requirements of regulatory agencies and to meet the requirements and expectations of key landholder and stakeholders affected by the M2G development.

The objectives of operational phase weed management is to;

- minimise threats to endangered ecological communities along the pipeline
- ensure operational activities do not contribute new weed species to the area
- ensure weed control agreed as part of Property Interaction Plans is carried out as required
- comply with NSW, ACT and Commonwealth legislative requirements for conservation and reinstatement of native vegetation communities and management of noxious weeds
- protect public and private lands disturbed by construction and rehabilitation activities from weed invasion

Ten different weeds, declared in the ACT or Palerang LGA in NSW were found along the pipeline route with only 3 of the 17 properties totally free of declared weeds.

The declared weeds are listed in Table 6.1 below.

Table 6.1 Declared weeds along the M2G pipeline and locality

Common Name	Scientific Name	ACT Declaration	Palerang LGA (NSW)
African Love Grass	<i>Eragrostis curvula</i>	Must be contained	Class 4
Blackberry	<i>Rubus fruticosus</i>	Must be contained/prohibited	Class 4
Sweet Briar, Briar Rose	<i>Rosa rubiginosa</i>	Must be suppressed/prohibited	n.a.
Chilean Needle Grass	<i>Nassella neesiana</i>	Must be contained	Class 4
Horehound	<i>Murrubium vulgare</i>	n.a.	Class 4
Nodding Thistle	<i>Carduus nutans</i>	Must be suppressed	Class 4
Paterson's Curse	<i>Echium plantagineum</i>	Must be contained	Class 4
Saffron Thistle	<i>Carthamus lanatus</i>	Must be contained	n.a
Scotch & Illyrian Thistles	<i>Onopordum acanthium &amp; illyricum</i>	Must be contained	Class 4
Serrated Tussock	<i>Nassella trichotoma</i>	Must be contained/prohibited	Class 4
St John's Wort	<i>Hypericum perforatum</i>	Must be contained	Class 3

## 7. Training, Community Engagement & Review

### 7.1 Training and auditing

Training and auditing requirements are covered in the relevant section of the OEMP.

### 7.2 Community Engagement and Stakeholder Management

Community engagement and stakeholder management protocols are outlined in the OEMP, Community Interaction Plan, customer Service procedures and plans relevant to the project.

Property Interaction Plans (PIPs) are available for each individual landholder and outline the processes and requirements for ongoing management of each particular property along the pipeline easement.

Management of the above is to be handled in the first instance through ACTEW Water's Customer Service area and actioned as appropriate by other relevant personnel.

### 7.3 Review and Updating of the LRTEMP

Review and improvement of this plan will be undertaken as described in the OEMP.

## Appendix 1

### M2G Environmental Commitments and Conditions of Approval (Relevant to this Plan)

#### M2G EIS Commitments

Commitment No.	Commitment / Condition	Reference
40	The pipeline route will be periodically inspected to ensure rehabilitation and stabilisation works have been effective in the longer term.	Section 3.5 of LRTEMP
44	Landscaping, vegetation rehabilitation, replacement planting and encouragement of natural regeneration will be undertaken in accordance with the rehabilitation plan.	LRMP

#### M2G DA Conditions of Approval (ACT)

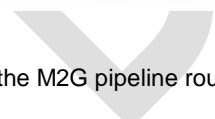
Condition No.	Commitment / Condition	Reference
B7 (b)	<ul style="list-style-type: none"> <li><i>Flora and Fauna Management sub-plan</i></li> </ul> <p>A Flora and Fauna management sub-plan that details the mitigation and management of impacts on flora and fauna including weed control during construction and operation phase be endorsed by PCL, TAMS</p>	

#### M2G NSW Department of Planning Conditions of Approval

Condition No.	Commitment / Condition	Reference
6.3 b) iii	Rehabilitation details and a program for reporting on the effectiveness of flora and fauna management measures, including a schedule for planting and seeding within areas supporting endangered ecological communities. Management methods shall be reviewed where found to be ineffective	LRTEMP



Condition No.	Commitment / Condition	Reference
2.10	After construction is complete and for a period of two years after that time (or as otherwise required by the Director General) the proponent shall monitor areas along the project alignment for weed infestation. Any infestations shall be managed to remove or minimise their spread.	LRTEMP Section 6
3.3	<p>Prior to the commencement of construction the Proponent shall prepare and implement an <b>Ecological Monitoring Program</b> to monitor the impact of the project on the ecology that may be impacted by the proposal. The Program shall be developed in consultation with the DECCW and Department of Industry and Investment NSW and shall include but not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>a) set out monitoring requirements as detailed in the documents referred to in Condition 1.1 c), in order to assess the impact of the project on Ecology present along the easement and at Burra Creek at the pipeline outlet location and downstream including the Googong Reservoir.</li> <li>b) provisions for monitoring trench areas for any fauna impacts likely to result from this work. Any fauna found in the open trench shall be recorded and managed in consultation with DECCW;</li> <li>d) provisions for monitoring during construction, operational and non-operational phases;</li> <li>e) mechanisms for immediately investigating any anomalous monitoring results;</li> <li>g) details of how the monitoring results will be reported to the Director-General and the DECCW and the Department Industry and Investment NSW.</li> </ul>	



Date this document takes effect: 28 Jan 14  
 Authorised by: Manager Environment & Sustainability

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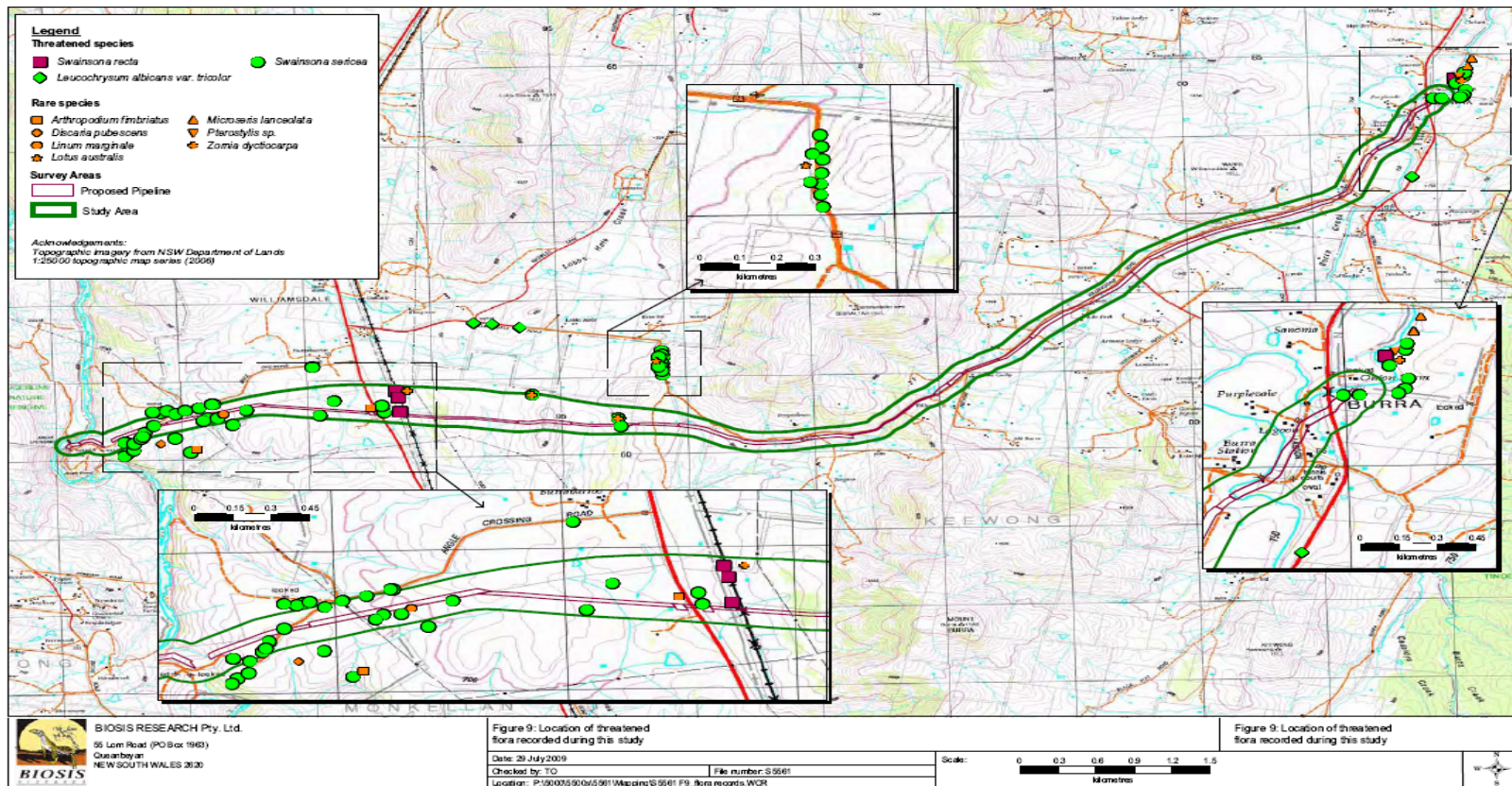


Figure 2. Rare & Threatened flora species found along the pipeline route



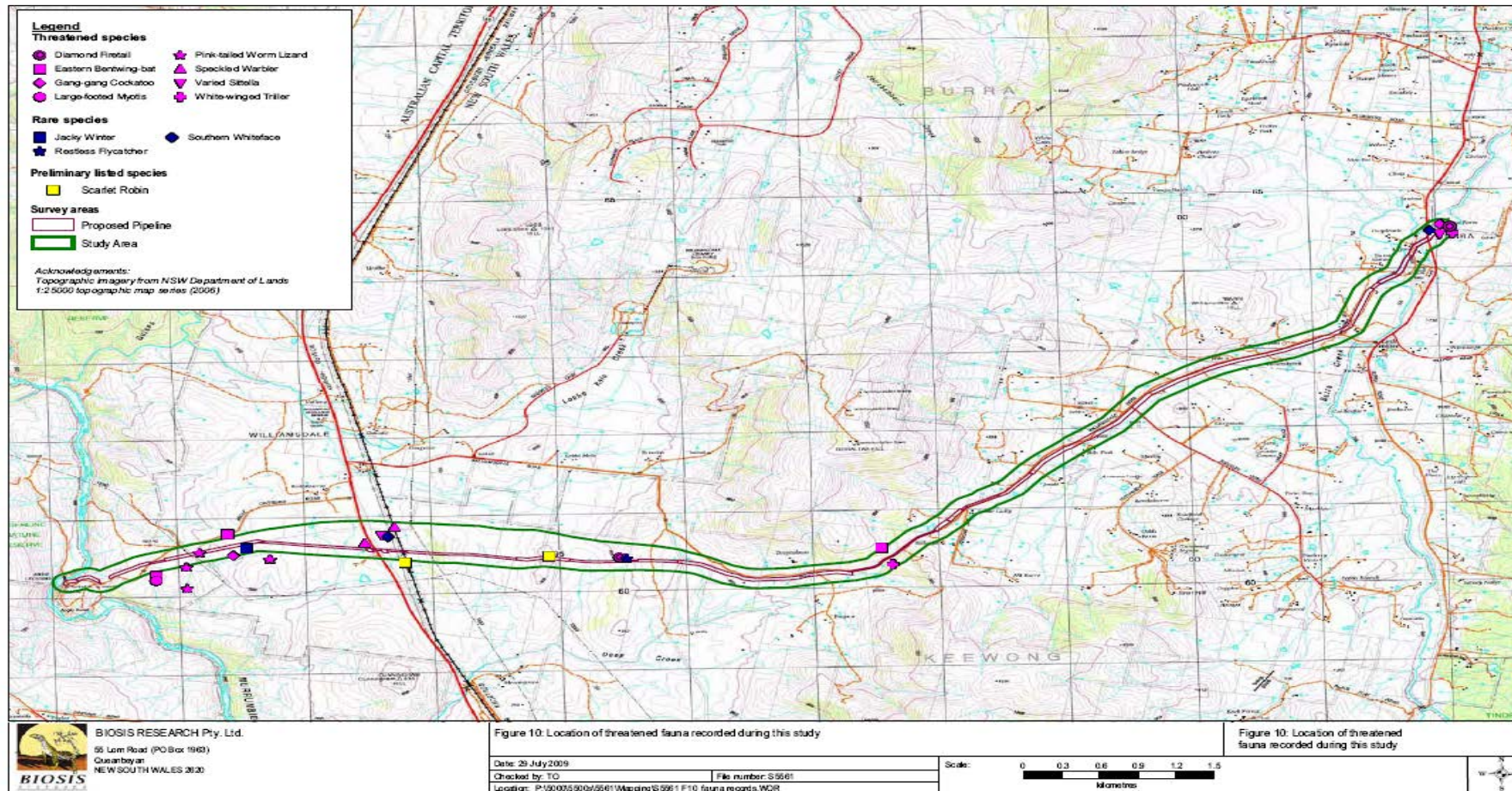


Figure 3. Location of threatened fauna recorded during pre-construction study