



Canberra Airport
Taxiway Bravo Biodiversity Offset Strategy
(EPBC 2008/4170); Revised May 2019

Approved: 3 June 2019

Canberra Airport takes its environmental responsibilities seriously. Given this it will do all that it is reasonable and practicable in the circumstances to ensure it and its employees, officers, agents, and contractors comply with this Strategy.

Canberra Airport has taken expert advice from Peter Robertson, Wildlife Profiles Pty Ltd and co-author of the Grassland Earless Dragon Recovery Plan, Alison Rowell, Qualified Ecologist and University of Canberra, Institute of Applied Ecology.

Canberra Airport also consulted with the ACT Commissioner for Sustainability and the Environment, Friends of Grasslands, Conservation Council - ACT Region, ACT Department of Environment, Climate Change, Energy & Water, Limestone Plains Group and peak community groups (ACT and NSW) regarding the EPBC Act referrals and listed threatened species on Airport.

This revised Taxiway Bravo Biodiversity Offset Strategy (EPBC 2008/4170) was approved by a delegate of the Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), on 3 June 2019, as required in Condition 2 of the EPBC 2008/4170 approval for the construction of Taxiway Bravo and associated works.

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Attachments

Attachment A – *Approved Taxiway Bravo and associated works* Referral EPBC
2008/4170 notice of approval

1.0 Introduction

A Major Development Plan for the Runway and Taxiway Expansion Program was approved by the then Minister for Infrastructure, Transport, Regional Development and Local Government on 26 August 2004.

The Runway and Taxiway extension to the south was completed in 2006. The construction of Taxiway Bravo to the north was to immediately proceed, however was not undertaken due to delays in obtaining environmental approvals under the EPBC Act.

The construction of the Taxiway Bravo extension will provide taxiing aircraft with safe and efficient access between the Terminal and the runway. The direct access to the Terminal, without crossing the main runway, improves the safety and efficiency of the runway system. This reduction in taxiing time will also reduce fuel burn and greenhouse gas emissions.

The proposed Taxiway Bravo extension is located to the west of Runway 17/35 north of Taxiway Delta and linking with the Runway 17 threshold (refer Figure 1: *Proposed Taxiway Bravo and Associated Works*).

An airside security fence and airside road was constructed as part of Stage 1 to meet aviation security requirements and was built partly on the existing airside road north of the Taxiway Bravo extension reserve. Necessary stormwater improvements were also included in Stage 1.

The construction of the Taxiway Bravo extension to the north of Taxiway Delta is part of Stage 2 works. The widening of the Alpha turning node may be included in Stage 2 or 3 works.

The construction of the Taxiway Bravo and associated works will result in the removal of 5.7 ha of moderately modified patches of Natural Temperate Grassland which may also contain habitat for the Grassland Earless Dragon and Golden Sun Moth.

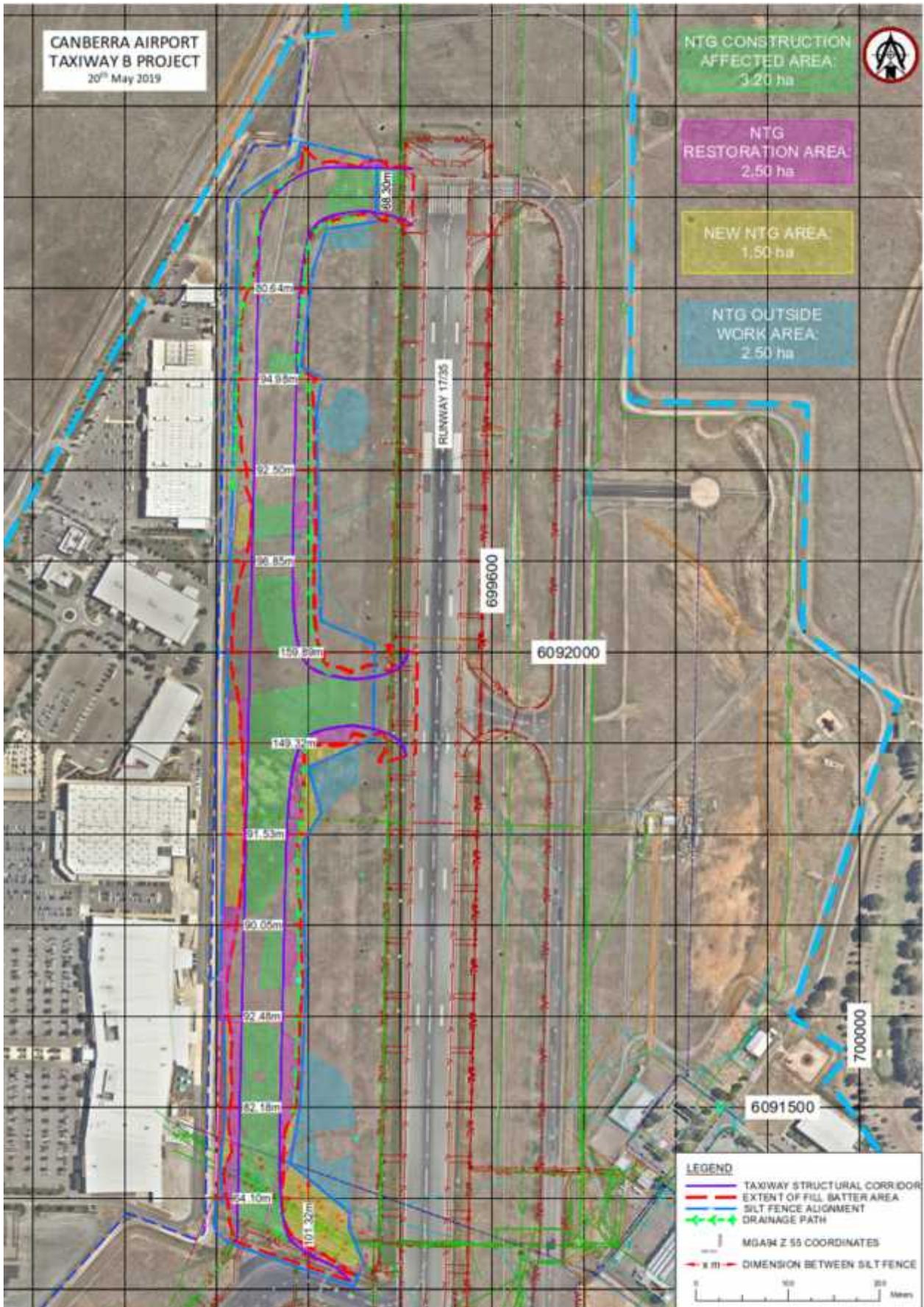
The referral for the Taxiway Bravo and associated works was approved with conditions by a delegate of the Minister responsible for the EPBC Act on 10 December 2008. On xx May 2019 a delegate of the Minister responsible for the EPBC Act approved the revised referral.

The approval conditions require the approval of this Biodiversity Offset Strategy, which includes two offset options:

- **OPTION 1 requires the acquisition of land containing Natural Temperate Grassland and Golden Sun Moth habitat; and**
- **OPTION 2 is for the rehabilitation of Vegetation quality 4 and 5 within the Canberra Airport lease to meet the definition of Natural Temperate Grassland.**

Canberra Airport remains committed to increasing the body of knowledge for these listed threatened species and has chosen Option 2 in the first instance, which is to improve native pasture and disturbed sites to meet the definition of Natural Temperate Grassland.

Figure 1: Proposed Taxiway Bravo and Associated Works



2.0 Approval Conditions

The Taxiway Bravo and associated works EPBC 2008/4170 referral was approved with conditions on 10 December 2008 and revised on 7 May 2019 (refer Attachment A).

The revised approved referral Conditions 2 and 2A state that:

- 2. *The person taking the action must submit a Biodiversity Offsets Strategy for the Golden Sun Moth, Grassland Earless Dragon and Natural Temperate Grassland to the Minister for approval. The Strategy must include:***
 - a. *A long-term conservation offset for the removal of habitat for the Golden Sun Moth, Grassland Earless Dragon and Natural Temperate Grassland including:***
 - i. *The acquisition of land containing at least 17.1 hectares of Natural Temperate Grassland and Golden Sun Moth habitat to be conserved in perpetuity; or***
 - ii. *Measures to rehabilitate at least 17.1 hectares of Vegetation quality 4 or 5 within the Canberra Airport Lease to meet the definition of Natural Temperate Grassland.***
 - b. *Details of the funding, of at least \$141,301, and in kind support valued at least \$33,000 and outcomes of research for the Grassland Earless Dragon over a period of 3 years. (Note: A research project was completed in 2011 at a cost of \$187,881 – refer page 11)***
 - c. *Timeframes for the completion of all actions outlined in the Strategy, including the acquisition of land or rehabilitation of land to be used as the offset.***

The person taking the action must not commence construction unless the Minister has approved the Biodiversity Offset Strategy in writing. The approved Biodiversity Offset Strategy must be implemented.

Note: The management of rehabilitation and any offset must be conducted in conjunction with any other approvals affecting Natural Temperate Grassland in the Canberra Airport site.

- 2A. *If the person taking the action commences implementation of option 2.a.ii. above but is not able to achieve the required outcome within 5 years of commencing implementation (or a longer period if the Minister deems the prevailing conditions for rehabilitation to have been unfavourable) then option 2.a.i. must be implemented.***

3.0 Offset Actions

In response to Condition 2 of the approved referral EPBC 2008/4170, Canberra Airport has prepared this Taxiway Bravo Biodiversity Offset Strategy (EPBC 2008/4170).

The Offset Actions are tabularised in Table 1 and discussed in further detail in subsequent sections.

Table 1: Summarised Offset Actions

Condition	Offset Action	Refer to Section	Refer to Pages
2.a.i.	Acquisition of Offset Land (if required)	3.2	10-11
2.a.ii.	On Airport Rehabilitation (preferred option)	3.1	7-10
2.b.	University of Canberra Post Doctorate Research Fellowship Project	3.3	11-12
2.c.	Timeframes for Completion of Offset Actions	3.4	12

3.1 On Airport Rehabilitation (preferred option)

Condition 2.a.ii. requires the rehabilitation of 17.1 hectares within the Canberra Airport Lease. This is Canberra Airport's preferred option in response to Condition 2 of the Taxiway Bravo approval (EPBC 2008/4170).

A number of options have been considered to rehabilitate areas of vegetation quality 4 or 5 to meet the definition of Natural Temperate Grassland. These options include:

- The sowing of areas of vegetation quality 5 on Airport with Natural Temperate Grassland seed. This is dependent on local provenance seed collection, supply and weather conditions;
- Translocation of Grassland (otherwise destroyed by development) in areas of vegetation quality 4 and 5;
- The spreading of hay bearing Natural Temperate Grassland seed on vegetation quality 4 and 5;
- Collection of forb seed on Airport to be used in rehabilitation works;
- Tube seeding of forbs in areas of vegetation quality 4;
- Replanting forbs (otherwise destroyed by development) in areas of vegetation quality 4, and
- Hand seeding forbs in areas of vegetation quality 4.

Between May 2011 and December 2013, Canberra Airport provided funding of approximately \$119,933 for a small-scale experimental trial in the eastern grass of the Airport with Greening Australia in association with Alison Rowell, Biologist and Environmental Consultant to investigate the viability of the above methods.

Table 2 sets out the Action Plan for Rehabilitation and Restoration.

Table 2: Action Plan for Rehabilitation and Restoration

Key Issues	<p>The key issues relating to the rehabilitation include:</p> <ul style="list-style-type: none"> • Establishment of Natural Temperate grassland at a ratio of 3ha for every 1ha to be removed; • Developing weed control, optimum seed and watering application rates; • Developing broad acre method for seeding; and • Managing seasonal impacts.
Objective	<p>Demonstrate improvement and expansion of existing Natural Temperate Grassland on Airport by rehabilitating vegetation quality 4 and 5 to meet the definition of Natural Temperate Grassland, in accordance with Condition 2.a.ii. of the EPBC 2008/4170 referral.</p>
Required actions and critical thresholds	<p>Undertake rehabilitation and restoration such that:</p> <ul style="list-style-type: none"> • The conditions of EPBC 2008/4170 referral are met. • Rehabilitation of 17.1ha of vegetation quality 4 and 5 to meet the definition of Natural Temperate Grassland, within 5 years of implementation of the plan (or a longer period if the Minister deems the conditions for rehabilitation to be unfavourable). • Monitoring, mapping and reporting to be undertaken annually within 5 years of commencement of construction of Taxiway Bravo. <p>A revision of the plan, 5 years after implementation of the plan, will include:</p> <ul style="list-style-type: none"> • Details of extension of time due to unfavourable rehabilitation conditions (as deemed by the Minister) and further rehabilitation and monitoring required; or • Details of purchased offset land and plan of management for the offset land.
Methods of Implementation of the Plan	<ul style="list-style-type: none"> • Identify rehabilitation areas of vegetation quality 4 and 5 within the Airport lease that are unlikely to be affected by future development. • Collect, dry and store seed from Master Plan offset property and on-Airport harvesting. • Conduct experiment in identified rehabilitation areas to determine:

	<ul style="list-style-type: none"> - Weed control application rates; - Seed application rates; - Pre- and Post-seeding watering rates; - Broad acre seeding methods; - Density and timing of spreading hay bearing seed; and - Translocation methods <ul style="list-style-type: none"> • Collect, store and propagate forbs to be sown in areas of vegetation quality 4 and 5 • Implement outcomes of experiment in areas of vegetation quality 4 and 5.
Timing	<ul style="list-style-type: none"> • Establish 17.1ha of Natural Temperate Grassland in areas of vegetation quality 4 and 5 within 5 years of implementation of the plan (or a longer period if the Minister deems the conditions for rehabilitation to be unfavourable). • Monitor growth of Natural Temperate Grassland. • Revision of plan, 5 years after implementation of the plan. • Ongoing site maintenance and supplementary works.

Tasks and Targets

Task	Description	Target
Site Identification	Identify rehabilitation areas of vegetation quality 4 and 5 within the Airport lease that are unlikely to be affected by future development and aviation safety requirements.	Year 1
Seed Collection	Collect, dry and store seed from Master Plan offset property and on-Airport harvesting.	Year 1-4
Further develop Grassland experiment	Conduct additional experiments to determine: <ul style="list-style-type: none"> • Weed control application rates • Seed application rates • Pre- and Post-seeding watering rates • Broad acre seeding methods • Density and timing of spreading hay bearing seed • Translocation methods • Propagating forbs 	Year 1-2

Broad acre seeding	Using the outcomes of Grassland experiments, broad acre seeding of areas of vegetation quality 4 and 5 within the Airport lease.	Year 2-4
Replanting forbs	Replanting propagated forbs and forbs located within areas affected by the development in areas of vegetation quality 4 and 5.	Year 2-4
Maintain revegetation	Maintain revegetation areas through watering, weed control and additional planting/seeding if required.	Year 2-5
Undertake monitoring	<ul style="list-style-type: none"> • Monitor success of rehabilitation program (subject to seasonal conditions) • Summary report to the Department of the Environment and Energy • A final report to the Department of the Environment and Energy verifying compliance 	<p>Annually; within 5 years of commencement of construction.</p> <p>Within 6 months following completion of construction.</p>

The implementation of any rehabilitation works is dependent on weather conditions and seed, consultant and scientific information availability.

The rehabilitation of vegetation quality 4 and 5 to Natural Temperate Grassland, including the proposed small-scale experiments, will provide valuable information to increase the quantity and quality of Natural Temperate Grassland and associated habitat for listed threatened species.

3.2 Acquisition of Offset Land (if required)

However, if Condition 2(a(ii)) is unable to be demonstrated within 5 years of implementation of the plan (or a longer period if the Minister deems the conditions for rehabilitation unfavourable), then Canberra Airport will submit a revision of the plan for approval within 6 months of the expiry of the timeframe for rehabilitation.

The revised plan will include:

- Details of the offset property;
- Details of the management of the offset property.

The purchased land will:

- Be surveyed by a qualified consultant to ascertain the quality and quantity of Grassland and habitat;
- Result in a Conservation Agreement being signed with the Department of the Environment and Energy. If the purchased land contains in excess of 17.1 hectares of Natural Temperate Grassland and Golden Sun Moth habitat, the remainder will be preserved and allocated as an offset for any future development works on Airport; and
- Be managed in accordance with a Plan of Management, to be developed in consultation with the Department of the Environment and Energy and other relevant authorities.

3.3 University of Canberra Grassland Earless Dragon Research

From 2007 to 2009, Canberra Airport provided funding of approximately \$187,881 for a joint Post Doctorate Research Fellowship for Grassland Earless Dragon with the Australian Research Council and the University of Canberra in association with Alison Rowell, Biologist and Environmental Consultant. Canberra Airport continues to contribute to the Airport's consultants' knowledge and advice, ongoing Grassland Earless Dragon monitoring and previous monitoring reports with the aim of collecting population data to be used in ongoing University of Canberra Grassland Earless Dragon research projects. Information obtained from Grassland Earless Dragon specimens located on-Airport will continue be included in research projects to further increase the body of knowledge of this species.

In summary, the primary components of the University of Canberra Post Doctorate Research Fellowship were to:

- 1) Understand the genetic relatedness of the remaining Grassland Earless Dragon population in the ACT and nearby NSW.
- 2) Understand the relationship between grassland height and composition and Grassland Earless Dragon populations.
- 3) Identify key habitat characteristics and features for ongoing management and the re-establishment of Grassland Earless Dragon habitat.
- 4) Inform the Grassland Earless Dragon National Recovery Plan to enable the ongoing management and restoration of Grassland Earless Dragon habitat.

The outcomes of the research included the development of guidelines for the ongoing management of Grassland Earless Dragon habitat so as to maximise the rate of population increase and to restore habitat. The research also provided key insights into the habitat management mechanism for the Grassland Earless Dragon and the effect that climate change might play on those mechanisms through the combination of extreme drought events and habitat degradation.

This work also provided essential management information that helped to maximise the long-term changes of conservation for the Grassland Earless Dragon.

Details of the research outcomes for the Grassland Earless Dragon were published on Canberra Airport’s website in the form of hyperlinks to the University of Canberra website and to published articles.

3.4 Timeframes for Completion of Offset Actions

The timeframes for completion of Offset Actions are provided in Table 3.

Table 3: Timeframes for Completion of Offset Actions

Conservation Offset	Timeframe
Acquisition of land	<ul style="list-style-type: none"> • Canberra Airport will submit a revision of the plan for approval within 6 months of the expiry of the timeframe for rehabilitation detailing extension of time (if deemed by the Minister) or details of purchased offset land and its plan of management.
Rehabilitation	<ul style="list-style-type: none"> • Demonstrated within 5 years of implementation of the plan (or a longer period if the Minister deems the conditions for rehabilitation to be unfavourable) as described in Table 2: Methods of Implementation of the Plan.
University of Canberra Grassland Earless Dragon Research	<ul style="list-style-type: none"> • Outcomes of research to be forwarded to the Department of the Environment and Energy and hyperlinks provided on Canberra Airport website. Completed 2013.
Monitoring and evaluation	<ul style="list-style-type: none"> • Grassland monitoring on Airport will be undertaken in accordance with Canberra Airport’s Threatened Species Management Plan. • Evaluation of the rehabilitated Grassland and/or purchased site will be undertaken annually, within 5 years of commencement of construction.
Reporting	<ul style="list-style-type: none"> • Notify the Department of the Environment and Energy on commencement of implementation of the plan. • Updates provided during ongoing consultation meetings. • A Summary report will be submitted to the Department of the Environment and Energy within 5 years of commencement of construction. • A report verifying compliance will be submitted to the Department of the Environment and Energy within 6 months of completion of construction.

4.0 References

ACT Government, 2005 *A Vision of Splendid of the Grassy Plains Extended: ACT Lowland Native Grassland Conservation Strategy*. Action Plan No. 28 (Arts, Heritage and Environment, Canberra).

ACT Government, 1999. Perunga Grasshopper (Perunga ochracea): A vulnerable species. Action Plan 21. Environment ACT, Canberra.

Canberra Airport Approved Major Development Plan, Runway & Taxiway Expansion Program, November 2009

Canberra Airport 2009 Master Plan, <http://www.canberraairport.com.au>.

Canberra Airport Preliminary Draft 2010 Environment Strategy, <http://www.canberraairport.com.au>.

Canberra Airport Threatened Species Management Plan, 2009.

Environment ACT 2005 *National Recovery Plan for Natural Temperate Grassland of the Southern Tablelands (NSW and ACT): and endangered ecological community* (Environment ACT, Canberra).

Grassland Management Plan, Natural Temperate Grassland at Canberra Airport. Canberra Airport, 2004.

Langford C.M, Simpson P.C, Garden D.L., Eddy D.A, Keys M.J, Rehwinkel R. and Johnston W.H. 2004. *Managing Native Pastures for Agriculture and Conservation*. NSW Department of Primary Industries.

Report on ACT Lowland Native Grassland Investigation, Commissioner for Sustainability and the Environment, 19 March 2009 <http://www.environmentcommissioner.act.gov.au/>

Robertson, P. & Cooper, P. (2000). *Recovery Plan for the Grassland Earless Dragon (Tympanocryptis pinguicollis)*. Unpublished report to Environment Australia, Canberra).

Robertson, P & Evans M. (2006). Draft National Action Plan for the Grassland Earless Dragon ((*Tympanocryptis pinguicollis*)). Unpublished report to the Department of Environment, Water, Heritage and the Arts, Canberra).

Sharp S, Dorrrough J, Rehwinkel R and Eddy D. 2002 *The Grassy ecosystem management kit: a guide to developing conservation management plans*. Environment ACT, Canberra.

Smith W.J.S & Robertson P. National Recovery Plan for the Striped Legless Lizard (*Delma impar*) 1999-2003. Unpublished report to Environment Australia, Canberra.

Taxiway Bravo Extension, Canberra Airport, EPBC 2008/4170, 10 December 2008. <http://www.environment.gov.au>.

Greening Australia “*Canberra Airport Grassland Restoration – Final Report – What has been achieved to date?*” Prepared by Graham Fifield, Greening Australia, June 2014.