

2024/2025 COMPLIANCE REPORT TAXIWAY BRAVO EXTENSION PROJECT

EPBC 2008/4170
June 2026



Table of Contents

1.	Description of Activities	1
1.1	EPBC Number	1
1.2	Project Name	1
1.3	Approval holder and ACN	1
1.4	The Approval Action	1
1.5	Location of the Project	1
1.6	Person Accepting Responsibility for the Report	1
1.7	Date of Preparation of the Report.....	1
2.	Address of all Approval Conditions - EPBC 2008/4170	1
2.1	Compliance Table	1
3.	Summary of Outcomes for 2024/2025	2
4.	On-Airport Rehabilitation Measures Taken to Date	6
4.1	May 2020 - Re-seeding of the Taxiway Bravo Shoulders and Batters	6
4.2	January/February 2021 - Inspection of Re-seeded Area by Alison Rowell, Biologist and Environmental Consultant	7
4.3	September 2021 – Inspection of Grassland Areas Around New Taxiway Bravo	8
4.4	July 2022 - Resurvey of Grassland Remnants Surrounding New Taxiway Bravo	8
4.5	July 2022 - Outcome of Taxiway Bravo Resurvey and Mapping	9
4.6	July 2023 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo.....	9
4.7	July 2023 - Outcome of Taxiway Bravo Resurvey and Mapping	10
4.8	October 2024 - Resurvey of Grassland Remnants Surrounding Taxiway Bravo	11
4.9	October 2024 – Outcome of Taxiway Bravo Resurvey and Mapping	14
4.10	August 2025 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo.....	14
4.11	August 2025 – Outcome of Taxiway Bravo Resurvey and Mapping	15
5.	Grassland Rehabilitation Activities at Canberra Airport	22
6.	Seed and Plant Nursery	24
7.	2026 Natural Temperate Grassland (NTG) Survey within the Canberra Airport Lease	29
8.	Canberra Grassland Earless Dragon (CGED) <i>Tympanocryptis lineata</i> Monitoring at Canberra Airport	30
9.	Golden Sun Moth (GSM) <i>Synemon plana</i> Monitoring at Canberra Airport	31
10.	Biodiversity Offset Strategy – Year 5 Tasks and Targets	33
11.	Approval by Minister of Revised Biodiversity Offset Strategy – March 2022	34
12.	Approval by Minister to Extend the Timeframe for Rehabilitation – March 2022	34
13.	Application to the Minister to Vary Condition 2.A. of EPBC 2008/4170 Approval	34
14.	Declaration of Accuracy	35

Attachments:

Attachment 1 Compliance Table EPBC 2008/4170

Attachment 2 Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2025 – With notes on other grassland areas with potential for rehabilitation – Alison Rowell, Biologist and Environmental Consultant

Attachment 3 *Umwelt Canberra Airport Temperate Grassland Report June 2026*

Attachment 4 *Umwelt Canberra Grassland Earless Dragon Monitoring Report December 2025*

Attachment 5 Umwelt “Golden Sun Moth Surveys 2025 – Prepared for: Canberra Airport Pty Ltd, February 2026”

2024/2025 COMPLIANCE REPORT

INFRASTRUCTURE UPGRADE AND CONSTRUCTION AT CANBERRA AIRPORT, ACT

EPBC 2008/4170

1. Description of Activities

1.1 EPBC Number

EPBC 2008/4170

1.2 Project Name

Taxiway Bravo Extension Project, Canberra Airport

1.3 Approval holder and ACN

Canberra Airport Pty Ltd

ACN 080 361 548

1.4 The Approval Action

The approved action undertaken as part of this EPBC Approval is the Taxiway Bravo Extension Project. The project commenced on 4 June 2019 and reached practical completion on 5 August 2020; the construction of the northern extension having taken fourteen months to complete. Taxiway Bravo North was opened for business on Wednesday, 13 August 2020.

1.5 Location of the Project

Canberra Airport, ACT 2609

1.6 Person Accepting Responsibility for the Report

A signed declaration is provided at Section 14 (page 35) of this Report.

1.7 Date of Preparation of the Report

The report is dated 30 June 2026.

2. Address of all Approval Conditions - EPBC 2008/4170

2.1 Compliance Table

A Compliance Table is provided at **Attachment 1**.

3. Summary of Outcomes for 2024/2025

Section 4.10 **August 2025 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo**

Page 14 Grassland areas each side of the Taxiway B extension, including replanted verges, were inspected on 21 and 22 August 2025.

The boundaries and condition of grassland patches were assessed against the Conservation Advice criteria for the critically endangered Natural Temperate Grasslands of the South-eastern Highlands community (NTG) (TSSC 2016), using the more generous criteria for grasslands surveyed outside ideal sampling times (which is spring-early summer) due to the winter survey period and little growth since the last mowing, which impeded plant identification in some areas. Grasses had not yet begun flowering and were identified on vegetative characters and seed head remains from the previous season. Many forb species (non-grass generally broad-leaved plants) were at the seedling or rosette stage and were identified from leaf characters.

Some of the remaining patches of native grassland surrounding Taxiway B meet the above description (refer page 3 A. Rowell report August 2025), with breaks and areas within the NTG patches that contain weeds, bare ground or road base. This also means that some patches that are less than the minimum area (1,000m²) are included due to their proximity to other NTG patches. These have been mapped in detail to indicate potential for rejoining separated patches with weed control and/or replanting of native species.

Section 4.11 **August 2025 - Outcome of Taxiway Bravo Resurvey and Mapping**

Page 15 In 2023, survey showed that the boundaries and composition of the NTG patches identified in 2021/2022 had remained approximately the same (Rowell 2022, 2023). In 2023 the total area of the NTG patches was 2.6 ha, in 2024 it was 2.46 ha, and in 2025 it was 2.7 ha.

In 2025 the patches of NTG previously identified were revisited, and areas around them were also inspected. Most of the native-dominated patches included at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community (Figures 1 and 2).

The native species recorded are shown in Table 1. There were more native grass species in 2025, but fewer non-grass and indicator species than recorded in 2024. This is probably due to the different seasons of the surveys (Table 2), with many species being more or less detectable in different months (Photographs 1 and 2).

As seen in 2024, the shape of some NTG patches had changed between years. There were minor gains following previous weed control, plus some expansion of native species into dry low biomass areas (mainly near taxiway edges) at the expense of Prosper Fescue, which does not persist well under close mowing. Some easterly extensions of NTG were estimated while standing at the gable markers, as access to the movement area is restricted.

One small patch and parts of others (including the narrow West/B patch) had fallen below the criteria for NTG due to weed invasion, especially by Serrated Tussock *Nassella trichotoma* (Figures 1 and 2), but these losses should be reversible by targeted weed control. Some (usually wetter) NTG areas had been degraded by recent invasion of species such as Chilean Needlegrass *N. neesiana*, and Sheep's Burnet *Sanguisorba minor*.

Section 5

Grassland Rehabilitation Activities at Canberra Airport

Page 22

During Canberra Grassland Earless Dragon (CGED) surveys from 2023 to 2025 and other airside surveys, some grassland areas (particularly north of the main runway) were identified as having potential to be used as trial sites using different methods of grassland rehabilitation to restore them to native-dominated grassland or NTG status, with a corresponding increase in potential habitat for threatened species such as CGED and Golden Sun Moth and reconnection of currently separate patches of habitat. Observations from that work have informed the current assessment for rehabilitation potential of the grasslands around Taxiway B.

From 2023 to 2025, seeds of native grasses and forbs were hand-collected from high quality NTG grasslands on the Airport by this consultant and Ms Amanda Gurnett-Attard of Canberra Airport for use in future restoration work, and a seed collection curated by Ms Gurnett-Attard is stored under appropriate conditions in the Airport offices (e.g. see Gurnett-Attard 2024). In 2025 an on-Airport plant propagation area was designed and constructed airside, to provide seed and plants for grassland revegetation/rehabilitation projects. From January 2025 seeds were planted, and the above ground beds now contain many forb species and some grasses grown from Airport seed which will produce more seed later this year.

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and Umwelt to implement the recommended rehabilitation works (trials/experiments and research) within the Canberra Airport Lease.

Section 6

Seed and Plant Nursery

Page 24

Throughout 2025, Canberra Airport worked to establish a Seed and Plant Nursery on-Airport for the purposes of NTG rehabilitation within the Canberra Airport Lease in response to conditions for both EPBC 2008/4170 (Taxiway Bravo Extension Project) and EPBC 2009/4748 (Northern Road Project). The site is a secure airside storage/maintenance compound. The area prepared is currently about 250m², with the potential to expand to the south.

The nursery will mainly be used to grow plants from seed collected on the Airport to produce larger amounts of seed. Some plants will be grown by cuttings or division. The seed and plants produced will be available for replanting projects, and some seed plants may later also be transplanted.

Priority will be given to growing mainly non-grass species which enhance NTG value and for which commercial seed is not available or is expensive.

2026 Natural Temperate Grassland (NTG) Survey within the Canberra Airport Lease

Following an extensive internal review of data, in July 2025 Canberra Airport formed the view that it should focus on fully understanding the current extent and condition of the NTG ecological community within the Canberra Airport Lease that had been rehabilitated to report against the requirements of EPBC 2008/4170 Approval conditions. The Airport therefore decided to postpone submission of the 2024/2025 Compliance Report which was due on 31 August 2025 to enable work to be completed for this specific purpose.

Umwelt was engaged, as suitably qualified experts, to undertake an NTG survey within the Project Area (refer to Figure 3.1). As the last survey of the NTG ecological community on-airport and associated mapping was completed in 2018/2019, the survey undertaken in February/March 2026 was considered essential as it would serve to confirm the information provided in the 2024/2025 Compliance Report was as accurate as possible. The survey would also identify any potential data gaps and enable Umwelt to prepare Shapefile mapping to support Canberra Airport's current and future compliance requirements for the Taxiway Bravo EPBC 2008/4170 Approval conditions and definitions.

The Umwelt "Canberra Airport Natural Temperate Grassland Report June 2025" states:

Digitisation of vegetation quality classes 4 and 5 identified a total of 129.57 ha (combined) within the Project Area. Of the 129.57 ha of vegetation quality classes 4 and 5, 11.73 ha now meet the minimum NTG listing criteria. This result demonstrates measurable progress toward the rehabilitation target and confirms an increase in NTG extent within the Project Area, with 5.37 ha remaining to achieve the 17.1 ha requirement.

Overall, these findings demonstrate an increase in NTG, presence of high-quality grassland, and progress toward rehabilitation objectives. Continued targeted rehabilitation, weed management and adaptive grassland management will be important to build on this progress and support achievement of the remaining rehabilitation target.

Canberra Grassland Earless Dragon (CGED) *Tympanocryptis lineata* Monitoring at Canberra Airport

Although CGED monitoring was undertaken in 2023, and the Airport Environment Strategy (AES) stipulates monitoring every two years, the Airport decided to undertake CGED monitoring in 2024 and again in 2025. In consultation with Alison Rowell, Umwelt was engaged to undertake the 2024 and 2025 CGED monitoring. In collaboration with the ACT Government, Canberra Airport adopted the same extended monitoring periods for 2024 and 2025:

- 26 March to 26 June 2024
- 17 February to 29 May 2025

The new survey methods trialled in 2024 were replicated for the 2025 monitoring period.

As no CGED were found in the latest round of monitoring (2025), this means that none have been seen at the northern end of Canberra Airport since 2017.

Section 9

Golden Sun Moth (GSM) *Synemon plana* Monitoring at Canberra Airport

Page 31

Suitable weather conditions (warm to hot, sunny and relatively calm) were present during the Summer of 2025, and targeted GSM surveys were undertaken on 8, 9, 10 and 15 December 2025, following confirmed emergence at reference monitoring sites within the ACT.

Suitable weather conditions were also present during the Summer of 2023, however Umwelt noted the surveyed numbers of GSM were down on previous years. The GSM surveys undertaken between 2018 and 2022 did not occur as they were either impacted by unsuitable weather conditions or the Covid pandemic.

The Umwelt “Golden Sun Moth Surveys 2025 – Prepared for: Canberra Airport Pty Ltd, February 2026” report at Section 4.1 2025 Survey Results states:

The 2025 GSM survey season was considered favourable due to generally dry and warm conditions. Survey weather was compliant with the guidelines with the surveys generally undertaken on clear, warm to hot days and on days that were more than two days since rain. Winds ranged from light to gentle breeze, consistent with the exposed setting of Canberra Airport (Table 4.1),

Across the Project Areas a total of 885 GSM being recorded, with 879 males and six females. Counts varied between areas, with the highest numbers in Area 1 (154), Area 6 (149) and Area 7 (120) (Table 4.1).

Section 10

Biodiversity Offset Strategy – Year 5 Tasks and Targets

Page 33

Progress of the Tasks listed above have been responded to in Compliance Reports for the Taxiway Bravo Extension Project since 2020. These reports have been uploaded onto the Canberra Airport website and can be accessed via the following link:

<https://www.canberraairport.com.au/corporate/about/development>

Refer to Section 3 Summary of Outcomes for 2024/2025 (page 2), Section 4.10 (page 14) and subsequent sections of this Compliance Report for progress of the Tasks for 2024/2025, and Attachments 2 and 3.

Section 13

Application to the Minister to Vary Condition 2.A. of EPBC Approval 2008/4170

Page 34

Canberra Airport will prepare an application to request that the Minister or his Delegate consider a variation of condition 2.A. of the EPBC 2008/4170 approval under section 143A of the *Environment Protection and Biodiversity Conservation Act 1999*. The request is to extend the timeframe to rehabilitate in accordance with condition 2.A, and the outcome required for rehabilitation by condition 2.a.ii, by a further 5 years (that is by 2031).

4. On-Airport Rehabilitation Measures Taken to Date

Condition 2.a.ii requires the rehabilitation of 17.1 hectares within the Canberra Airport Lease to meet the definition of Natural Temperate Grassland. This is Canberra Airport's preferred option in response to Condition 2 of the Taxiway Bravo Approval EPBC 2008/4170).

The following measures have been implemented to date:

4.1 May 2020 - Re-seeding of the Taxiway Bravo Shoulders and Batters

In late May 2020, the contractor engaged to construct the Taxiway also undertook works to re-seed a total area of 52,285m² along the Taxiway alignment. The following methodology was employed:

Topsoiling Methodology:

- Scraper cart and placement of topsoil;
- Grader followed grader to smooth out any high areas;
- Backhoe and workers with shovels undertook topsoil placement around pits and up against the asphalt as required;
- Work was done on a ten-minute recall as this allowed enough time for the grader to smooth out any non-compliant levels and evacuate the graded strip;
- This work was completed prior to grassing.

Grassing Methodology:

- Truck drove into Runway graded strip and a worker on foot walked around spraying out hydromulch with seed;
- Work was done on a ten-minute recall as this allowed enough time for the truck and worker to evacuate the graded strip.

The areas of work included:

West Bravo

- Grassed Shoulder – 9746m²
- Batters – 13284m²

East Bravo (North of Foxtrot)

- Grassed Shoulder – 5437m²
- Batters – 8914m²

East Bravo (South of Foxtrot)

- Grassed Shoulder – 5711m²
- Batters – 9193m²

As no adequate supplies of native grass seeds could be sourced for this re-seeding project, the Airport determined with the agreement of Alison Rowell, Biologist and Environmental Consultant, to procure an 80%/20% mix of Prosper Fescue and Couch respectively. The seed was spread on the surface of the topsoil taken from the Taxiway Bravo construction zone and then stabilised with a bituminous material to detract birds and to protect the seed from wind/jet blast.

4.2 January/February 2021 - Inspection of Re-seeded Area by Alison Rowell, Biologist and Environmental Consultant

Alison Rowell undertook an inspection of the re-seeded area around Taxiway Bravo. Following the inspection, Alison Rowell provided the following report via email dated 15 February 2021:

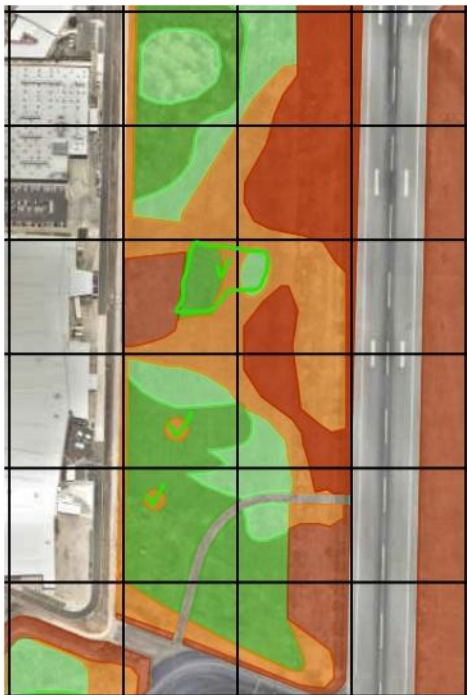
“You asked me to inspect the re-grassing around the Taxiway Bravo area to determine whether additional NTG had been created after grassing of the verges of Taxiway B. This may be because you have noticed the growth of native forbs (wildflowers) on some areas where exotic grasses have been sown, including in the swale east of the taxiway.

I attach my vegetation mapping of that area before Taxiway Bravo was constructed (NTG in green), a January 2020 image from actmapi showing the taxiway under construction, and a photo I took on 15 February 2021.

If you look at the south-eastern-most verge of the taxiway under construction you can see that an area of NTG has been altered/shaped. This area is shown in my ‘Native forbs & exotic grass’ photo, where you can see germination of exotic grasses in the sowing furrows and a number of native forbs in the spaces between the grasses.

*This is similar to the effect we noted when the haul road around the Eastern Grass was left to recover, where the first species to appear on the bare and compacted soil were native forbs, probably resprouting from roots and germinating from seeds in the soil. In the Taxiway Bravo case, although the number of species and frequency of native forbs now present would allow the vegetation to be classed as NTG **if the surrounding grasses were native**, this altered grassland would not now meet the NTG criteria. This is because the first step in determining NTG is ‘The percentage cover of native vascular plants (including annual and perennial species) in the patch is greater than the percentage cover of perennial exotic species’. This is not the case here because of the higher cover of ‘perennial exotic species’ i.e. the sown grasses.*

2018/2019 Vegetation Mapping before Taxiway Bravo was constructed – A Rowell



ACTMapi Image showing Taxiway Bravo under construction – January 2020





4.3 September 2021 – Inspection of Grassland Areas Around New Taxiway Bravo

In September 2021, Alison Rowell, Biologist and Environmental Consultant, inspected the grassland areas around new Taxiway Bravo, including replanted verges. Due to the season (early spring) and recent mowing, many native forbs were not yet visible. The presence of annual exotic species also partially masked the cover of perennial species, so observations were made but a full survey was not undertaken at that time.

4.4 July 2022 - Resurvey of Grassland Remnants Surrounding New Taxiway Bravo

In late July 2022, Alison Rowell, Biologist and Environmental Consultant, surveyed and remapped the grasslands surrounding Taxiway Bravo.

Below is an extract from A. Rowell report 2022, ‘Section 2: Results’:

Ten patches of native-dominated grassland were identified, each including at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community, embedded in native dominated grassland (Table 1, Photographs 1 and 2).

Some of the NTG patches identified were smaller than the minimum patch size specified for the community (1000 square metres), but have been included as they were mostly separated by less than 75 metres from other NTG patches by grassland which contained native species (see ‘additional considerations’ above). The total area of NTG mapped was 26,355 square metres (2.6 hectares) (Figure 1). Details of the patches are in Table 1, and a list of the 27 native species observed is in Table 2.

Some NTG patches (East/D and East/F) had not previously been mapped, but represented easterly extensions of known patches within the construction footprint. These new patches met the minimum criteria for the threatened community in 2022, but were of a lower quality than most of the other NTG patches (Table 1).

Some areas originally mapped as NTG were inside the silt fence during construction, and were still affected/degraded by construction activities when inspected in 2021. Some parts of these areas that were not covered by fill or oversown with exotic species after construction had recovered by 2022 and again met the criteria for NTG (e.g. western part of East/E, southern part of East/G).

Table 1. Natural Temperate Grassland patches around Taxiway Bravo

East/west of Twy B	Patch number (from north)	Area (sq.metres)	Number of non-grass/sedge native species in plot	Number of Indicator species in plot	Minimum number of native species recorded in whole patch
West	A	3495	9	5	13
	B	855	7	4	13
East	A	650	8	4	18
	B	725	5	3	12
	C	680	7	4	14
	D	4000	5	2	11
	E	3115	9	5	17
	F	510	4	3	8
	G	12325	10	5	19
		Total: 26355			

A copy of Alison Rowell’s report entitled “Resurvey of grassland remnants surrounding new Taxiway B, 2021-22” was provided with the 2021/2022 Compliance Report.

4.5 July 2022 - Outcome of Taxiway Bravo Resurvey and Mapping

Canberra Airport NTG mapping was updated using Alison Rowell’s July 2022 Taxiway Bravo survey data. It indicated that since the 2018/2019 whole of airfield NTG mapping, which identified an increase of 6 hectares of new NTG derived from various experiments undertaken over time, the total area of NTG mapped along the Taxiway Bravo alignment was 2.6 hectares.

August 2022 mapping of Alison Rowell’s survey data was provided with the 2021/2022 Compliance Report.

4.6 July 2023 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo

In late July 2023, Alison Rowell, Biologist and Environmental Consultant, resurveyed and remapped the grasslands surrounding Taxiway Bravo.

Below is an extract from A. Rowell report 2023, Section 2: Results (p4):

Inspection showed that the boundaries and composition of the NTG patches identified in 2022 (Rowell 2022) had remained the same. These are shown in Figure 1, which is reproduced from the previous report.

The main native species observed are shown in Table 1. These included eleven non-grass species and four Indicator species that were also recorded in 2022 (Photographs 1 and 2).

After construction, soil from the site was used to shape the cut and filled areas on the taxiway shoulder areas with the aim of retaining some native plant propagules on site. These areas were then oversown with an exotic mix which apparently contained a Tall Fescue (probably *Festuca arundinacea*), a clover *Trifolium* species and possibly Couch *Cynodon dactylon*. Rapid grass establishment was required to stabilise soil on the verges and protect it from jet blast.

It was noted in 2022 that the Fescue had established but the verge was being invaded in parts by Chilean Needlegrass *Nassella neesiana*. This grassland weed is common on the Airport and commonly replaces planted species in Canberra as it can survive and seed under low mowing. These grasses were still present on the verges in 2023, but there were few plants of Couch or Clover and native species were rare (i.e. they had not re-established from the reused soil).

The part of the verge immediately adjacent to the taxiway is mown more closely and frequently than the rest of the Airport grasslands, presumably for visibility of lights etc (Photograph 4). The tussocks in these areas are mostly small and widely spaced, with bare ground between them. This strip is not seen as now having potential for revegetating with native species due to the low mowing, soil compaction and restrictions on soil disturbance and activity close to the taxiway.

It was noted that there was some increase in scattered occurrences of Serrated Tussock *Nassella trichotoma* within and between the NTG patches (Photograph 3). Control by careful spot spraying is recommended where this species and other perennial grass weeds such as Chilean Needlegrass *Nassella neesiana*, Tall Fescue, African Lovegrass *Eragrostis curvula* and Paspalum *Paspalum dilatatum* occur within NTG patches. African Lovegrass is a more recent serious invader of grasslands in the ACT, and its spread appears to be favoured over Chilean Needlegrass in dry years.

Gradually spraying back the above weeds where they occur adjacent to NTG patches east of the taxiway and replanting the killed strip with native species appropriate to the soil conditions of the patch has the potential to increase the area occupied by NTG and to create north-south links between NTG patches.

Where the intervening exotic species are growing in deeper or wetter soil, Kangaroo Grass *Themeda triandra* would be suitable. Where the soil is shallower and compacted, Redleg Grass *Bothriochloa macra* and Wallaby Grasses *Rytidosperma* would be more appropriate. The results would need to be monitored, and after native grasses have been established and weeds controlled, native forbs could be introduced as seed supplemented with some tube stock.

A copy of Alison Rowell's report entitled "*Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2023 – With notes on other grassland areas with potential for rehabilitation*" August 2023 was provided with the 2022/2023 Compliance Report.

4.7 July 2023 - Outcome of Taxiway Bravo Resurvey and Mapping

The NTG patches around Taxiway Bravo identified in 2022 have remained the same following the July 2023 resurvey and mapping.

Rowell report August 2023 stated:

"Inspection showed that the boundaries and composition of the NTG patches identified in 2022 (Rowell 2022) had remained the same. These are shown in Figure 1 (page 6), which is reproduced from the previous report."

4.8 October 2024 - Resurvey of Grassland Remnants Surrounding Taxiway Bravo

In October 2024, Alison Rowell, Biologist and Environmental Consultant, resurveyed and remapped the grasslands surrounding Taxiway Bravo.

A. Rowell report October 2024, Section 2: Methods (p2) states:

Grassland areas each side of the Taxiway B extension, including replanted verges, were inspected on 16 and 26 October 2024.

They were assessed against the Conservation Advice criteria for the critically endangered Natural Temperate Grasslands of the South-eastern Highlands community (NTG) (TSSC 2016), using the more generous criteria for grasslands surveyed outside ideal sampling times (which is spring-early summer) due to the relatively early survey (mid-October) and recent mowing which interfered with plant identification in some areas. Most grasses had not yet begun flowering and were identified on vegetative characters. Some early spring forbs were in flower and later flowering forbs were at the leaf stage.

A. Rowell report October 2024, Section 3: Results (p5) states:

In 2023, inspection showed that the boundaries and composition of the NTG patches identified in 2021/2022 had remained approximately the same (Rowell 2022, 2023).

In 2024 the ten patches of native-dominated grassland previously identified were revisited, and 2024 nine included at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community, embedded in native dominated grassland (Figure 1).

In 2024, the shape of some patches had changed, with some expansion of native species into dry low biomass areas at the expense of Tall Fescue, but larger areas were degraded by invasion of exotic species in wetter areas (Figure 1). One small patch and parts of others had fallen below the criteria for NTG due to weed invasion, but this may be reversible by targeted weed control. In 2024 the total area of the NTG patches was 2.46 hectares compared to 2.6 ha in 2023.

The native species observed are shown in Table 1 (p7 A. Rowell 2024). There were more non-grass species and more indicator species recorded in 2024, probably due to the later timing of the survey (Table 2) (p7 A. Rowell 2024). (Photographs 1 to 3) (p10 and p11 A. Rowell 2024).

Two active (and one recently active) burrows of the Canberra Raspy Cricket *Cooraboorama canberrae* were found in the southern part of Patch East/G (Photograph 4) (p11 A. Rowell 2024). This large wingless cricket is currently being proposed for listing as a threatened species, as its habitat is NTG and its burrows are an important habitat feature for the critically endangered Canberra Grassland Earless Dragon, which occurs further north on the Airport.

It was noted in 2022 that the Tall Fescue had established on the taxiway verges but was being invaded in parts by weed species such as Chilean Needlegrass *Nassella neesiana*. Tall Fescue is not ideal for closely mown sites as mowing removes most of the seed before

maturity, and the smaller Perennial Ryegrass is unsuitable for use on the Airport as it seeds at a lower height and attracts Galahs (a high hazard species for aircraft).

The part of the verge immediately adjacent to the taxiway is mown more closely and frequently than the rest of the Airport grasslands, for visibility of lights and signs, operation of incursion alerts etc. The Tall Fescue tussocks in these areas are mostly small and widely spaced, with bare ground between them. This strip is however currently seen as having low potential for revegetating with native species due to the requirement for low mowing, soil compaction and restrictions on soil disturbance and activity close to the taxiway.

Exotic grass species which are invading the NTG patches (mainly from the edges) include Chilean Needlegrass and Serrated Tussock *Nassella trichotoma*. These grassland weeds are common on the Airport and often replace planted species in Canberra as they can survive and seed under low mowing (Photograph 5) (p12 A. Rowell 2024). African Lovegrass *Eragrostis curvula* has recently become more common on the Airport, replacing both native and exotic grasses on drier soils. The most prominent broad-leaved weeds were Cat's Ear *Hypochaeris radicata*, Plantain *Plantago lanceolata* and Sheep's Burnet *Sanguisorba minor*, and these often replace exotic grasses after they have been sprayed with herbicide. Weeds were not mapped comprehensively but some large patches are shown in Figure 2 (p8 A. Rowell 2024).

Several patches of the woody weed Gorse *Ulex europaeus* occur west of Taxiway B. This plant can become a large shrub but can also survive, seed and spread under low mowing (Photograph 6) (p12 A. Rowell 2024).

A copy of Alison Rowell's report entitled "*Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2024 – With notes on grassland rehabilitation*" October 2024 was provided with the 2023/2024 Compliance Report.

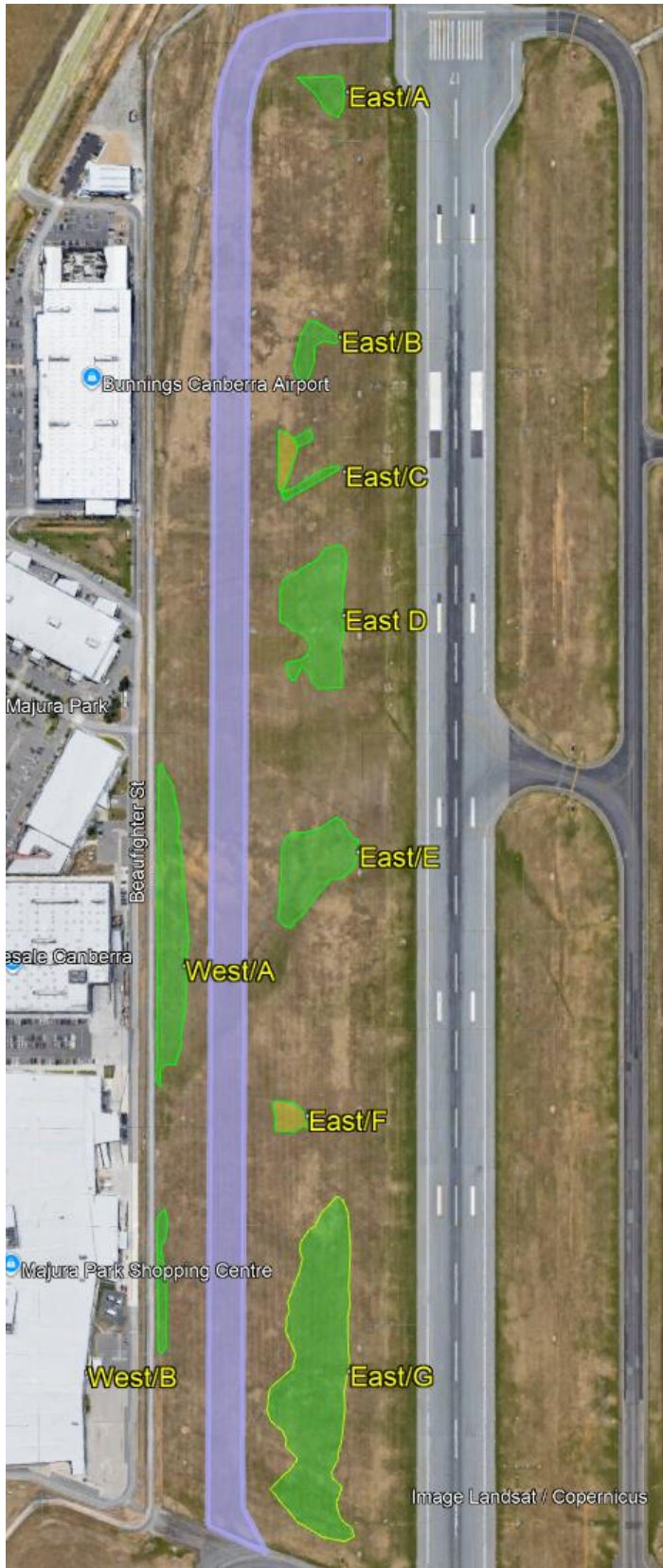


Figure 1: NTG patches in 2024 (green) and two areas which fell below the standard (yellow)

4.9 October 2024 – Outcome of Taxiway Bravo Resurvey and Mapping

A. Rowell report October 2024, Section 3: Results (p5) states:

In 2024 the ten patches of native-dominated grassland previously identified were revisited, and 2024 nine included at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community, embedded in native dominated grassland (Figure 1).

In 2024, the shape of some patches had changed, with some expansion of native species into dry low biomass areas at the expense of Tall Fescue, but larger areas were degraded by invasion of exotic species in wetter areas (Figure 1). One small patch and parts of others had fallen below the criteria for NTG due to weed invasion, but this may be reversible by targeted weed control. In 2024 the total area of the NTG patches was 2.46 hectares compared to 2.6 ha in 2023.

A. Rowell report October 2024, Section 4: Recommendations (p9) states:

Control by careful spot spraying is recommended where perennial grass weeds such as Serrated Tussock, Chilean Needlegrass, Tall Fescue, African Lovegrass and *Paspalum dilatatum* occur within NTG patches.

Gradually spraying back the above weeds where they occur adjacent to NTG patches east of the taxiway and replanting the killed strip with a dense buffer strip of native species appropriate to the soil conditions of the patch has the potential to increase the area occupied by NTG and to create north-south links between NTG patches. Care will need to be taken with the type of herbicide used, to allow native grasses to develop after the weeds have been sprayed out. Plants and seed collected from the Airport and developed in the proposed seed orchard (Section 5) could be used in this way.

Where the exotic species are growing in deeper or wetter soil, Kangaroo Grass *Themeda triandra* would be a suitable buffer/replacement species. Where the soil is shallower and compacted, Redleg Grass *Bothriochloa macra* and Wallaby Grasses *Rytidosperma* would be more appropriate. The results would need to be monitored, and after native grasses have been established and weeds controlled, native forbs could be introduced by seed, supplemented with some tube stock grown on-Airport.

The Gorse may be better controlled by digging it out, as previous spraying has not killed these plants and they are spreading.

4.10 August 2025 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo

In August 2025, Alison Rowell, Biologist and Environmental Consultant, resurveyed and remapped the grasslands surrounding Taxiway Bravo.

Alison Rowell's report entitled "*Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2025 – With notes on grassland rehabilitation*" August 2025 is provided at **Attachment 2**.

A. Rowell report August 2025, Section 2: Methods (p2) states:

Grassland areas each side of the Taxiway B extension, including replanted verges, were inspected on 21 and 22 August 2025.

The boundaries and condition of grassland patches were assessed against the Conservation Advice criteria for the critically endangered Natural Temperate Grasslands of the South-eastern Highlands community (NTG) (TSSC 2016), using the more generous criteria for grasslands surveyed outside ideal sampling times (which is spring-early summer) due to the winter survey period and little growth since the last mowing, which impeded plant identification in some areas. Grasses had not yet begun flowering and were identified on vegetative characters and seed head remains from the previous season. Many forb species (non-grass generally broad-leaved plants) were at the seedling or rosette stage and were identified from leaf characters.

Some of the remaining patches of native grassland surrounding Taxiway B meet the above description (refer page 3 A. Rowell report August 2025), with breaks and areas within the NTG patches that contain weeds, bare ground or road base. This also means that some patches that are less than the minimum area (1,000m²) are included due to their proximity to other NTG patches. These have been mapped in detail to indicate potential for rejoining separated patches with weed control and/or replanting of native species.

4.11 August 2025 – Outcome of Taxiway Bravo Resurvey and Mapping

A. Rowell report August 2025, Section 3: Results (p4) states:

In 2023, survey showed that the boundaries and composition of the NTG patches identified in 2021/2022 had remained approximately the same (Rowell 2022, 2023). In 2023 the total area of the NTG patches was 2.6 ha, in 2024 it was 2.46 ha, and in 2025 it was 2.7 ha.

In 2025 the patches of NTG previously identified were revisited, and areas around them were also inspected. Most of the native-dominated patches included at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community (Figures 1 and 2).

The native species recorded are shown in Table 1. There were more native grass species in 2025, but fewer non-grass and indicator species than recorded in 2024. This is probably due to the different seasons of the surveys (Table 2), with many species being more or less detectable in different months (Photographs 1 and 2).

As seen in 2024, the shape of some NTG patches had changed between years. There were minor gains following previous weed control, plus some expansion of native species into dry low biomass areas (mainly near taxiway edges) at the expense of Prosper Fescue, which does not persist well under close mowing. Some easterly extensions of NTG were estimated while standing at the gable markers, as access to the movement area is restricted.

One small patch and parts of others (including the narrow West/B patch) had fallen below the criteria for NTG due to weed invasion, especially by Serrated Tussock *Nassella trichotoma* (Figures 1 and 2), but these losses should be reversible by targeted weed control. Some (usually wetter) NTG areas had been degraded by recent invasion of species such as Chilean Needlegrass *N. neesiana*, and Sheep's Burnet *Sanguisorba minor*.

The areas of grassland between the native-dominated patches contained a variety of species. Some areas contained scattered native grasses but few or no native forbs, with a moderate cover of weedy grasses such as Paspalum *Paspalum dilatatum*, Serrated Tussock and Chilean Needlegrass, and broad-leaved weeds such as Catsear *Hypochaeris radicata*, Plantain *Plantago lanceolata* and Sheep's Burnet. These forbs often replace other weeds after the use of Glyphosate/Roundup (A. Rowell pers. obs.) without follow up plantings. Other patches were completely dominated by Serrated Tussock or Chilean Needlegrass. These different grassland types will require appropriate targeted management if rehabilitation is the goal.

African Lovegrass *Eragrostis curvula* has become more common on the Airport in recent years, replacing both native and exotic grasses on drier soils. This species can spread and dominate faster than the other weedy grasses so patches encountered were recorded (Figure 3) as its control should be a priority. Other weeds were not mapped comprehensively but some more significant patches are also shown in Figure 2.

Several patches of the woody weed Gorse *Ulex europaeus* remain west of Taxiway B in NTG patches (Figure 3). This plant can become a large shrub but can also survive, seed and spread under low mowing. There were signs that plants had survived previous spraying with herbicide (Photograph 7), and it is again recommended that this weed be removed by chipping out of whole plants, with the cut stems painted or sprayed with concentrated Glyphosate to prevent regrowth.

A patch of about 0.25 ha of grassland not previously mapped as NTG but now dominated by the Wallaby Grass *Rytidosperma fulvum* was found near the northern end (Figure 1). This native grass had not been previously recorded in the Taxiway B area but is known from the north-west corner of the Airport. There were only a few native forbs in this patch and they were widely scattered, so it does not currently qualify as NTG, but the Wallaby Grass was successfully competing with weeds on the heavy soil and it should be possible to rehabilitate the patch to NTG status by spot-spraying of weeds and planting of more of the forb species that are currently present, and others that do well on heavy soils (see Section 5). It is also likely that this grass is a feed species for the larvae of the Golden Sun Moth *Synemon plana* which is listed as Vulnerable under the EPBC Act and known to occur in the project area.

The verge immediately adjacent to the taxiway is mown more closely and frequently than the rest of the Airport grasslands for operational reasons, such as ensuring visibility of lights and signs and assisting the operation of incursion alerts. Some strips beside the taxiway contain a high proportion of bare ground, though the compacted clay soil now appears stable and unlikely to be affected by jet blast. The increase in bare ground is due to the decline of the species planted after taxiway construction (Fescue, Couch, Clover) after exposure to harsh conditions and the close mowing of the taxiway margin which suppresses seeding of the Fescue. This effect was also seen on the edges of some drains.

Chilean Needlegrass has sometimes replaced the Fescue but in many such areas the more common grass is now the native Redleg Grass, with occasional occurrences of some small native forbs such as Scrambled Eggs, Variable Plantain and New Holland Daisy, which can tolerate the conditions. It is likely that this effect is due to some success from the re-use of site soil containing native species, though the effect has taken several years to become apparent. One of these strips is shown in Figure 1 and in Photographs 3 and 4. The strip shown is 0.4 ha, and there is likely to be at least one hectare of grassland around Taxiway B extension in this condition that could be rehabilitated.

Five old burrows of the Canberra Raspy Cricket *Cooraboorama canberrae* were found in the NTG areas and inspected with a fibrescope (Photograph 6). The deepest burrow was fairly recent and 13cm deep, but none were occupied. This is usual in winter as the burrow-creating adults usually die in March. This large wingless cricket is currently proposed for listing as a threatened species, as its habitat is NTG and its burrows are an important habitat feature for the critically endangered Canberra Grassland Earless Dragon, which has been recorded further north on the Airport.

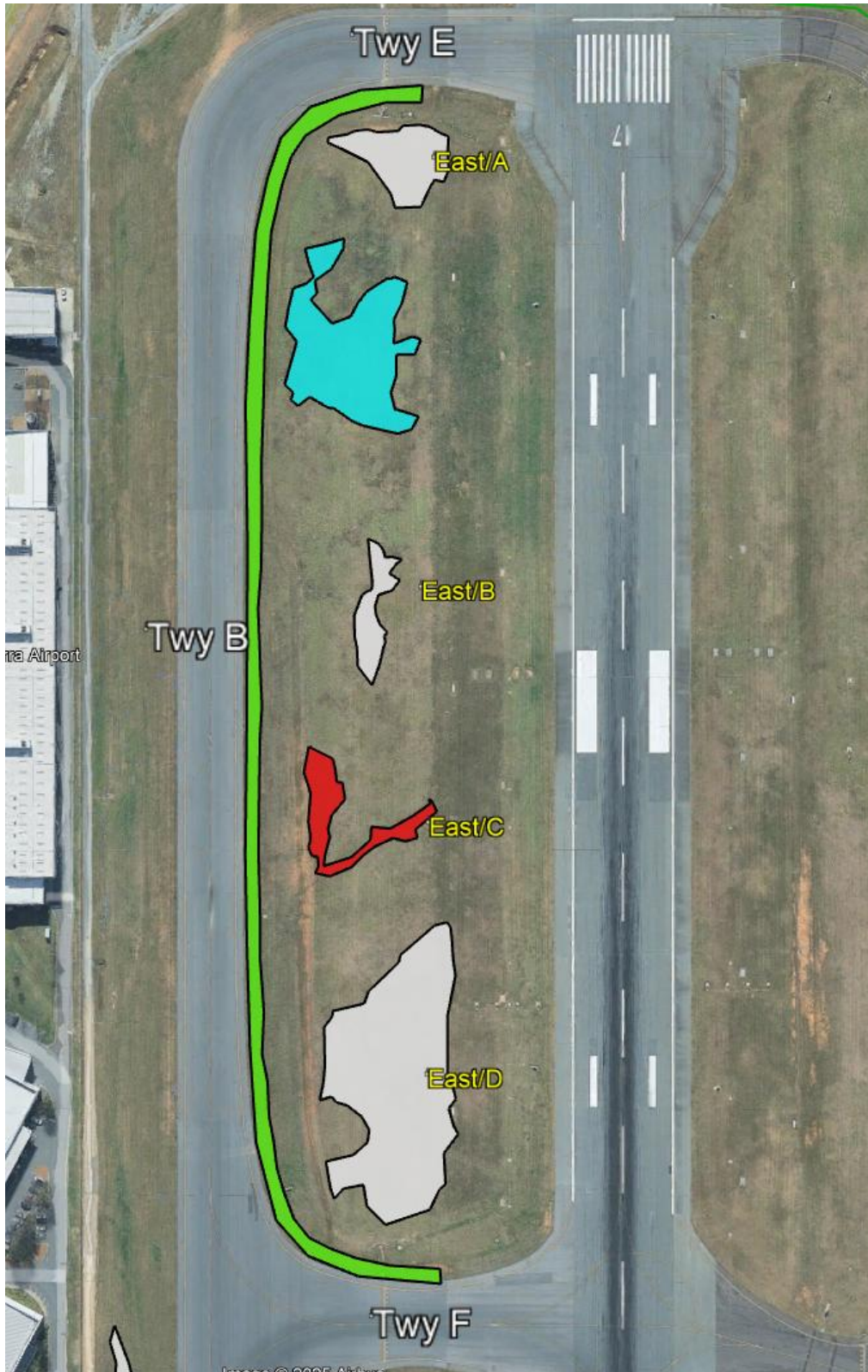


Figure 1. Grassland in the northern taxiway island, 2025.

White = NTG

Red = patch which has fallen below NTG threshold since 2024

Blue = patch of *Rytidosperma fulvum* with rehabilitation potential

Green = strip up to 8 metres wide beside taxiway with rehabilitation potential.



Figure 2. Grassland around the southern part of Taxiway B extension, 2025.

White = NTG

Yellow = Serrated Tussock invading NTG patch

Orange = large Chilean Needlegrass patches, one invading NTG patch.



Photograph 1. Native grass and forb species in patch East/G, late August 2025.



Photograph 2. Young Blue Devil plants (spiky green tufts), an indicator species. Patch East/G, late August 2025.

A. Rowell report August 2025, Section 5: Recommendations (p11) states:

Control by careful spot spraying is recommended where perennial grass weeds such as Serrated Tussock, Chilean Needlegrass, African Lovegrass and Paspalum occur within and adjacent to NTG patches to avoid further loss of existing NTG.

Further methods described below could increase the area of NTG significantly by incremental expansion of existing patches and rehabilitation of weedy areas.

A program could be considered that would involve spraying back the above weeds (with Fluproponate where appropriate) where they occur on the boundaries of existing NTG patches and monitoring for native species recovery, then (if necessary) replanting the killed strip with a buffer strip of native grasses appropriate to the soil conditions of the patch. This procedure has the potential to increase the area of NTG and to create/restore links between NTG patches, and also to increase available habitat for the threatened Golden Sun Moth (if larval feed species are included). Golden Sun Moths have poor powers of dispersal, making patch connection a valuable tool in their conservation. Plants and seed collected from the Airport and harvested from the airside propagation area would be used in this restoration.

Where the exotic species are growing in deeper or wetter soil, Kangaroo Grass and *Rytidosperma fulvum* would be suitable buffer/replacement species. This is demonstrated by the natural occurrence of these species in some wetter areas of the Airport, and one area where Kangaroo Grass has recovered naturally after spraying of Chilean Needlegrass with Fluproponate. Where the soil is shallower and compacted, Redleg Grass and smaller Wallaby Grasses would be more appropriate. Initially some native grass seed might need to be purchased for this work, but all these species can and have been harvested from the Airport and will be grown in the propagation area. The results would need to be monitored, and after native grasses have been established and weeds controlled, more native forbs could be introduced by seed, supplemented with some tube stock grown on-Airport.

The strips of grassland along the taxiway margins and drains (e.g. in Figure 1, Photographs 3, 4) have potential for rehabilitation as native dominated grassland (and eventually NTG) due to the amount of bare ground they contain, the current presence of some native species and site conditions that would mostly favour some native species over many weed species. Methods used would be constrained by operational considerations, but initial boom spraying of Chilean Needlegrass would be a useful first step where that species is dominant. The initial aim would be to create strips dominated by native Redleg Grass, which may increase naturally after Chilean Needlegrass control, or may require some supplementation by seed drilling.

These edging strips are narrow but probably total at least one hectare in the project area and have the potential to be expanded by continued treatments of their inner edges, especially as new weed incursion is less likely on the edges bounded by asphalt which would be rehabilitated first.

Large dense patches of single weeds such as Chilean Needlegrass and Serrated Tussock (e.g. see Figure 2, Photograph 5) may appear irretrievable, but the presence of a monoculture could actually increase the effectiveness of selective herbicide applications, as soil stores of other weed species are likely to be low in these patches and effectively controlling the target species could leave a relatively clean seed bed suitable for replanting with native species.

5. Grassland Rehabilitation Activities at Canberra Airport

A. Rowell report August 2025, Section 4: Grassland rehabilitation activities at Canberra Airport (p10) states:

Areas on the Airport where patches of weeds such as Serrated Tussock have been sprayed with Glyphosate (a non-selective herbicide) in the past have often later become covered with other exotic species.

Trials using the selective tussock herbicide Fluproponate (marketed as Taskforce) on weedy patches in the northern NTG area of Canberra Airport began in winter 2024, with promising results. Further trials, with record-keeping and post-treatment surveys can help determine the best time and application rate for this chemical on weedy grasses such as Serrated Tussock and Chilean Needlegrass around native grass areas. Initial results from winter application show suppression of Chilean Needlegrass, with some native grasses (such as Kangaroo Grass) apparently unaffected and reclaiming previously weed-dominated patches.

After exotic patches have died after spraying, native species such as grasses and/or some fast-growing forbs could be planted to compete for space and nutrients with exotic species that may have seeds in the soil. Some herbicides will have a residual effect on the subsequent establishment of native plants, so these effects should be researched in advance and the after-effects of weed-spraying trials should be recorded and used to inform future control efforts. This FAQ sheet [TASKFORCE® Herbicide](#) contains useful information on the use of Fluproponate and Glyphosate against various weeds under Australian conditions, with an emphasis on grasslands.

During Canberra Grassland Earless Dragon (CGED) surveys from 2023 to 2025 and other airside surveys, some grassland areas (particularly north of the main runway) were identified as having potential to be used as trial sites using different methods of grassland rehabilitation to restore them to native-dominated grassland or NTG status, with a corresponding increase in potential habitat for threatened species such as CGED and Golden Sun Moth and reconnection of currently separate patches of habitat. Observations from that work have informed the current assessment for rehabilitation potential of the grasslands around Taxiway B.

From 2023 to 2025, seeds of native grasses and forbs were hand-collected from high quality NTG grasslands on the Airport by this consultant and Ms Amanda Gurnett-Attard of Canberra Airport for use in future restoration work, and a seed collection curated by Ms Gurnett-Attard is stored under appropriate conditions in the Airport offices (e.g. see Gurnett-Attard 2024). In 2025 an on-Airport plant propagation area was designed and constructed airside, to provide seed and plants for grassland revegetation/rehabilitation projects. From January 2025 seeds were planted, and the above ground beds now contain

many forb species and some grasses grown from Airport seed which will produce more seed later this year.

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and Umwelt to further develop experiments/trials in the NTG areas identified as opportunities for grassland rehabilitation within the Canberra Airport Lease.

Over the years, some of these experiments/trials have included:

- A Greening Australia experiment in the Eastern Grass near Scherger Drive;
- A weeding program and spreading of seed by our experiment of broadcasting NTG and mowing thatch between taxiway Alpha, the Runway and near the Instrument Landing System (ILS);
- The establishment of a translocation site north of Taxiway Foxtrot and west of Taxiway Alpha;
- Improving drainage to the north of Runway 17/35.

In addition to the key and ongoing NTG rehabilitation works described above, Canberra Airport and consultant ecologists have identified and established the following NTG rehabilitation trials. Depending on the success of the trials, these and other rehabilitation activities will be expanded across the airport site:

Trial Area 1

In early August 2025, rehabilitation experiments/trials were established in two areas on-Airport following the removal of NTG slabs and individual NTG plants from the Northern Road verges.

Prior to setting up these rehabilitation experiments/trials, Canberra Airport engaged Umwelt to undertake survey work in June and July 2025 to assess the condition of the grassland to support the proposed rehabilitation and translocation of NTG, and to assess for the presence of CGED to avoid impacts to the species. Following the surveys, Umwelt confirmed that the two areas did not contain NTG flora or fauna and therefore were suitable recipient sites for the sods and individual plants translocated from the Northern Road verges. Individual plants were also relocated to the Seed and Plant Nursery.

It is important to note that the two areas are nearby NTG and the known CGED habitat on-Airport and have been designed with the potential to create a continuum of NTG.

Trial Area 2

A 10 x 5m² quadrat area has been established north of the recipient site of the NTG slabs translocated from the Northern Road corridor verges.

Trial Area 3

A 5.5 x 2m² quadrat area will be established east of Trial Area 1 where bare soil was observed.

Trial Area 4

The aim of this trial is to repair four areas previously treated with herbicide around bird count cones in the northern areas of the NTG habitat. A hand collected seed mix from the airport was used in these areas. Canberra Airport is monitoring seed germination and recording data.

6. Seed and Plant Nursery

Throughout 2025, Canberra Airport worked to establish a Seed and Plant Nursery on-Airport for the purposes of NTG rehabilitation within the Canberra Airport Lease in response to conditions for both EPBC 2008/4170 (Taxiway Bravo Extension Project) and EPBC 2009/4748 (Northern Road Project). The site is in a secure airside storage/maintenance compound. The area prepared is currently about 250m², with potential to expand to the south.

The development of the Nursery has been informed by Nursery Industry Accreditation Scheme Australia (NIASA) Best Management Practice guidelines - [NIASA ACCREDITATION – Australian Plant Production Standard \(APPS\)](#) which contain protocols for disease prevention, pest and weed control.

The Nursery will mainly be used to grow plants from seed collected on the Airport to produce larger amounts of seed. Some plants will be grown by cuttings or division. The seed and plants produced will be available for replanting projects, and some seed plants may later also be transplanted.

Priority will be given to growing mainly non-grass species which enhance NTG value and for which commercial seed is not available or is expensive.

Seedlings and plants grown at the Nursery will be used to rehabilitate NTG grassland areas within the Canberra Airport Lease. A management plan for these NTG areas is in the process of being developed in an effort to enhance performance outcomes.

Below is an aerial image of the location of the Seed and Plant Nursery area in red, prior to establishment.



Images of the Seed and Plant Nursery are provided below.



Nursery layout, raised beds with native potting mix on crushed gravel base, mesh fencing, storage shed



Raised bed with native grass seedlings consisting of mixed Wallaby Grasses grown from seed harvested on-Airport, planted in seed trays in January 2025 and moved to raised bed in June 2025



Native forb seedlings in raised planter beds



Rytidosperma spp. which were grown from seed – September 2025

The following images of plants translocated from the Northern Road verges to the Seed and Plant Nursery were taken in September 2025.



Vittadinia muelleri



Plantago varia



Lomandra bracteata



Erodium crinatum

The following images of plants translocated from the Northern Road verges to the Seed and Plant Nursery were taken in November 2025.



Eryngium ovinum



Mixed natives



Pvaria sapogon



Pvaria vmuelleri



Bulbine bulbosa



Wahlenbergia

7. 2026 Natural Temperate Grassland (NTG) Survey within the Canberra Airport Lease

Throughout the reporting period 2024/2025, the Airport has worked with Alison Rowell, Biologist and Environmental Consultant, and Umwelt to undertake fieldwork to map and assess the condition of NTG areas within the Canberra Airport Lease.

The Airport Environment Strategy (AES) requires Canberra Airport to undertake an NTG survey every eight years which is aligned with the preparation of the Canberra Airport Master Plan. The next Master Plan is due to be submitted to the Minister for consideration and approval by February 2028.

Following an extensive internal review of data, in July 2025 Canberra Airport formed the view that it should focus on fully understanding the current extent and condition of the NTG ecological community within the Canberra Airport Lease that had been rehabilitated to report against the requirements of EPBC 2008/4170 Approval conditions. The Airport therefore decided to postpone submission of the 2024/2025 Compliance Report which was due on 31 August 2025 to enable work to be completed for this specific purpose. Umwelt was engaged, as suitably qualified experts, to undertake an NTG survey within the Project Area (refer to Figure 3.1). The NTG surveys were undertaken in February/March 2026 to confirm the information provided in the 2024/2025 Compliance Report was as accurate as possible. The survey would also identify any potential data gaps and enable Umwelt to prepare Shapefile mapping to support Canberra Airport's current and future compliance requirements for the Taxiway Bravo EPBC 2008/4170 Approval conditions and definitions.

The Umwelt *Canberra Airport Temperate Grassland Report June 2026* report states at Section 4.0 Conclusion:

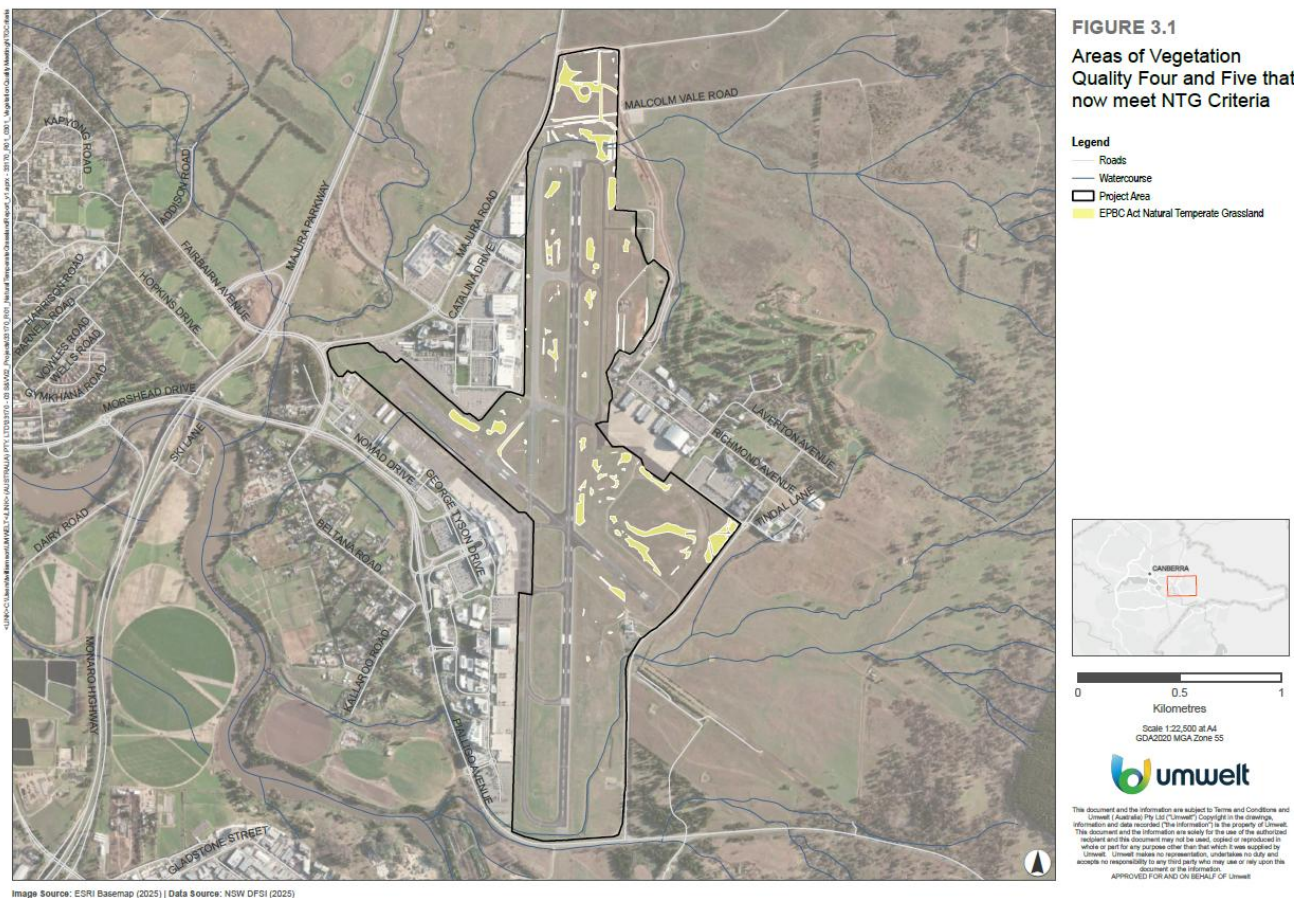
Grassland surveys undertaken by Umwelt for the Canberra Airport have provided an assessment of the 2026 extent and condition of the NTG community within the Project Area, in support of compliance with EPBC Act approval conditions for Taxiway Bravo (EPBC 2008/4170). Approval conditions require the rehabilitation of 17.1 ha of vegetation quality 4 and 5 within the Canberra Airport lease such that it meets the definition of NTG.

- Digitisation of vegetation quality classes 4 and 5 identified a total of 129.57 ha (combined) within the Project Area. Of the 129.57 ha of vegetation quality classes 4 and 5, 11.73 ha now meet the minimum NTG listing criteria. This result demonstrates measurable progress toward the rehabilitation target and confirms an increase in NTG extent within the Project Area, with 5.37 ha remaining to achieve the 17.1 ha requirement.
- Condition assessments indicate that the assessed NTG includes areas of high-quality grassland. Of the eight floristic plots undertaken, six met the high to very high condition threshold and two met the moderate to high condition threshold.

- The assessment also confirms that ongoing management will remain important to maintain and extend these gains. Elevated exotic species cover in some areas presents an ongoing constraint and may limit further improvement in NTG extent and condition if not effectively managed.

Overall, these findings demonstrate an increase in NTG, presence of high-quality grassland, and progress toward rehabilitation objectives. Continued targeted rehabilitation, weed management and adaptive grassland management will be important to build on this progress and support achievement of the remaining rehabilitation target.

The Umwelt Canberra Airport Temperate Grassland Report June 2026 is provided at **Attachment 3**.



8. Canberra Grassland Earless Dragon (CGED) *Tympanocryptis lineata* Monitoring at Canberra Airport

The NTG on Canberra Airport is habitat for vulnerable and endangered fauna, including the CGED and GSM. In that regard, the Airport Environment Strategy (AES) stipulated that monitoring for these threatened fauna species is conducted every two years.

Alison Rowell undertook CGED monitoring at the northern end of Canberra Airport in late summer/autumn 2019, 2021 and 2023 and no CGED were found during monitoring at the permanent grids in this area. However, one CGED was found during the pre-construction survey for Taxiway Bravo in May 2019.

Although CGED monitoring was undertaken in 2023, and the AES stipulates monitoring every two years, the Airport decided to undertake CGED monitoring in 2024 and again in 2025. In consultation with Alison Rowell, Umwelt was engaged to undertake the 2024 and 2025 CGED monitoring. In collaboration with the ACT Government, Canberra Airport adopted the same extended monitoring periods for 2024 and 2025:

- 26 March to 27 June 2024
- 17 February to 29 May 2025

The new survey methods trialled in 2024 were replicated for the 2025 monitoring period. As no CGED were found in the latest round of monitoring (2025), this means that none have been seen at the northern end of Canberra Airport since 2017.

The Umwelt *Canberra Grassland Earless Dragon Monitoring Report December 2025* is provided at **Attachment 4**.

9. Golden Sun Moth (GSM) *Synemon plana* Monitoring at Canberra Airport

In accordance with the Airport Environment Strategy (AES), GSM monitoring surveys are conducted every two years. The surveys, however, can only be conducted when suitable breeding conditions are present, otherwise GSM will remain underground in their larval state. Suitable weather conditions (warm to hot, sunny and relatively calm) were present during the Summer of 2025, and targeted GSM surveys were undertaken on 8, 9, 10 and 15 December 2025, following confirmed emergence at reference monitoring sites within the ACT.

Suitable weather conditions were also present during the Summer of 2023, however Umwelt noted the surveyed numbers of GSM were down on previous years. The GSM surveys undertaken between 2018 and 2022 did not occur as they were either impacted by unsuitable weather conditions or the Covid pandemic.

The Umwelt “Golden Sun Moth Surveys 2025 – Prepared for: Canberra Airport Pty Ltd, February 2026” report at Section 4.1 2025 Survey Results states:

The 2025 GSM survey season was considered favourable due to generally dry and warm conditions. Survey weather was compliant with the guidelines with the surveys generally undertaken on clear, warm to hot days and on days that were more than two days since rain. Winds ranged from light to gentle breeze, consistent with the exposed setting of Canberra Airport (Table 4.1).

Across the Project Areas a total of 885 GSM being recorded, with 879 males and six females. Counts varied between areas, with the highest numbers in Area 1 (154), Area 6 (149) and Area 7 (120) (Table 4.1).

The report at Section 4.2 Comparison with Past Survey Results states:

GSM surveys have been conducted at the Canberra Airport since 2000, providing a valuable long-term understanding of the population (Table 4.2). Numbers of flying males vary between seasons, with counts ranging from fewer than 100 to several thousand across years. Across the long-term dataset, 2025 had a relatively high number of male GSM counted, especially in comparison with the 2023 results, which were the lowest on record.

The total level of survey effort (km of transects) in 2025 was however greater compared to previous years. In 2025 an average of 12 moths per kilometre was recorded (Table 4.2). This is one of the lowest counts on a per kilometre basis and is consistent with an overall downward trend in counts (Graph 4.1).

The downward trend in the number of GSM recorded over time is likely due to multiple reasons such as differences between annual weather conditions, changes in long term weather conditions and/or changes in the extent and quality of habitat. Annual variation in survey effort could also account for fluctuations. It is feasible that following consecutive years of low emergence that breeding success would also be reduced, potentially leading to an overall population decline.

The overall downward trend does however indicate that continued management for the species, especially increased and sustained weed control effort (especially within and adjacent to patches of native dominated grasslands and the natural temperate grassland ecological community) is critical.

Table 4.2 Summary of Golden Sun Moth Surveys at Canberra Airport

Survey Year	Survey Distance (km)	Total Male Golden Sun Moth Counted	Total Female Golden Sun Moth Counted	Golden Sun Moths per Kilometre Surveyed	Reference
2000	9.3	503	0	54	Crawford (unpublished)
2003	18.4	5300	5	288	Rowell & Bishop (2004)
2006	18.5	3300	4	178	Rowell (2007)
2007	8.5	1257	12	148	Biosis Research (2008)
2009	18.2	6200	85	341	Rowell (2010)
2011	6.4	59	0	9.2	Rowell (unpublished)
2013	Approximately 17	255	0	14	Rowell (unpublished)
2015	Approximately 17	612	2	35	Rowell (unpublished)
2017	17.6	156	0	9	Rowell (2018)
2023	35	41	1	1	Umwelt (2024)
2025	76.29	878	6	12	This report

The Umwelt “Golden Sun Moth Surveys 2025 – Prepared for: Canberra Airport Pty Ltd, February 2026” report is provided at **Attachment 5**.

In accordance with the AES, a GSM survey is next planned for the Summer of 2027.

10. Biodiversity Offset Strategy – Year 5 Tasks and Targets

The Minister approved deferring the date of commencement of the action from 4 June 2019 to commence 4 June 2020. Therefore 2020/2021 is considered to be Year 1 (refer Section 12 page 34 of this Compliance Report).

The Strategy identifies the following Tasks and Targets for Year 5 (2024/2025):

Task	Description	Target
Seed Collection	Collect, dry and store seed from Master Plan offset property and on-Airport harvesting.	Year 1-5
Further Develop Grassland Experiments	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 1-5
Broad acre seeding	Using the outcomes of Grassland experiments, broad acre seeding of areas of vegetation within the Airport lease.	Year 2-5
Replanting forbs	Replanting propagated forbs and forbs located within areas affected by the development in areas of vegetation.	Year 2-5
Maintain revegetation	Maintain revegetation areas through watering, weed control and additional planting/seeding if required.	Year 2-5

Progress of the Tasks listed above have been responded to in Compliance Reports for the Taxiway Bravo Extension Project since 2020. These reports have been uploaded onto the Canberra Airport website and can be accessed via the following link:

<https://www.canberraairport.com.au/corporate/about/development>

Refer to Section 3 Summary of Outcomes for 2024/2025 (page 2), Section 4.10 (page 14) and subsequent sections of this Compliance Report for progress of the Tasks for 2024/2025, and Attachments 2 and 3.

11. Approval by Minister of Revised Biodiversity Offset Strategy – March 2022

A revised February 2022 Taxiway Bravo Biodiversity Offset Strategy (EPBC 2008/4170) (BOS) was submitted to the Department of the Environment and subsequently approved by a delegate of the Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), on 11 March 2022, as required in Condition 2 of the EPBC 2008/4170 Approval for the construction of Taxiway Bravo and associated works.

A copy of the approved BOS and approval letter were provided with the 2021/2022 Compliance Report.

12. Approval by Minister to Extend the Timeframe for Rehabilitation – March 2022

Canberra Airport submitted with the 2020/2021 Annual Compliance Report a letter requesting the Minister to consider deferring the date of commencement of the action from 4 June 2019 to commence 4 June 2020. The request was made on the basis that prevailing conditions for rehabilitation had been unfavourable due to drought. The approval letter dated 11 March 2022 stated:

Regarding your request to extend the timeframe for rehabilitation to 2025:

I have considered the justification and information provided in your letter as well as that available from the Australian Bureau of Meteorology. As the first year of rehabilitation activities (2019) is well documented as a year of drought for ACT, I, as a Delegate for the Minister for the Environment, have decided to deem the prevailing conditions throughout 2019 to have been unfavourable for rehabilitation activities. In accordance with conditions 2A the outcome required for rehabilitation by condition 2.a.ii may now be achieved within 6 years of commencement of implementation (by 2025).

13. Application to the Minister to Vary Condition 2.A. of EPBC 2008/4170 Approval

As reported in Section 7, 2026 Natural Temperate Grassland (NTG) Survey within the Canberra Airport Lease, the Airport engaged Umwelt, as suitably qualified experts, to undertake survey work to prepare NTG mapping and a report against the requirements of the Taxiway Bravo EPBC 2008/4170 Approval conditions. Approval conditions require the rehabilitation of 17.1 hectares of vegetation quality 4 and 5 within the Canberra Airport lease such that it meets the definition of NTG.

This work has been completed, and the results confirm that 11.73 hectares of grassland within the Canberra Airport Lease has been rehabilitated to NTG status. This means there is 5.37 hectares of grassland remaining of the 17.1 hectares to be rehabilitated to satisfy the requirements of EPBC 2008/4170.

As the timeframe for rehabilitation expired in August 2025, Canberra Airport will activate condition 5 Revision of action management plans of EPBC 2008/4170.


Canberra Airport will prepare an application to request that the Minister or his Delegate consider a variation of condition 2.A. of the EPBC 2008/4170 approval under section 143A of the *Environment Protection and Biodiversity Conservation Act 1999*. The request is to extend the

timeframe to rehabilitate in accordance with condition 2.A, and the outcome required for rehabilitation by condition 2.a.ii, by a further 5 years (that is by 2031).

Canberra Airport will expand on the rationale for this request in the application, however, the basis for the request is that the Taxiway Bravo experience has proven that five years is too short a timeframe in which to rehabilitate grassland to a condition that meets the definition of NTG.

14. 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 (please print)	Andrew Connor
Position (please print)	Planning and Environment Manager
Organisation (please print including ABN/ACN if applicable)	Canberra Airport Pty Ltd ACN 080 361 548
Date	30 June 2026

ATTACHMENT 1 - COMPLIANCE TABLE

EPBC 2008/4170 (as varied 3 June 2019) – Taxiway Bravo Extension Project, Canberra Airport

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
1	<p>The person taking the action must not clear more than 5.7 ha of Natural Temperate Grassland and may only construct the Taxiway Bravo and associated works consistent with Attachment A.</p> <p>A report verifying compliance with this condition must be submitted to the Department within 3 months of completion of construction.</p>	Compliant	<p>Not more than 5.7 hectares of Natural Temperate Grassland (NTG) has been cleared within the construction zone.</p> <p>The Taxiway was constructed consistent with Attachment A.</p> <p>Compliance Report 1 submitted to then Department of Agriculture, Water and the Environment (DAWE) on 16 October 2020, advised at Section 9, page 13 “Not more than 5.7ha of Natural Temperate Grassland (NTG) was cleared within the construction zone”.</p>
2	<p>The person taking the action must submit a Biodiversity Offset Strategy for the Golden Sun Moth, Grassland Earless Dragon and Natural Temperate Grassland to the Minister for approval. The strategy must include:</p> <p>a. A long-term conservation offset for the removal of habitat for the Golden Sun Moth, Grassland Earless Dragon and Natural Temperate Grassland including:</p> <p>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</p> <p>ii. Measures to rehabilitate at least 17.1 hectares of Vegetation quality 4 and 5</p>	Compliant	<p>A revised Taxiway Bravo Biodiversity Offset Strategy was submitted with the 2020/2021 Taxiway Bravo Annual Compliance Report for the Minister’s approval on 31 August 2021.</p> <p>Following consultation with the Post-Approvals section of the then DAWE, a further revised February 2022 BOS was subsequently approved by a delegate of the Minister on 11 March 2022. Refer Section 5, Attachment 5 of 2021/2022 Annual Compliance Report.</p> <p>The total NTG rehabilitated is 11.37 hectares as surveyed in the Umwelt report.</p>

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>within the Canberra Airport Lease to meet the definition of Natural Temperate Grassland.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>		
2A	<p>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.</p>	Compliant	Refer Section 13 Application to Minister to Vary Condition 2.A of EPBC 2008/41790 Approval (page 34 of the 2024/2025 Compliance Report).

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
3	<p>The person taking the action must develop and submit a Construction Environment Management Plan (CEMP) to the Minister for approval prior to construction. The plan must include but is not be limited to:</p> <ul style="list-style-type: none"> ○ measures to reduce indirect construction impacts on Natural Temperate Grassland; ○ measure to reduce impacts on listed threatened species; and ○ management of Natural Temperate Grassland adjacent to Taxiway Bravo to improve the quality of the grassland. <p>The approved plan must be implemented.</p>	Compliant	The Taxiway Bravo Extension Project commenced on 4/6/2019 with practical completion on 5/8/2020.
3A	<p>Within 6 months following completion of construction, the person taking the action must revise the Biodiversity Offsets Strategy to identify the impacted natural temperate grassland area that is available for rehabilitation, and specify a program to rehabilitate the land to natural temperate grassland. The revised Biodiversity Offset Strategy must be submitted to the Minister for approval. The approved plan must be implemented.</p>	Compliant	<p>The revised Biodiversity Offset Strategy was submitted on 31 August 2021 and a further revised BOS dated February 2022 was approved by a delegate of the Minister on 11 March 2022.</p> <p>Refer Attachment 5 of 2021/2022 Annual Compliance Report.</p>
4	<p>If the Minister believes that it is necessary or desirable for the better protection of the environment, the Minister may request that the</p>	Compliant	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>person taking the action make specified revisions to a plan or measure for the Minister's approval. The person taking the action must comply with any such request. If the Minister approves a revised plan or measure pursuant to this condition, the person taking the action must implement the plan or measure instead of the plan or measure as originally approved.</p>		
5	<p>Revision of action management plans</p> <p>The person taking the action may, at any time, apply to the Minister for a variation to an action management plan or measure approved by the Minister under conditions 2 and 3, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act. If the Minister approves a revised action management plan or measure (RAMP) the, from the date specified, the approval holder must implement the RAMP in place of the previous action management plan or measure.</p>	Activated	<p>Canberra Airport will prepare an application to request that the Minister or his Delegate consider a variation of condition 2.A. of the EPBC 2008/4170 approval under section 143A of the <i>Environment Protection and Biodiversity Conservation Act 1999</i>. The request is to extend the timeframe to rehabilitate in accordance with condition 2.A, and the outcome required for rehabilitation by condition 2.a.ii, by a further 5 years (that is by 2031).</p> <p>If the Minister agrees to extend the timeframe to rehabilitate in accordance with condition 2.A., this will necessitate a revision of the BOS for submission and approval.</p> <p>Refer Section 13 Application to Minister to Vary Condition 2.A of EPBC 2008/41790 Approval (page 34 of the 2024/2025 Compliance Report).</p>
5A	<p>The person taking the action may choose to revise an action management plan or measure approved by the Minister under condition 3, or</p>	Not activated at this time	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the RAMP would not be likely to have a new or increased impact.</p>		
5B	<p>If the person taking the action makes the choice under condition 5A to revise an action management plan or measure without submitting it for approval, the person taking the action must:</p> <ol style="list-style-type: none"> a. notify the Department in writing that the approved action management plan or measure has been revised and provide the Department with: <ol style="list-style-type: none"> i. an electronic copy of the RAMP. ii. an electronic copy of the RAMP marked up with track changes to show the differences between the approved action management plan or measure and the RAMP. iii. an explanation of the differences between the approved action management plan or measure and the RAMP. iv. the reasons the person taking the action considers that taking the action in accordance with the RAMP would not 	Not activated at this time	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>be likely to have a new or increased impact, and</p> <p>v. written notice of the date on which the person taking the action will implement the RAMP (RAMP implementation date), being at least 20 business days after the date of providing notice of the revision of the action management plan, or a date agreed to in writing with the Department.</p> <p>b. subject to condition 5D, implement the RAMP from the RAMP implementation date.</p>		
5C	<p>The person taking the action may revoke the choice to implement the RAMP under condition 5A at any time by giving written notice to the Department. If the person taking the action revokes the choice under condition 5A, the person taking the action must implement the action management plan or measure in effect immediately previous to that being revoked.</p>	Not activated at this time	
5D	<p>If the Minister gives a notice to the person taking the action that the Minister is satisfied that the taking of the action in accordance with the RAMP would be likely to have a new or increased impact, then:</p> <p>a. condition 5A does not apply, or ceases to apply, in relation to the RAMP; and</p>	Not activated at this time	

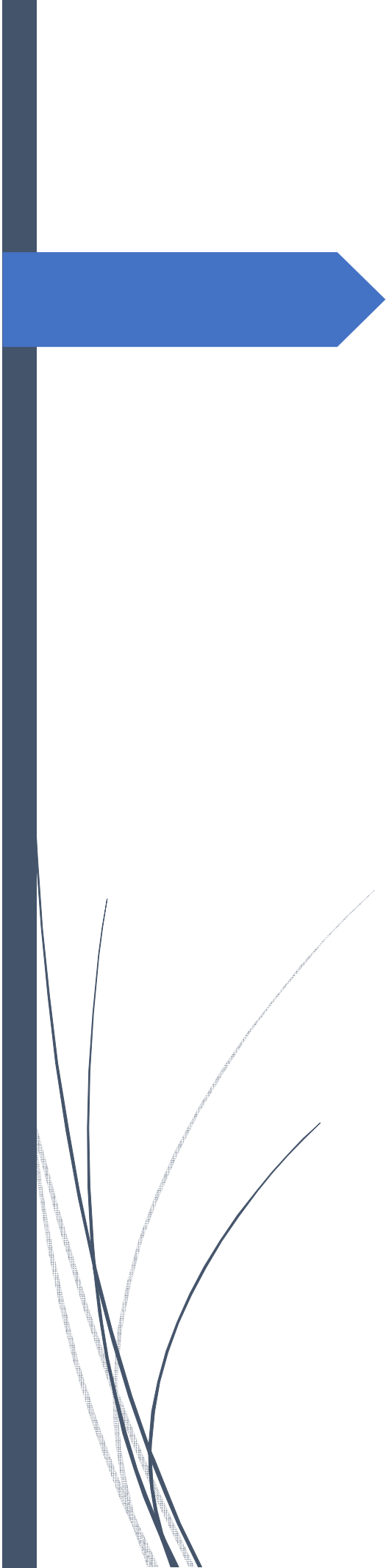
Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	b. the person taking the action must implement the action management plan or measure specified by the Minister in the notice.		
5E	<p>At the time of giving the notice under condition 5D, the Minister may also notify that for a specified period of time, condition 5A does not apply for one or more specified action management plans or measures.</p> <p>Note: Conditions 5A, 5B, 5C and 5D are not intended to limit the operation of section 143A of the EPBC Act which allows the person taking the action to submit a revised action management plan or measure, at any time, to the Minister for approval.</p>	Not activated at this time	
6	If the commencement of the action does not occur within 15 years from the date of this approval, then the person taking the action must not commence the action without the prior written agreement of the Minister .	Compliant	The Taxiway Bravo Extension Project commenced on 4/6/2019 with practical completion on 5/8/2020.
7	<p>Compliance records</p> <p>The person taking the action must maintain accurate and complete compliance records.</p>	Compliant	
8	If the Department makes a request in writing, the person taking the action must provide electronic copies of compliance records to	Noted	Noted

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>the Department within the timeframe specified in the request.</p> <p>Note: Compliance records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the Department's website or through the general media.</p>		
9	<p><i>Preparation and publication of plans</i></p> <p>The person taking the action must:</p> <ol style="list-style-type: none"> a. submit plans electronically to the Department for approval by the Minister; b. publish each plan on the website within 20 business days of the date the plan is approved by the Minister or of the date a revised action management plan is submitted to the Minister, unless otherwise agreed to in writing by the Minister. c. keep plans published on the website until the end date of this approval, unless otherwise agreed to in writing by the Minister. 	Compliant	
10	<p>The person taking the action must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under conditions of the approval, is prepared in</p>	Compliant	Noted

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	accordance with the Department’s Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department.		
11	<p>Annual compliance reporting</p> <p>The person taking the action must prepare a compliance report for each 12 month period following the date of commencement of the action, or as otherwise agreed to in writing by the Minister. The person taking the action must:</p> <ol style="list-style-type: none"> a. publish each compliance report on the website within 60 business days following the relevant 12 month period; b. notify the Department by email that a compliance report has been published on the website within five business days of the date of publication; c. keep all compliance reports publicly available on the website until this approval expires, unless otherwise agreed to in writing by the Minister. d. exclude or redact sensitive ecological data from compliance reports published on the website; and e. where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the 	Compliant	Canberra Airport is compliant with this condition providing the 2024/2025 Compliance Report to the Department following completion of the NTG rehabilitation survey report by Umwelt.

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>Department within 5 business days of publication.</p> <p>Note: Compliance reports may be published on the Department's website. The first compliance report may report a period less than 12 months so that it and subsequent compliance reports align with the similar requirement under state approval.</p>		
12	<p>Reporting non-compliance</p> <p>The person taking the action must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:</p> <ul style="list-style-type: none"> a. the condition which is or may be in breach; and b. a short description of the incident and/or non-compliance. 	Compliant	Canberra Airport has notified the Department under the 2024/2025 Compliance Report of the quantum of NTG rehabilitated having received the final Umwelt report on 26 June 2026.
13	<p>The person taking the action must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days, unless otherwise agreed to in writing by</p>	Compliant	Canberra Airport has notified the Department under the 2024/2025 Compliance Report of the quantum of NTG rehabilitated having received the final Umwelt report on 26 June 2026.

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>the Minister, after becoming aware of the incident or non-compliance, specifying:</p> <ul style="list-style-type: none"> a. any corrective action or investigation which the person taking the action has already taken or intends to take in the immediate future; b. the potential impacts or the incident or non-compliance; and c. the method and timing of any remedial action that will be undertaken by the person taking the action. 		
14	<p>Management Plans</p> <p>All management plans required under this approval should be prepared in line with the Department's Environmental Management Plan Guidelines.</p>	Compliant	All management plans required under this approval have been prepared in line with the Departments Guidelines.



Canberra Airport:
Resurvey of
grassland remnants
surrounding
Taxiway B
extension, 2025

With notes on grassland
rehabilitation

Alison Rowell

BIOLOGIST AND ENVIRONMENTAL CONSULTANT
PO BOX 777 DICKSON ACT 2602
AUGUST 2025

Contents

1. Background to project.....	2
2. Methods.....	2
2.1 Grassland surrounding Taxiway B extension	2
3. Results.....	4
3.1 Grassland surrounding Taxiway B extension	4
Figure 1. Grassland in the northern taxiway island, 2025.	6
Figure 2. Grassland around the southern part of Taxiway B extension, 2025.....	7
Figure 3. Some other weed patches around Taxiway B extension, 2025.....	8
Table 1. Native species observed in Natural Temperate Grassland patches, August 2025.....	9
Table 2. Native species in NTG around Taxiway B, 2023 to 2025.....	9
4. Grassland rehabilitation activities at Canberra Airport	10
5. Recommendations	11
Photograph 1. Native grass and forb species in patch East/G, late August 2025.....	12
Photograph 2. Young Blue Devil plants (spiky green tufts), an indicator species.....	12
Photograph 3. Margin of Taxiway B west of grassland patch East/C with rehabilitation potential.	13
Photograph 4. Western edge of patch East/E with potential for rehabilitation.	14
Photograph 5. Large dense Chilean Needlegrass patch between East/F and East E.....	14
Photograph 6. Old burrow of Canberra Raspy Cricket in patch West/A.	15
Photograph 7. Gorse plants recovering after previous herbicide treatment, Area West/A.	15
6. References	16

Canberra Airport

Resurvey of grassland remnants surrounding Taxiway B extension, 2025, with notes on grassland rehabilitation

1. Background to project

In 2019-20, the Taxiway B northern extension was constructed through an area that contained patches of the critically endangered Natural Temperate Grasslands of the South-eastern Highlands community (NTG) (TSSC 2016).

After construction, soil from the site was used to shape the cut-and-filled areas on the taxiway shoulders with the aim of retaining some native plant propagules on site. The unvegetated areas were then oversown with an exotic mix which contained a mixture of Prosper Fescue (a cultivar of Tall Fescue *Festuca arundinacea*), Couch Grass *Cynodon dactylon* and a Clover species. Suitable native grass seed was not available in sufficient quantity at the time and rapid grass establishment was required to stabilise soil on the verges and protect it from jet blast when the taxiway came into operation.

The grasslands were inspected in 2021 and the remaining NTG patches were mapped in late July 2022 (Rowell 2022). The boundaries and quality of these patches were checked in July 2023 (Rowell 2023), in October 2024 (Rowell 2024) and in August 2025 (current report).

2. Methods

2.1 Grassland surrounding Taxiway B extension

Grassland areas each side of the Taxiway B extension, including replanted verges, were inspected on 21 and 22 August 2025.

The boundaries and condition of grassland patches were assessed against the Conservation Advice criteria for the critically endangered Natural Temperate Grasslands of the South-eastern Highlands community (NTG) (TSSC 2016), using the more generous criteria for grasslands surveyed outside ideal sampling times (which is spring-early summer) due to the winter survey period and little growth since the last mowing, which impeded plant identification in some areas. Grasses had not yet begun flowering and were identified on vegetative characters and seed head remains from the previous season. Many forb species (non-grass generally broad-leaved plants) were at the seedling or rosette stage and were identified from leaf characters.

The requirements in the Conservation Advice include:

For EPBC Act referral, assessment and compliance purposes, the national ecological community is limited to patches that meet the following key diagnostic characteristics and condition thresholds:

- Assessments of a patch should initially be centred on the area of highest native floristic diversity (also see 1.5.3, Additional Considerations)
- The minimum patch size for consideration as part of the listed ecological community is 0.1 ha (e.g. 50 m x 20 m).

The assessment criteria include:

Percentage cover of native vascular plants (including annual and perennial species) in the patch is greater than the percentage cover of perennial exotic species

AND

In sampling plot of 0.04 ha (e.g. 20m x 20m):

At least 4 non-grass native species are present

OR

At least 1 **indicator species** is present

The criteria further note that ‘Non-grass species include forbs/herbs, lilies, orchids, rushes and shrubs. It does not include...sedges’ and ‘**Indicator species** are native plant species that are useful surrogates for conservation value of a patch, and are typically disturbance sensitive species.’ (Indicator list at DCCEEW [Indicator species list v1.0 - for the Natural Temperate Grassland of the South Eastern Highlands ecological community](#)).

Other relevant considerations in the Conservation Advice are:

1.5.3 Additional Considerations

The following information should also be taken into consideration when applying the key diagnostic characteristics and condition thresholds (to assess a site that may include the ecological community and determine the potential impacts on a patch):

- A patch is defined as a discrete and continuous or semi-continuous area of the ecological community. Patches can be spatially variable and are often characterised by one or more areas within a patch that meet the condition threshold criteria that are surrounded by areas of lower quality. Therefore a patch may include small-scale disturbances, such as tracks or breaks (including exposed soil, leaf and other plant litter, cryptogams) or small-scale variations in vegetation that do not significantly alter its overall functionality (i.e. processes such as the movement of wildlife and pollinators, the dispersal of plant propagules, activities of seed and plant predators etc.). In this case, areas of a patch that are exotic dominated, or otherwise do not meet the minimum condition thresholds, are included within the patch as a whole, but should not be included in sampling plots (e.g. this may apply to drainage lines that often contain more weeds than surrounding areas of a patch).

Some of the remaining patches of native grassland surrounding Taxiway B meet the above description, with small breaks and areas within the NTG patches that contain weeds, bare ground or road base. This also means that some patches that are less than the minimum area (1,000 m²) are included due to their proximity to other NTG patches. These have been mapped in detail to indicate potential for rejoining separated patches with weed control and/or replanting of native species.

3. Results

3.1 Grassland surrounding Taxiway B extension

In 2023, survey showed that the boundaries and composition of the NTG patches identified in 2021/2022 had remained approximately the same (Rowell 2022, 2023). In 2023 the total area of the NTG patches was 2.6 ha, in 2024 it was 2.46 ha, and in 2025 it was 2.7 ha.

In 2025 the patches of NTG previously identified were revisited, and areas around them were also inspected. Most of the native-dominated patches included at least one area of about 400 square metres that reached the non-grass and indicator species composition criteria (for grasslands surveyed outside ideal sampling times) for the critically endangered NTG community (Figures 1 and 2).

The native species recorded are shown in Table 1. There were more native grass species in 2025, but fewer non-grass and indicator species than recorded in 2024. This is probably due to the different seasons of the surveys (Table 2), with many species being more or less detectable in different months (Photographs 1 and 2).

As seen in 2024, the shape of some NTG patches had changed between years. There were minor gains following previous weed control, plus some expansion of native species into dry low biomass areas (mainly near taxiway edges) at the expense of Prosper Fescue, which does not persist well under close mowing. Some easterly extensions of NTG were estimated while standing at the gable markers, as access to the movement area is restricted.

One small patch and parts of others (including the narrow West/B patch) had fallen below the criteria for NTG due to weed invasion, especially by Serrated Tussock *Nassella trichotoma* (Figures 1 and 2), but these losses should be reversible by targeted weed control. Some (usually wetter) NTG areas had been degraded by recent invasion of species such as Chilean Needlegrass *N. neesiana*, and Sheep's Burnet *Sanguisorba minor*.

The areas of grassland between the native-dominated patches contained a variety of species. Some areas contained scattered native grasses but few or no native forbs, with a moderate cover of weedy grasses such as Paspalum *Paspalum dilatatum*, Serrated Tussock and Chilean Needlegrass, and broad-leaved weeds such as Catsear *Hypochaeris radicata*, Plantain *Plantago lanceolata* and Sheep's Burnet. These forbs often replace other weeds after the use of Glyphosate/Roundup (A. Rowell pers. obs.) without follow up plantings. Other patches were completely dominated by Serrated Tussock or Chilean Needlegrass. These different grassland types will require appropriate targeted management if rehabilitation is the goal.

African Lovegrass *Eragrostis curvula* has become more common on the Airport in recent years, replacing both native and exotic grasses on drier soils. This species can spread and dominate faster than the other weedy grasses so patches encountered were recorded (Figure 3) as its control should be a priority. Other weeds were not mapped comprehensively but some more significant patches are also shown in Figure 2.

Several patches of the woody weed Gorse *Ulex europaeus* remain west of Taxiway B in NTG patches (Figure 3). This plant can become a large shrub but can also survive, seed and spread under low mowing. There were signs that plants had survived previous spraying with herbicide (Photograph 7), and it is again recommended that this weed be removed by chipping out of whole plants, with the cut stems painted or sprayed with concentrated Glyphosate to prevent regrowth.

A patch of about 0.25 ha of grassland not previously mapped as NTG but now dominated by the Wallaby Grass *Rytidosperma fulvum* was found near the northern end (Figure 1). This native grass had not been previously recorded in the Taxiway B area but is known from the north-west corner of the Airport. There were only a few native forbs in this patch and they were widely scattered, so it does not currently qualify as NTG, but the Wallaby Grass was successfully competing with weeds on the heavy soil and it should be possible to rehabilitate the patch to NTG status by spot-spraying of weeds and planting of more of the forb species that are currently present, and others that do well on heavy soils (see Section 5). It is also likely that this grass is a feed species for the larvae of the Golden Sun Moth *Synemon plana* which is listed as Vulnerable under the EPBC Act and known to occur in the project area.

The verge immediately adjacent to the taxiway is mown more closely and frequently than the rest of the Airport grasslands for operational reasons, such as ensuring visibility of lights and signs and assisting the operation of incursion alerts. Some strips beside the taxiway contain a high proportion of bare ground, though the compacted clay soil now appears stable and unlikely to be affected by jet blast. The increase in bare ground is due to the decline of the species planted after taxiway construction (Fescue, Couch, Clover) after exposure to harsh conditions and the close mowing of the taxiway margin which suppresses seeding of the Fescue. This effect was also seen on the edges of some drains. Chilean Needlegrass has sometimes replaced the Fescue but in many such areas the more common grass is now the native Redleg Grass, with occasional occurrences of some small native forbs such as Scrambled Eggs, Variable Plantain and New Holland Daisy, which can tolerate the conditions. It is likely that this effect is due to some success from the re-use of site soil containing native species, though the effect has taken several years to become apparent. One of these strips is shown in Figure 1 and in Photographs 3 and 4. The strip shown is 0.4 ha, and there is likely to be at least one hectare of grassland around Taxiway B extension in this condition that could be rehabilitated.

Five old burrows of the Canberra Raspy Cricket *Cooraboorama canberrae* were found in the NTG areas and inspected with a fibrescope (Photograph 6). The deepest burrow was fairly recent and 13cm deep, but none were occupied. This is usual in winter as the burrow-creating adults usually die in March. This large wingless cricket is currently proposed for listing as a threatened species, as its habitat is NTG and its burrows are an important habitat feature for the critically endangered Canberra Grassland Earless Dragon, which has been recorded further north on the Airport.

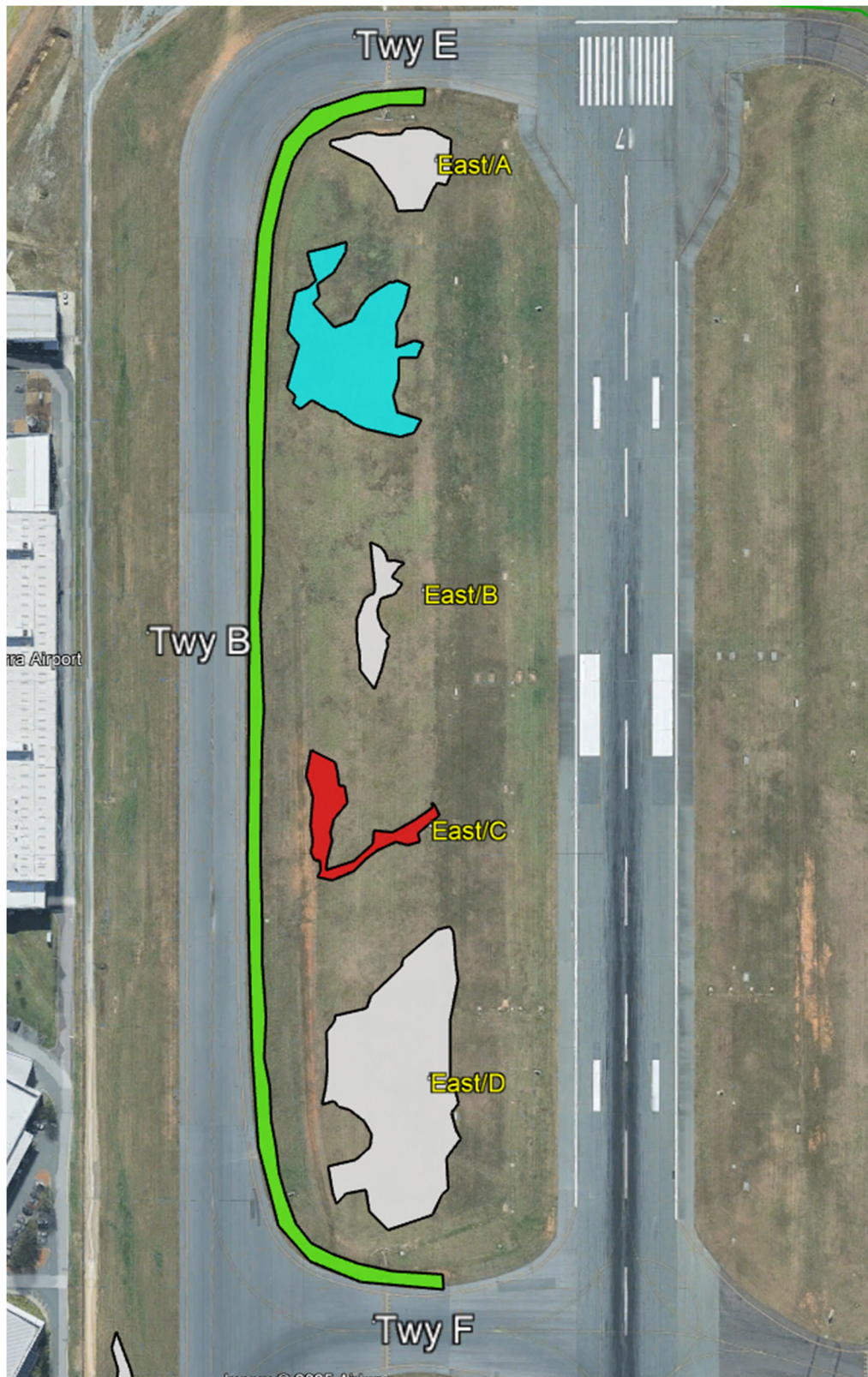


Figure 1. Grassland in the northern taxiway island, 2025.

White = NTG

Red = patch which has fallen below NTG threshold since 2024

Blue = patch of *Rytidosperma fulvum* with rehabilitation potential

Green = strip up to 8 metres wide beside taxiway with rehabilitation potential.



Figure 2. Grassland around the southern part of Taxiway B extension, 2025.

White = NTG

Yellow = Serrated Tussock invading NTG patch

Orange = large Chilean Needlegrass patches, one invading NTG patch.

Resurvey of grassland remnants surrounding new Taxiway B, A Rowell 2025.

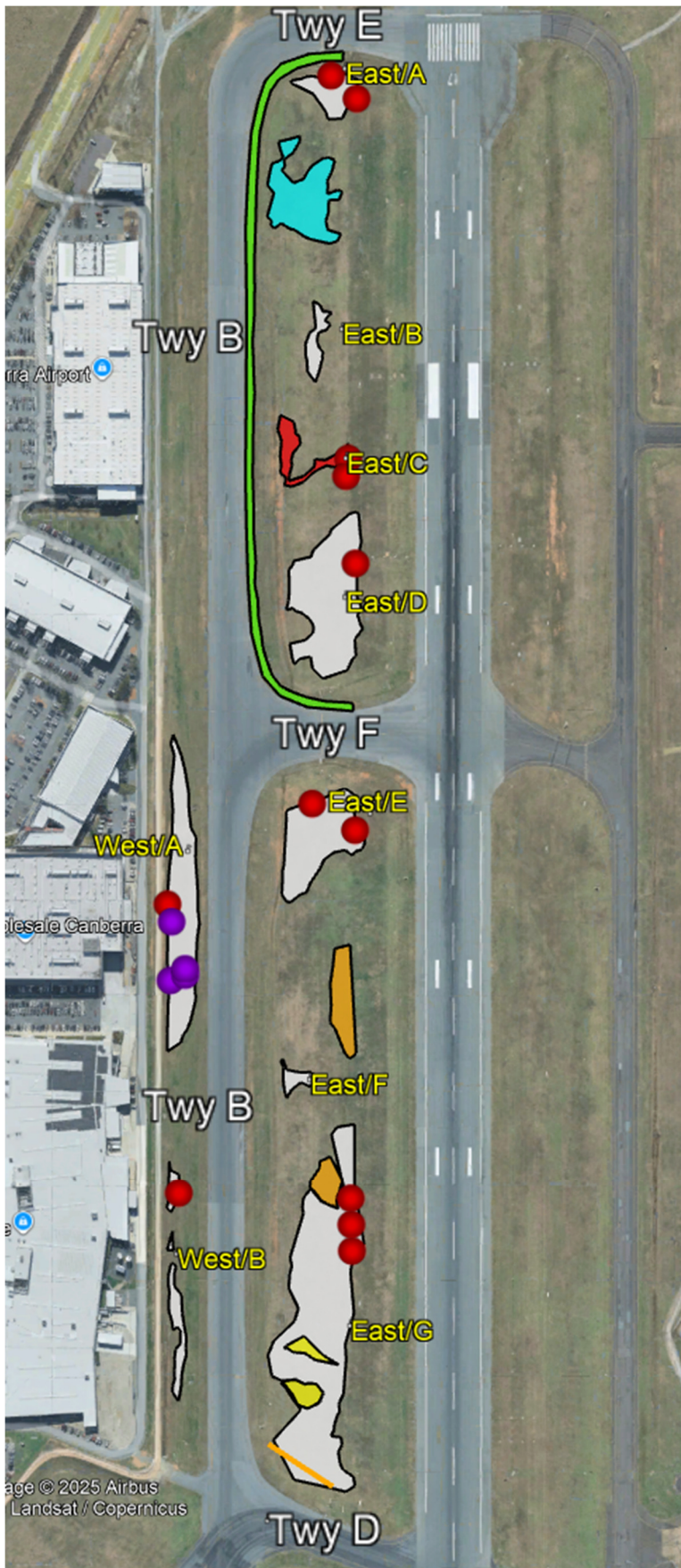


Figure 3. Some other weed patches around Taxiway B extension, 2025.

Red = African Lovegrass **Purple** = Gorse

Resurvey of grassland remnants surrounding new Taxiway B, A Rowell 2025.

Table 1. Native species observed in Natural Temperate Grassland patches, August 2025.
(Species in bold type are indicator (=significant/sensitive) species)

NATIVE GRASSES	COMMON NAME	FREQUENCY IN NTG PATCHES
<i>Austrostipa bigeniculata</i>	Tall Speargrass	Common
<i>Austrostipa scabra</i>	Rough Speargrass	Common
<i>Bothriochloa macra</i>	Redleg Grass	Very common
<i>Chloris truncata</i>	Windmill Grass	Occasional
<i>Enneapogon nigricans</i>	Nine-awn Grass	Occasional
<i>Eragrostis ?brownii</i>	Brown's Lovegrass	Occasional
<i>Panicum effusum</i>	Hairy Panic Grass	Occasional
<i>Rytidosperma</i> species	Wallaby Grasses	Common
<i>Rytidosperma fulvum</i>	A Wallaby Grass	Occasional, patchy
<i>Rytidosperma laeve</i>	Smooth Wallaby Grass	Common
<i>Themeda triandra</i>	Kangaroo Grass	Occasional, patchy
<i>Tripogon loliiformis</i>	Fiveminute Grass	Rare
NON-GRASS SPECIES		
<i>Asperula conferta</i>	Common Woodruff	Common
<i>Carex inversa</i>	A sedge	Common
<i>Chrysocephalum apiculatum</i>	Yellow Buttons	Very common
<i>Eryngium ovinum</i>	Blue Devil	Occasional
<i>Geranium retrorsum</i>	A native Geranium	Occasional
<i>Goodenia pinnatifida</i>	Scrambled Eggs	Common
<i>Leptorhynchos squamatus</i>	Scaly Buttons	Common
<i>Lomandra bracteata</i>	A Matrush	Rare
<i>Plantago varia</i>	Variable Plantain	Very common
<i>Rumex brownii</i>	Swamp Dock	Occasional
<i>Schoenus apogon</i>	Common Bog-rush	Common
<i>Tryptilodiscus pygmaeus</i>	Common Sunray	Rare
<i>Vittadinia muelleri</i>	New Holland Daisy	Common
<i>Wahlenbergia</i> species	A native Bluebell	Occasional

Table 2. Native species in NTG around Taxiway B, 2023 to 2025.

Plant type	Number in July 2023	Number in October 2024	Number in August 2025
Native grass species	8	7	12
Native non-grass species	11	21	14
TOTAL	19	28	26
Indicator species	4	7	6

4. Grassland rehabilitation activities at Canberra Airport

Areas on the Airport where patches of weeds such as Serrated Tussock have been sprayed with Glyphosate (a non-selective herbicide) in the past have often later become covered with other exotic species.

Trials using the selective tussock herbicide Fluproponate (marketed as Taskforce) on weedy patches in the northern NTG area of Canberra Airport began in winter 2024, with promising results. Further trials, with record-keeping and post-treatment surveys can help determine the best time and application rate for this chemical on weedy grasses such as Chilean Needlegrass, Serrated Tussock and Chilean Needlegrass around native grass areas. Initial results from winter application show suppression of Chilean Needlegrass, with some native grasses (such as Kangaroo Grass) apparently unaffected and reclaiming previously weed-dominated patches.

After exotic patches have died after spraying, native species such as grasses and/or some fast-growing forbs could be planted to compete for space and nutrients with exotic species that may have seeds in the soil. Some herbicides will have a residual effect on the subsequent establishment of native plants, so these effects should be researched in advance and the after-effects of weed-spraying trials should be recorded and used to inform future control efforts. This FAQ sheet [TASKFORCE® Herbicide](#) contains useful information on the use of Fluproponate and Glyphosate against various weeds under Australian conditions, with an emphasis on grasslands.

During Canberra Grassland Earless Dragon (CGED) surveys from 2023 to 2025 and other airside surveys, some grassland areas (particularly north of the main runway) were identified as having potential to be used as trial sites using different methods of grassland rehabilitation to restore them to native-dominated grassland or NTG status, with a corresponding increase in potential habitat for threatened species such as CGED and Golden Sun Moth and reconnection of currently separate patches of habitat. Observations from that work have informed the current assessment for rehabilitation potential of the grasslands around Taxiway B.

From 2023 to 2025, seeds of native grasses and forbs were hand-collected from high quality NTG grasslands on the Airport by this consultant and Ms Amanda Gurnett-Attard of Canberra Airport for use in future restoration work, and a seed collection curated by Ms Gurnett-Attard is stored under appropriate conditions in the Airport offices (e.g. see Gurnett-Attard 2024). In 2025 an on-Airport plant propagation area was designed and constructed airside, to provide seed and plants for grassland revegetation/rehabilitation projects. From January 2025 seeds were planted, and the above ground beds now contain many forb species and some grasses grown from Airport seed which will produce more seed later this year.

5. Recommendations

Control by careful spot spraying is recommended where perennial grass weeds such as Serrated Tussock, Chilean Needlegrass, African Lovegrass and Paspalum occur within and adjacent to NTG patches to avoid further loss of existing NTG.

Further methods described below could increase the area of NTG significantly by incremental expansion of existing patches and rehabilitation of weedy areas.

A program could be considered that would involve spraying back the above weeds (with Fluprofonate where appropriate) where they occur on the boundaries of existing NTG patches and monitoring for native species recovery, then (if necessary) replanting the killed strip with a buffer strip of native grasses appropriate to the soil conditions of the patch. This procedure has the potential to increase the area of NTG and to create/restore links between NTG patches, and also to increase available habitat for the threatened Golden Sun Moth (if larval feed species are included). Golden Sun Moths have poor powers of dispersal, making patch connection a valuable tool in their conservation. Plants and seed collected from the Airport and harvested from the airside propagation area would be used in this restoration.

Where the exotic species are growing in deeper or wetter soil, Kangaroo Grass and *Rytidosperma fulvum* would be suitable buffer/replacement species. This is demonstrated by the natural occurrence of these species in some wetter areas of the Airport, and one area where Kangaroo Grass has recovered naturally after spraying of Chilean Needlegrass with Fluprofonate. Where the soil is shallower and compacted, Redleg Grass and smaller Wallaby Grasses would be more appropriate. Initially some native grass seed might need to be purchased for this work, but all these species can and have been harvested from the Airport and will be grown in the propagation area. The results would need to be monitored, and after native grasses have been established and weeds controlled, more native forbs could be introduced by seed, supplemented with some tube stock grown on Airport.

The strips of grassland along the taxiway margins and drains (e.g. in Figure 1, Photographs 3, 4) have potential for rehabilitation as native dominated grassland (and eventually NTG) due to the amount of bare ground they contain, the current presence of some native species and site conditions that would mostly favour some native species over many weed species. Methods used would be constrained by operational considerations, but initial boom spraying of Chilean Needlegrass would be a useful first step where that species is dominant. The initial aim would be to create strips dominated by native Redleg Grass, which may increase naturally after Chilean Needlegrass control, or may require some supplementation by seed drilling.

These edging strips are narrow but probably total at least one hectare in the project area and have the potential to be expanded by continued treatments of their inner edges, especially as new weed incursion is less likely on the edges bounded by asphalt which would be rehabilitated first.

Large dense patches of single weeds such as Chilean Needlegrass and Serrated Tussock (e.g. see Figure 2, Photograph 5) may appear irretrievable, but the presence of a monoculture could actually increase the effectiveness of selective herbicide applications, as soil stores of other weed species are likely to be low in these patches and effectively controlling the target species could leave a relatively clean seed bed suitable for replanting with native species.



Photograph 1. Native grass and forb species in patch East/G, late August 2025.



Photograph 2. Young Blue Devil plants (spiky green tufts), an indicator species. Patch East/G, late August 2025.



Photograph 3. Margin of Taxiway B west of grassland patch East/C with rehabilitation potential.

Extensive hard bare ground, most common plant is native Redleg Grass, various weed species and some other natives present.



Photograph 4. Western edge of patch East/E with potential for rehabilitation. Hard bare ground with three colonising native forb species, grass is mainly Chilean Needlegrass.



Photograph 5. Large dense Chilean Needlegrass patch between East/F and East E.



Photograph 6. Old burrow of Canberra Raspy Cricket in patch West/A.



Photograph 7. Gorse plants recovering after previous herbicide treatment, Area West/A.

6. References

- DECCEEW SPRAT. List of indicator species on the ecological community profile, Species Profiles and Threats Database, Department of Climate Change, Energy, Environment and Water website. [Natural Temperate Grassland of the South Eastern Highlands \(environment.gov.au\)](https://environment.gov.au) .
- Gurnett-Attard, A. 2024. *Airside seed nursery proposal*. Internal report to Canberra Airport.
- Rowell, A. 2022. *Canberra Airport - Resurvey of grassland remnants surrounding new Taxiway B, 2021-22*. Report to Capital Airport Group.
- Rowell, A. 2023. *Canberra Airport – Resurvey of grassland remnants surrounding Taxiway B extension, 2023. With notes on other grassland areas with potential for rehabilitation*. Report to Canberra Airport. Report to Canberra Airport.
- Rowell, A. 2024. *Canberra Airport – Resurvey of grassland remnants surrounding Taxiway B extension, 2024. With notes on grassland rehabilitation*.
- [TASKFORCE® Herbicide](#) . FAQ sheet on herbicide use.
- TSSC 2016. *Approved Conservation Advice for the Natural Temperate Grassland of the South Eastern Highlands by the Threatened Species Scientific Committee under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Department of the Environment.



Canberra Airport Pty Limited

Canberra Airport Natural Temperate Grassland Report

Final

June 2026

Canberra Airport Pty Limited

Canberra Airport Natural Temperate Grassland
Report

Final

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Canberra Airport Group

Project Director: Clare McInnes
Project Manager: Lydia Guja
Report No.: 33170/R01
Date: June 2026



This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement of Country

Umwelt acknowledges the Traditional Owners of Country throughout Australia and their continuing values, culture and connection to the land, waters and sky.

We pay our respects to Elders past and present.

The below image is from the artwork *Yapung Maryiyang* (Pathway Forward) by Saretta Fielding.



Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V0.1	Clare McInnes	04/05/2026	Clare McInnes	
V0.2	Clare McInnes	15/05/2026	Clare McInnes	
V0.3	Clare McInnes	28/05/2026	Clare McInnes	
V1	Lydia Guja	02/06/2026	Lydia Guja	03/06/2026
V2	Lydia Guja	19/06/2026	Clare McInnes	19/06/2026

Executive Summary

Umwelt was engaged by the Canberra Airport to assess the current extent and condition of the *Natural Temperate Grassland of the South Eastern Highlands* (NTG) ecological community within the Project Area (**Figure 1.1**), to support compliance with rehabilitation commitments described in the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) approval decision for the Taxiway Bravo and associated works (EPBC 2008/4170). The approval decision includes a condition to rehabilitate 17.1 hectares (ha) of vegetation quality classes 4 and 5 to meet the definition of NTG as identified in the Canberra Airport Group's *Grassland Management Plan Natural Temperate Grasslands at Canberra International Airport* (Canberra International Airport n.d.)

To support this assessment, areas mapped as vegetation quality classes 4 and 5 in Canberra International Airport (n.d.) were digitised to create a spatial dataset. Grassland surveys were conducted across the Project Area in February and March 2026 with all grassland patches evaluated against NTG minimum listing criteria, and higher-quality areas additionally assessed against high to very high condition thresholds.

A total of 129.57 ha of vegetation quality classes 4 and 5 were mapped within the Project Area. Of this, 11.73 ha meet the minimum NTG listing criteria. This demonstrates measurable progress toward the rehabilitation target.

Condition assessments indicate that the assessed NTG includes areas of high-quality grassland. Of the eight floristic plots undertaken, six met the high to very high condition threshold and two met the moderate to high condition threshold.

The assessment also identified factors that will influence the trajectory of further gains in NTG extent and condition. Elevated exotic species cover in some areas remains a key risk and important management consideration and may constrain additional improvement if not effectively addressed.

Overall, the findings demonstrate an increase in the extent of NTG and the presence of high-quality grassland within the Project Area. These findings demonstrate measurable progress toward the approval target. The assessment also highlights the need for ongoing targeted management and rehabilitation to achieve compliance and improve NTG extent and condition.

Contents

Executive Summary	i
1.0 Introduction	1
1.1 Background	1
1.1.1 Taxiway Bravo EPBC Approval Conditions	1
1.2 Project Scope	2
2.0 Methods	5
2.1 Baseline Data	5
2.1.1 Vegetation Quality 4 and 5	5
2.2 Natural Temperate Grassland Surveys	5
2.2.1 Floristic Value Scores	7
2.2.2 Instrument Landing System Restricted Areas	7
2.3 Post-fieldwork Desktop Mapping	7
3.0 Results and Discussion	9
3.1 Extent of Improved Grassland	9
3.2 Threatening Processes	9
3.2.1 Invasive Species	9
3.2.2 Fragmentation	10
3.2.3 Biomass Control	10
3.3 Recommendations	13
4.0 Conclusion	14
5.0 References	15

Figures

Figure 1.1	Project Area	3
Figure 1.2	Extent of Vegetation Quality 4 and 5 within the Project Area (Georeferenced from Figure 4.1 in Canberra International Airport n.d.)	4
Figure 2.1	Survey Effort	8
Figure 3.1	Areas of Vegetation Quality 4 and 5 that now meet NTG Criteria	12

Tables

Table 2.1	Minimum EPBC Act NTG Listing Criteria (TSSC 2016)	6
Table 2.2	High to Very High Condition Threshold EPBC Act NTG Criteria (TSSC 2016)	6
Table 3.1	Floristic Plot Results	11

Appendices

Appendix A	Natural Temperate Grassland - Indicator Species List
-------------------	--

1.0 Introduction

1.1 Background

Umwelt was engaged by the Canberra Airport to survey the current extent and condition of the *Natural Temperate Grassland of the South Eastern Highlands* (EPBC Act NTG) ecological community within the Project Area (**Figure 1.1**). The surveys were completed to inform compliance with NTG restoration conditions in the Commonwealth Government *Environment Protection and Biodiversity Conservation Act* (EPBC Act) approval decision for the Taxiway Bravo and associated works (EPBC 2008/4170).

1.1.1 Taxiway Bravo EPBC Approval Conditions

The construction of Taxiway Bravo and associated works (EPBC 2008/4170) resulted in the removal of 5.7 hectares (ha) of moderately modified patches of NTG¹ that may have contained habitat for the Canberra grassland earless dragon and golden sun moth (Canberra Airport 2022).

This development was approved with conditions on 10 December 2008 and later amended on 3 June 2019. Among the conditions is the requirement to submit a Biodiversity Offsets Strategy (BOS) for the NTG to the Minister for approval, with the strategy to include "... a long term conservation offset for the removal of habitat for the golden sun moth, [Canberra] grassland earless dragon and natural temperate grassland including:

- i. The acquisition of land containing 17.1 ha of NTG and golden sun moth habitat to be conserved in perpetuity; or
- ii. Measures to rehabilitate 17.1 ha of vegetation quality 4 and 5 within the Canberra Airport Lease such that it meets the definition of natural temperate grasslands²".

Canberra Airport selected option 2, with restoration approaches described in the BOS (Canberra Airport 2022).

1.1.1.1 Vegetation Quality 4 and 5

The definition of vegetation quality 4 and 5 in the approval decision for EPBC 2008/4170 is:

"The area of vegetation mapped as vegetation quality 4 and 5 in Figure 4.1 of the Canberra Airport Group's *Grassland Management Plan Natural Temperate Grasslands at Canberra International Airport*".

¹ The Taxiway Bravo approval decision (EPBC 2008/4170) defines NTG as "the *Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory* as described in the document titled 'Advice to the Minister for the Environment and Heritage from the Endangered Species Scientific Subcommittee (ESSS) on a proposal to add an ecological community to Schedule 2 of the Endangered Species Protection Act 1992 (ESP Act)".

² For this assessment, surveys were completed using the listing criteria for the *Natural Temperate Grassland of the South Eastern Highlands ecological community* (2016). This is consistent with the method applied to assess the extent of NTG within the Canberra Airport since the 2016, which aligns with listing of the new NTG ecological community.

Patches of vegetation quality 4 and 5 are low quality or exotic dominated grassland. The following definitions were extracted from *Grassland Management Plan Natural Temperate Grasslands at Canberra International Airport* (Canberra International Airport n.d.).

Vegetation Quality 4 (low quality, native dominated, substantially modified)

“These areas have a low diversity of native species and usually have greater than 50% cover of a few native grasses. Few forbs are present and those present are tolerant of a high level of disturbance such as common everlasting (*Chrysocephalum apiculatum*) and New Holland daisy (*Vittadinia muelleri*). A typical polygon in this category contained 14 native species in one ha, with four species of grasses contributing 80% of the cover in the upper vegetation layer” (Canberra International Airport n.d.).”

Vegetation Quality 5 (exotic, severely modified)

“There is greater than 50% cover of exotic perennial species in these areas, and native species are restricted to a few grasses and forbs tolerant of high levels of disturbance. In the northern part of the Airport, the main exotic species are the invasive Chilean needlegrass (*Nasella neesiana*) and paspalum (*Paspalum dilatatum*). South of the runway intersection there was a high cover of Paterson’s curse (*Echium plantagineum*) in 2003/2004” (Canberra International Airport n.d.).

The extent of patches of vegetation quality 4 and 5 as per Figure 4.1 in Canberra International Airport (n.d.) is represented in **Figure 1.2**.

1.2 Project Scope

This assessment was completed to support Canberra Airport’s reporting on the progress made towards meeting the 17.1 ha NTG rehabilitation target, with the objective to assess the extent and condition of NTG within patches mapped as vegetation quality 4 and 5.




This Project also aimed to support ongoing NTG management and rehabilitation efforts by recording observed threats that should be considered in evidence-based decision-making and adaptive management approaches.

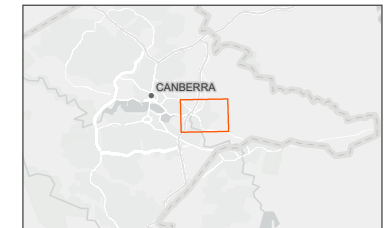
4-Link-C:\Users\stwilliamson\Umwelt\LINKS (AUSTRALIA) PTY LTD\3170 - 03 SAV02 - Project\3170_R01_Natural\TemperateGrasslandReport_V2.aprx - 33170_R01_0101_ProjectArea



FIGURE 1.1
Project Area

Legend

-  Roads
-  Watercourse
-  Project Area



Kilometres
Scale 1:22,500 at A4
GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
APPROVED FOR AND ON BEHALF OF Umwelt

\\LINK-C:\Users\williamson\Umwelt\T-CLINK- (AUSTRALIA) PTY. LTD\3170 - 03 S&V\02_Projects\3170_R01_NaturalTemperateCrassulaceaeReport_V2.aprx - 3170_R01_0102_ExternOfVegetationQualityAnd5

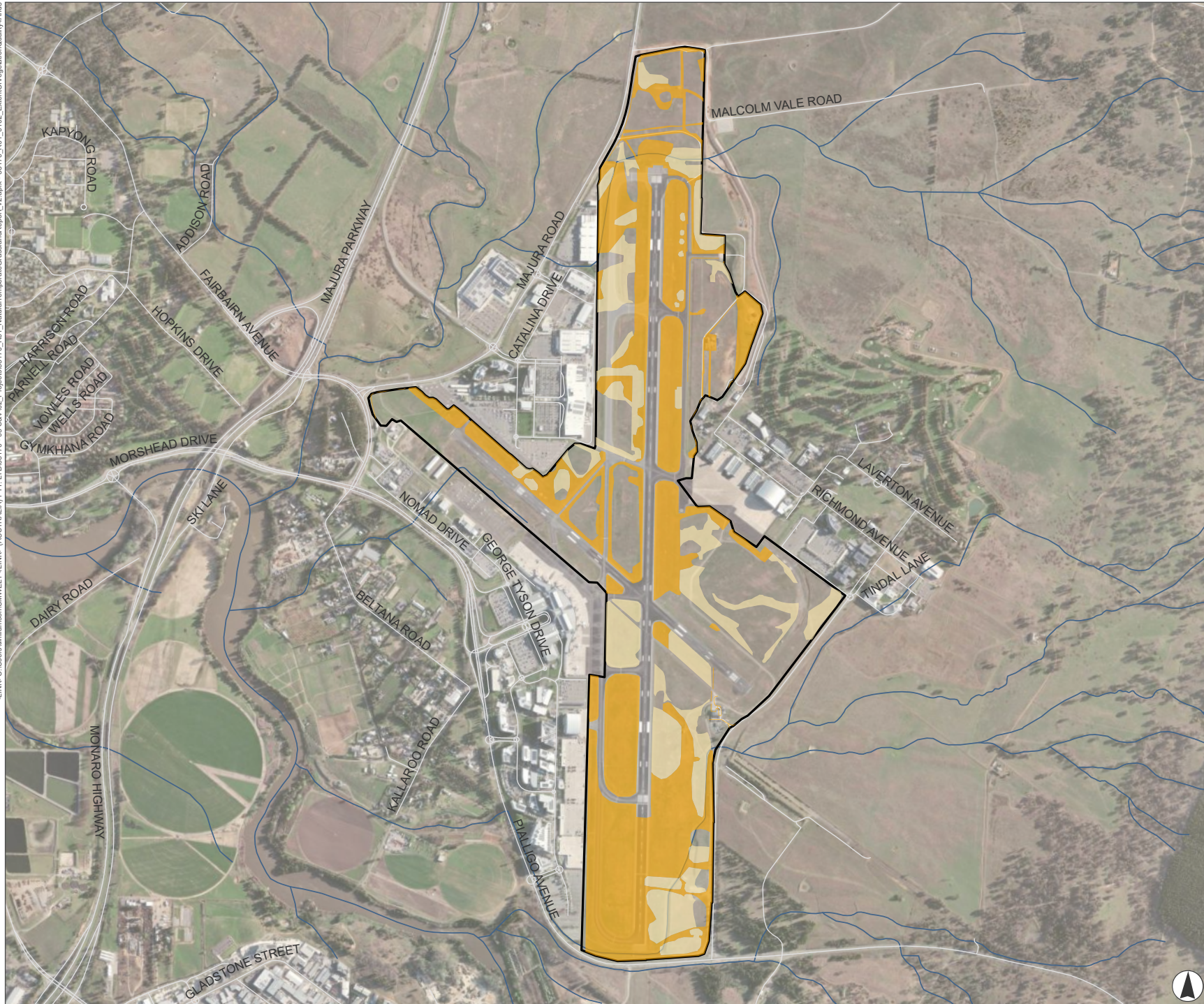





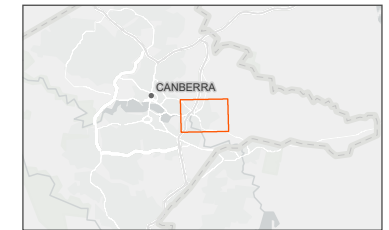


FIGURE 1.2
 Extent of Vegetation
 Quality 4 and 5 within the
 Project Area
 (Georeferenced from
 Figure 4.1 in Canberra
 International Airport (n.d))

Legend

-  Roads
-  Watercourse
-  Project Area
-  Vegetation Quality 4
-  Vegetation Quality 5



Kilometres
 Scale 1:22,500 at A4
 GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
 APPROVED FOR AND ON BEHALF OF Umwelt

2.0 Methods

2.1 Baseline Data

2.1.1 Vegetation Quality 4 and 5

Patches of vegetation quality 4 and 5 were digitised from Figure 4.1 in Canberra International Airport (n.d.) to support the analysis. Prior to this digitisation, no geospatial data were available.

The digitisation was completed via the following process:

- Global Mapper was used to import Figure 4.1 from Canberra International Airport (n.d.) (pdf format) and convert its contents into shapefile format.
- The shapefile was then loaded into ArcGIS Pro, where the features were spatially adjusted by referencing the original document.
- Control links were assigned to align the dataset with the provided spatial layer, and once more than 25 links had been established, an affine transformation was applied to accurately georeference the data.

The original Figure 4.1 is a low-resolution image, and consequently the digitisation process introduces a small but unavoidable degree of error to the spatial data. It is also important to note that Figure 4.1 predates infrastructure development at Canberra Airport. Some grassland areas classified as vegetation quality 4 and 5 have since been converted to built infrastructure, such as runways and buildings. **Figure 1.2** represents the output from digitising patches of vegetation quality 4 and 5.

2.2 Natural Temperate Grassland Surveys

On-ground surveys were conducted in all grassland patches within the Project Area. Surveys were completed over eight days between 6 February and 13 March 2026.

All grassland patches were assessed against the minimum listing criteria for the *Natural Temperate Grassland of the South Eastern Highlands* ecological community (**Table 2.1**). Patches of exceptionally high quality were assessed against the high to very high condition criteria (**Table 2.2**).

Table 2.1 Minimum EPBC Act NTG Listing Criteria (TSSC 2016)

Criteria
Method A
<i>Is the patch at least 0.1 ha in size?</i>
Is the patch characterised by at least 50% foliage cover of the ground of: kangaroo grass (<i>Themeda triandra</i>) OR river tussock (<i>Poa labillardierei</i>) OR plains sedge (<i>Carex bichenoviana</i>)?
Method B
<i>Is the patch at least 0.1 ha in size?</i>
<i>Is the cover of native plants greater than the cover of perennial exotic plants?</i>
In sampling plots of 0.04 ha in size (i.e. 20 m X 20 m) surveyed within favourable sampling times: at least 8 native non-grass species recorded OR at least 2 indicator species OR a FVS of at least 5.
In sampling plots of 0.04 ha in size (i.e. 20 m X 20 m) surveyed at other (less-favourable) sampling times: at least 4 non-grass native species OR at least 1 indicator species OR a FVS of at least 3.

Table 2.2 High to Very High Condition Threshold EPBC Act NTG Criteria (TSSC 2016)

Criteria
The percentage cover of native vascular plants (including annual and perennial species) in the patch is greater than the percentage cover of perennial exotic species AND
In sampling plots of 0.04 ha (e.g. 20 m x 20 m):
At any time of the year: At least 12 non-grass native species OR At least 3 indicator species OR A floristic value score (FVS) of at least 6.5.

Data was collected via the completion of 176 rapid assessment points and eight 20 m x 20 m floristic plots (**Figure 2.1**). Rapid assessment points evaluated grassland condition against **Table 2.1** and **Table 2.2** based on the presence of:

- Native and exotic vegetation cover, including perennial and annual species.
- Indicator species for Natural Temperate Grassland (**Appendix A**).

Floristic plots (20 m x 20 m) were positioned in grassland patches that appeared to support NTG and were representative of different condition classes that had the potential to occur across the Project Area. The following data were collected within each plot:

- Diversity of native and exotic flora species.
- Species cover and abundance.

Due to the seasonal timing of the surveys, the less-favourable sampling times thresholds in **Table 2.1** and **Table 2.2** were applied.

Grassland areas meeting the NTG criteria were mapped in the field using a hand-held GPS accurate to 5 m.

2.2.1 Floristic Value Scores

Floristic value scores for each plot were calculated using the floristic value score calculator (Rehwinkel 2015). Flora recorded within each plot were assigned a species significance rating and modified cover abundance score following Rehwinkel (2015), with PlantNet (Royal Botanic Gardens Trust 2026) reviewed in instances of taxonomic changes, distinguishing high-value indicator species from disturbance-tolerant natives and exotic species.

The resulting floristic value scores were used to support the NTG determination for grassland patches (**Table 2.1**, **Table 2.2**). A weed value score output was also generated, calculated based on the presence of exotic flora species and their impact level.

2.2.2 Instrument Landing System Restricted Areas

Two Instrument Landing System (ILS) areas within the Project Area have restricted access. The northern ILS was surveyed on 6 February. Due to operational restrictions, multiple rapid assessments and one plot were conducted across multiple shortened surveys during the available four-hour access period. Due to the time restrictions, the resultant plot data was not as detailed as the other floristic plots, however it was sufficient to calculate a Floristic Value Score, cover, Weed Value Score and condition.

No grassland surveys were conducted within the southern ILS restricted area as access was not available during the project.

2.3 Post-fieldwork Desktop Mapping

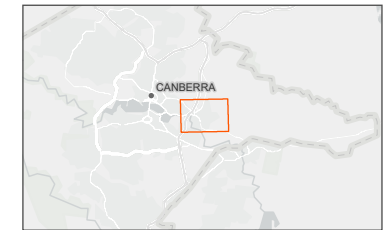
The Union tool was used within ArcGIS Pro, to assess the current extent of NTG polygons compared with the digitised extent of patches of vegetation quality classes 4 and 5.

C:\Users\williamson\UMWELT\LINKS-(AUSTRALIA)\PTY.LTD\3170-03 SAV02_Projects\3170_R01_NaturalTemperateGrasslandReport_v2.aprx - 3170_R01_0201_SurveyEffort



FIGURE 2.1
Survey Effort

- Legend**
- Plot Locations
 - Rapid Assessment Location
 - Roads
 - Watercourse
 - ▭ Project Area



Kilometres
Scale 1:22,500 at A4
GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
APPROVED FOR AND ON BEHALF OF Umwelt

3.0 Results and Discussion

3.1 Extent of Improved Grassland

The digitised extent of patches of vegetation quality 4 and 5 within the Project Area was 129.57 ha (40.11 ha and 89.46 ha, respectively) (**Figure 1.2**), noting the limitations outlined in **Section 2.1.1**. Of this, 11.73 ha was assessed as meeting the minimum NTG listing criteria (**Figure 3.1**).

While NTG is supported across the Project Area, **Figure 3.1** presents NTG only in patches previously mapped as vegetation quality 4 and 5. The increase in NTG extent demonstrates progress toward achieving the rehabilitation targets, but remains insufficient to meet the approval conditions, with a shortfall of 5.37 ha³.

Condition threshold results from the eight floristic plots are presented in **Table 3.1** (**Table 2.1** and **Table 2.2**), noting the application of the less-favourable sampling time criteria. Although plots were not located in areas previously mapped as vegetation quality 4 and 5, they were located in broader grassland patches that were considered representative of the improved NTG areas.

Six floristic plots met the conditions for the high- very high NTG condition threshold (**Table 2.2**), and two plots met the conditions for the moderate – high NTG condition threshold (**Table 2.1**). All plots satisfied the moderate – high requirements for floristic value score, number of indicator species, and number of non-native grass species. The plots that achieved the high-very high threshold did so due to their high floristic value scores (**Table 3.1**).

It is recognised that grassland management within Canberra Airport is partially constrained by airport operations. Essential airport functions including frequent mowing to reduce wildlife hazards (e.g. bird strike), restricted-access zones, and security requirements for personnel create logistical challenges. These can be discordant with the establishment and management of sensitive grassland ecosystems that can depend on tightly controlled management conditions.

3.2 Threatening Processes

While all floristic plots met the NTG minimum listing criteria, a number of threats as identified within the *Approved Conservation Advice (Including Listing Advice) for Natural Temperate Grassland of the South Eastern Highlands (EC 152)* (TSSC 2016) were observed. Threatening processes operate through cumulative and compounding disturbances that alter ecosystem structure, function, and recovery.

3.2.1 Invasive Species

Some areas of NTG exhibited high exotic perennial cover (**Table 3.1**). The cover of exotic perennial species in NTG patches associated with plots 01, 02, and 08 was approaching a level that was greater than the cover of native species, placing them at risk of falling below the minimum NTG listing criteria. Plots 01, 02, and 08 also displayed the highest weed value scores (**Table 3.1**).

³ Calculated comparing the 2026 results following the listing criteria for the *Natural Temperate Grasslands of the South Eastern Highlands* compared to the 17.1 ha rehabilitation target, which was established following the listing criteria for the *Natural Temperate Grasslands of the Southern Tablelands of NSW and the Australian Capital Territory*.

The dominant exotic perennial species recorded across both the NTG and exotic-dominated areas were paspalum, Chilean needlegrass, serrated tussock (*Nasella trichotoma*), African lovegrass (*Eragrostis curvula*) and St John's wort (*Hypericum perforatum*). These are transformer species that, without appropriate management, can rapidly alter grassland ecosystems. A moderate to high cover of clover (*Trifolium* spp.) was also recorded within the Project Area. As a nitrogen-fixing genus, clover can increase available soil nitrogen. Without appropriate management, elevated soil nitrogen typically favours exotic species, thereby enhancing their competitive advantage and enabling them to outcompete native grassland (Randall 2015).

Invasive species management is informed by the *Canberra Airport Weed Management Plan* (Canberra Airport 2016), which triages control effort and includes biosecurity measures to reduce the risk of weed spread and new incursions. Regular monitoring of the diversity and extent of invasive species is recommended to inform weed control efforts and further support NTG rehabilitation.

3.2.2 Fragmentation

While previous developments such as taxiways and road infrastructure have caused approved fragmentation of NTG within the Canberra Airport, efforts have also been made to rehabilitate verges and disused access tracks to minimise fragmentation. Observations from this assessment indicate that the increase in the extent of NTG across the Project Area is predominantly a result of increases in the size of NTG patches. This underscores the importance of prioritising targeted rehabilitation within and adjacent to current NTG patches, maintaining and rehabilitating larger NTG patches, and joining adjacent patches to create larger patches and reduce edge effects. Minimising fragmentation will be critical for sustaining grassland extent and condition, as it reduces edge effects and enhances native seed dispersal (TSSC 2016).

3.2.3 Biomass Control

Inappropriate mowing or slashing regimes including excessively frequent and/or poorly timed mowing (in relation to native species phenology), retention of thatch lines, and the spread of exotic species represent a significant disturbance pressure on native grassland ecosystems (Morgan 2015, TSSC 2016). Such practices can inhibit native species recruitment, alter competitive interactions, and promote weed invasion.

Within the airport context, strict aviation safety requirements necessitate vegetation management approaches that support operations, balanced with management for ecological objectives that may at times conflict.

The observed expansion of NTG patches suggests that current biomass management regime is compatible with the requirements of the ecological community.





Table 3.1 Floristic Plot Results

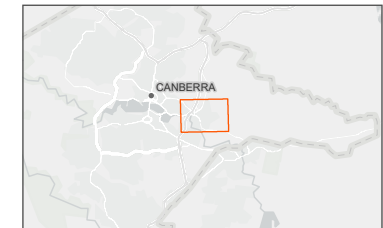
Plot Number	Floristic Value Score	Indicator Species	Non-grass Native species	Native Plant Cover	Exotic Perennial Cover	Weed Value Score	NTG Condition Threshold
01	8.10	2	4	54%	53%	17.82	high – very high
02	7.42	3	6	40%	33%	16.63	high – very high
03	18.48	6	11	68%	12%	7.90	high – very high
04	16.59	6	6	50%	20%	3.22	high – very high
05	10.28	2	4	100%	8%	5.63	high – very high
06	6.11	2	5	40%	25%	2.33	moderate - high
07	6.09	2	4	56%	22%	12.81	moderate - high
08	11.52	3	5	66%	60%	18.32	high – very high
Average	10.32	3.25	5.75	59%	29%	10.83	



FIGURE 3.1
Areas of Vegetation
Quality Four and Five that
now meet NTG Criteria

Legend

-  Roads
-  Watercourse
-  Project Area
-  EPBC Act Natural Temperate Grassland



Scale 1:22,500 at A4
 GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
 APPROVED FOR AND ON BEHALF OF Umwelt

3.3 Recommendations

To enhance the reliability of condition assessments and increase the quality of data to support planning for NTG restoration and management, future assessments should be undertaken during favourable sampling times (spring or early summer). This would provide the most accurate assessment of vegetation quality and species composition as the timing would align with peak growth and flowering of native species, improving detectability and identification.

Ongoing targeted grassland management, grassland rehabilitation and weed management across the Canberra Airport.

4.0 Conclusion

Grassland surveys undertaken by Umwelt for the Canberra Airport have provided an assessment of the current (2026) extent and condition of the NTG community within the Project Area, in support of compliance with EPBC Act approval conditions for Taxiway Bravo (EPBC 2008/4170). Approval conditions require the rehabilitation of 17.1 ha of vegetation quality 4 and 5 within the Canberra Airport lease such that it meets the definition of NTG.

- Digitisation of vegetation quality classes 4 and 5 identified a total of 129.57 ha (combined) within the Project Area. Of the 129.57 ha of vegetation quality classes 4 and 5, 11.73 ha now meet the minimum NTG listing criteria. This result demonstrates measurable progress toward the rehabilitation target.
- Condition assessments indicate that the assessed NTG includes areas of high-quality grassland. Of the eight floristic plots undertaken, six met the high to very high condition threshold and two met the moderate to high condition threshold.
- The assessment also confirms that ongoing management will remain important to maintain and extend these gains. Elevated exotic species cover in some areas presents an ongoing constraint and may limit further improvement in NTG extent and condition if not effectively managed.

Overall, these findings demonstrate an increase in NTG, presence of high-quality grassland, and progress toward rehabilitation objectives. Continued targeted rehabilitation, weed management and adaptive grassland management will be important to build on this progress and support achievement of the remaining rehabilitation target.

5.0 References

Canberra Airport. (2016) *Weed Management Plan*. Canberra Airport Pty Limited.

Canberra Airport. (2022). *Taxiway Bravo Biodiversity Offset Strategy*. Canberra Airport Pty Limited.

Canberra International Airport. (no date). *Grassland Management Plan Natural Temperate Grassland at Canberra International Airport*. Canberra Airport Pty Limited.

Department of Climate Change, Energy, the Environment and Water. (2021). *Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory*. Available at: <https://www.dcceew.gov.au/environment/biodiversity/threatened/conservation-advice/natural-temperate-grassland-southern-tablelands>

Morgan, J. (2015). *Biomass Management in Native Grasslands*. In Williams, N., Marshall, A., Morgan, J. (Eds.). *Land of Sweeping Plains*. CSIRO Publishing. Clayton South, Victoria.

Randall, R. (2015). *Weed Management in Native Grasslands*. In Williams, N., Marshall, A., Morgan, J. (Eds.) *Land of Sweeping Plains*. CSIRO Publishing. Clayton South, Victoria.

Rehwinkel, R. (2015). *A Revised Floristic Value Scoring Method to Assess Grassland Condition*. In Milligan, A. and Horton, H. (Eds.) *Grass half full or grass half empty? Valuing native grassy landscapes*, Proceedings of the Friends of Grasslands 20th Anniversary Forum, 30 October – 1 November 2014, Canberra, Australia. ISBN 978-0-9944958-1-5.

Royal Botanic Gardens and Domain Trust. (2026). *PlantNET (The NSW Plant Information Network System)*. Royal Botanic Gardens and Domain Trust, Sydney. Available at: <https://www.dcceew.gov.au/environment/biodiversity/threatened/conservation-advice/natural-temperate-grassland-southern-tablelands>.

Threatened Species Scientific Committee (TSSC). (2016). *Approved Conservation Advice (Including Listing Advice) for Natural Temperate Grassland of the South Eastern Highlands (EC 152)*. Department of the Environment. Available at: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/152-conservation-advice.pdf>.

Appendix A

Natural Temperate Grassland - Indicator Species List

Indicator species list (Version 1.0) –

for the Natural Temperate Grassland of the South Eastern Highlands ecological community

This indicator species list accompanies section 1.5.2 *Condition Thresholds* of the Approved Conservation Advice for this ecological community.

Indicator species are native plant species that are useful surrogates for the conservation value of a patch, and are typically disturbance sensitive species.

Species are identified in the table below as indicator species for one or both of **two regions** within the range of the ecological community (derived from Rehwinkel, 2015; also see indicative distribution map, link below):

- **Monaro** region: the geo-political region (as at 2015) as defined by the three local government areas of Cooma–Monaro, Snowy River and Bombala [note - also includes the Monaro sub-region (IBRA, Version 7) where it extends into Victoria, e.g. south of Delegate, NSW]; and
- **South Eastern Highlands (SEH) excluding the Monaro** region: the areas within the IBRA South Eastern Highlands bioregion and immediately adjacent areas, excluding the Monaro region.

Reference:

Rehwinkel R (2015). A revised floristic value scoring method to assess grassland condition. In 'Grass half full or grass half empty? Valuing native grassy landscapes. Proceedings of the Friends of Grasslands 20th anniversary forum, 30 October–1 November 2014, Canberra, Australia'. (Eds: A. Milligan & H. Horton). Friends of Grasslands Inc. Available on the internet at: <http://www.fog.org.au/forum2014.htm>

The Approved Conservation Advice and indicative distribution map can be found at:

<http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=152&status=Critically+Endangered>

Scientific names current as at April 2016

Scientific name	Common name/s	Monaro	SEH (excluding Monaro)
<i>Acrotriche serrulata</i>	honeypots, ant's delight	✓	✓
<i>Adiantum aethiopicum</i>	common maidenhair	✓	✓
<i>Ajuga australis</i>	Austral bugle	✓	✓
<i>Ammobium alatum</i>	winged everlasting	✓	✓
<i>Arthropodium fimbriatum</i>	nodding chocolate-lily	✓	✓
<i>Arthropodium milleflorum</i>	pale vanilla lily	✓	✓
<i>Arthropodium minus</i>	small vanilla lily	✓	✓
<i>Arthropodium</i> sp.	vanilla lillies		✓
<i>Asperula ambleia</i>	stiff woodruff	✓	✓
<i>Asplenium flabellifolium</i>	fan-leaved fern	✓	✓
<i>Astroloma humifusum</i>	canberry heath	✓	✓
<i>Baloskion australe</i>	southern or mountain cordrush	✓	
<i>Banksia marginata</i>	silver banksia		✓
<i>Blechnum nudum</i>	fishbone water fern		✓
<i>Boerhavia dominii</i>	tarvine		✓
<i>Bossiaea buxifolia</i>	matted bossiaea	✓	✓
<i>Bossiaea prostrata</i>	creeping bossiaea	✓	✓
<i>Bossiaea riparia</i>	river leafless bossiaea	✓	✓
<i>Bossiaea</i> sp.			✓
<i>Botrychium australe</i>	Austral moonwort	✓	✓
<i>Brachyloma daphnoides</i>	daphne heath	✓	✓
<i>Brachyscome aculeata</i>	hill daisy	✓	
<i>Brachyscome decipiens</i>	field daisy	✓	✓
<i>Brachyscome dentata</i>	lobe-seed daisy	✓	✓
<i>Brachyscome diversifolia</i>	large headed daisy	✓	
<i>Brachyscome graminea</i>	grass daisy	✓	✓
<i>Brachyscome ptychocarpa</i>	tiny daisy		✓
<i>Brachyscome radicans</i>	marsh daisy	✓	✓
<i>Brachyscome rigidula</i>	leafy daisy	✓	✓
<i>Brachyscome scapigera</i>	tufted daisy	✓	✓
<i>Brachyscome spathulata</i>		✓	
<i>Brachyscome</i> sp.		✓	✓
<i>Bulbine bulbosa</i>	bulbine lily	✓	✓
<i>Bulbine glauca</i>	rock lily	✓	✓
<i>Bulbine</i> sp.		✓	✓
<i>Burchardia umbellata</i>	milkmaids		✓
<i>Caesia calliantha</i>	blue grass-lily	✓	✓
<i>Calocephalus citreus</i>	lemon beauty-heads	✓	✓
<i>Calotis anthemoides</i>	burr daisy	✓	✓
<i>Calotis glandulosa</i>	mauve burr-daisy	✓	✓
<i>Calotis lappulacea</i>	yellow burr-daisy	✓	
<i>Calotis scabiosifolia</i>	rough burr daisy	✓	✓
<i>Calotis scapigera</i>	tufted burr daisy	✓	✓
<i>Cardamine paucijuga</i>	annual bitter-cress	✓	✓

Scientific name	Common name/s	Monaro	SEH (excluding Monaro)
<i>Centella asiatica</i>	indian pennywort, gotu cola	✓	✓
<i>Centella</i> sp.			✓
<i>Centrolepis strigosa</i>	hairy centrolepis	✓	
<i>Cheilanthes austrotenuifolia</i>	rock fern	✓	✓
<i>Cheilanthes distans</i>	bristly cloak fern	✓	✓
<i>Cheilanthes sieberi</i>	rock fern	✓	✓
<i>Cheilanthes</i> sp.		✓	✓
<i>Chenopodium glaucum</i>	glaucous goosefoot		✓
<i>Chrysocephalum apiculatum</i>	common everlasting	✓	✓
<i>Chrysocephalum semipapposum</i>	clustered everlasting	✓	✓
<i>Chrysocephalum</i> sp.		✓	✓
<i>Cotula alpina</i>	alpine cotula	✓	✓
<i>Craspedia</i> sp.		✓	✓
<i>Craspedia variabilis</i>	common billy buttons	✓	✓
<i>Crassula helmsii</i>	swamp crassula, swamp stonecrop		✓
<i>Cryptandra amara</i>	bitter cryptandra	✓	✓
<i>Cullen microcephalum</i>	dusky scurf-pea	✓	
<i>Cullen</i> sp.		✓	
<i>Cullen tenax</i>	emu-foot	✓	✓
<i>Daviesia genistifolia</i>	broom bitter pea	✓	✓
<i>Daviesia mimosoides</i>	blunt-leaf bitter-pea	✓	✓
<i>Daviesia</i> sp.			✓
<i>Daviesia ulicifolia</i>	gorse bitter pea		✓
<i>Desmodium</i> sp.		✓	✓
<i>Desmodium varians</i>	slender tick-trefoil	✓	✓
<i>Dianella longifolia</i>	flax-lily	✓	✓
<i>Dianella revoluta</i>	black-anther flax-lily	✓	
<i>Dianella</i> sp.		✓	✓
<i>Dichopogon</i> sp.		✓	✓
<i>Dillwynia glaucula</i>	Michelago parrot-pea	✓	
<i>Dillwynia prostrata</i>	matted parrot-pea	✓	
<i>Diplarrena moraea</i>	white flag iris	✓	
<i>Discaria pubescens</i>	Australian anchor plant	✓	✓
<i>Diuris behrii</i>	golden cowslips	✓	✓
<i>Diuris chryseopsis</i>	golden moths	✓	✓
<i>Diuris dendrobioides</i>	wedge diuris	✓	✓
<i>Diuris monticola</i>	a diuris orchid	✓	
<i>Diuris punctata</i>	purple donkey orchid	✓	✓
<i>Diuris semilunulata</i>	late leopard orchid	✓	✓
<i>Diuris</i> sp.		✓	✓
<i>Diuris sulphurea</i>	hornet orchid	✓	✓
<i>Dodonaea procumbens</i>	trailing hop bush	✓	✓
<i>Drosera peltata</i>	pale sundew		✓
<i>Drosera</i> sp.			✓
<i>Einadia trigonos</i>	fishweed	✓	
<i>Epacris microphylla</i>	coral heath	✓	✓
<i>Epacris petrophila</i>	snow heath	✓	✓
<i>Epacris</i> sp.		✓	✓
<i>Eriochilus cucullatus</i>	parson's bands	✓	✓
<i>Eryngium ovinum</i>	blue devil	✓	✓
<i>Eryngium</i> sp.		✓	✓
<i>Eryngium vesiculosum</i>	prostrate blue devil, prickfoot	✓	✓
<i>Euphrasia collina</i>	purple eye-bright	✓	✓
<i>Euphrasia orthocheila</i> (syn. <i>Euphrasia scabra</i>)	rough eyebright, yellow eyebright	✓	
<i>Eutaxia diffusa</i>	spreading eutaxia		✓
<i>Galium gaudichaudii</i>	rough bedstraw	✓	✓
<i>Genoplesium</i> sp.		✓	✓
<i>Gentiana bredboensis</i>	bredbo gentian	✓	
<i>Geranium antrorsum</i>	rosetted crane's-bill	✓	✓
<i>Gingidia harveyana</i>	slender gingidia	✓	
<i>Glycine clandestina</i>	twining glycine	✓	✓
<i>Glycine</i> sp.		✓	✓
<i>Glycine tabacina</i>	glycine pea	✓	✓
<i>Gompholobium minus</i>	dwarf wedge pea	✓	✓
<i>Gonocarpus micranthus</i>	fire plant	✓	✓
<i>Gonocarpus tetragynus</i>	common raspwort		✓
<i>Goodenia bellidifolia</i>	daisy-leaved goodenia		✓
<i>Goodenia hederacea</i>	forest goodenia	✓	✓
<i>Goodenia humilis</i>	swamp goodenia		✓
<i>Goodenia pinnatifida</i>	cut-leaf goodenia, scrambled eggs	✓	✓
<i>Goodenia</i> sp.		✓	✓

Scientific name	Common name/s	Monaro	SEH (excluding Monaro)
<i>Grevillea juniperina</i>			✓
<i>Grevillea lanigera</i>		✓	✓
<i>Hakea microcarpa</i>	small-fruit hakea	✓	✓
<i>Haloragis heterophylla</i>	rough raspwort		✓
<i>Helichrysum rutidolepis</i>	button everlasting	✓	✓
<i>Hibiscus trionum</i>	flower-of-an-hour	✓	
<i>Hovea heterophylla</i>	common hovea	✓	✓
<i>Hypericum gramineum</i>	small st john's wort	✓	✓
<i>Hypericum japonicum</i>	matted st john's wort	✓	✓
<i>Hypoxis hygrometrica</i>	golden weather-glass	✓	✓
<i>Hypoxis</i> sp.		✓	✓
<i>Hypoxis vaginata</i>	yellow star	✓	✓
<i>Isoetopsis graminifolia</i>	grass buttons	✓	✓
<i>Isotoma axillaris</i>	rock isotome		✓
<i>Isotoma fluviatilis</i>	swamp isotome	✓	✓
<i>Jacksonia scoparia</i>	broom-like jacksonia		✓
<i>Kennedia prostrata</i>	running postman		✓
<i>Lawrenca spicata</i>	salt lawrenca		✓
<i>Laxmannia gracilis</i>	slender wire-lily	✓	✓
<i>Lepidium ginninderrense</i>	Ginniderra peppergrass		✓
<i>Lepidium hyssopifolium</i>	peppergrass		✓
<i>Lepidosperma laterale</i>	variable sword-sedge	✓	
<i>Leptorhynchus elongatus</i>	lanky buttons	✓	✓
<i>Leptorhynchus</i> sp.		✓	✓
<i>Leptorhynchus squamatus</i>	scaly buttons	✓	✓
<i>Leucochrysum albicans</i>	hoary sunray	✓	✓
<i>Leucopogon fraseri</i>		✓	✓
<i>Leucopogon</i> sp.			✓
<i>Levenhookia dubia</i>	hairy stylewort		✓
<i>Lilaeopsis polyantha</i>	australian lilaeopsis	✓	
<i>Linum marginale</i>	native flax	✓	✓
<i>Lissanthe strigosa</i>	peach heath	✓	✓
<i>Lomandra bracteata</i>		✓	✓
<i>Lomandra filiformis</i>	wattle mat-rush	✓	✓
<i>Lomandra longifolia</i>	long leaved matrush	✓	
<i>Lomandra multiflora</i>	spiny-headed mat-rush	✓	✓
<i>Lomandra</i> sp.		✓	✓
<i>Lomatia myricoides</i>	long leaf lomatia		✓
<i>Lotus australis</i>	Austral indigo	✓	✓
<i>Lythrum salicaria</i>	loosestrife		✓
<i>Marsilea drummondii</i>	common nardoo	✓	
<i>Melichrus urceolatus</i>	urn heath	✓	✓
<i>Mentha diemenica</i>	slender mint	✓	✓
<i>Microseris lanceolata</i>	garngeg, nyamin, murnong, yam daisy	✓	✓
<i>Microtis parviflora</i>	slender mignonette orchid	✓	✓
<i>Microtis</i> sp.		✓	✓
<i>Microtis unifolia</i>	common leek orchid	✓	✓
<i>Mirbelia oxylobioides</i>	mountain mirbelia	✓	✓
<i>Mitrasacme serpyllifolia</i>	thyme mitrewort	✓	✓
<i>Montia australasica</i>	white purslane	✓	✓
<i>Muehlenbeckia axillaris</i>	matted lignum	✓	
<i>Muehlenbeckia tuggeranong</i>	Tuggeranong lignum		✓
<i>Lobelia pedunculata</i> (syn. <i>Pratia pedunculata</i>)	white-flower matted pratia	✓	✓
<i>Opercularia hispida</i>	hairy stinkweed	✓	
<i>Ophioglossum lusitanicum</i>	adder's tongue	✓	✓
<i>Oreomyrrhis argentea</i>	silver caraway	✓	
<i>Oreomyrrhis eriopoda</i>	Australian caraway	✓	✓
<i>Patersonia sericea</i>	silky purple flag	✓	✓
<i>Pelargonium</i> sp. (G.W. Carr 10345)	Ormeo stork's-bill	✓	✓
<i>Pellaea falcata</i>	sickle fern	✓	✓
<i>Pimelea curviflora</i>	curved rice-flower	✓	✓
<i>Pimelea glauca</i>	smooth rice-flower	✓	✓
<i>Plantago antarctica</i>	mountain plantain	✓	✓
<i>Plantago euryphylla</i>	broad plantain		✓
<i>Plantago gaudichaudii</i>	narrow plantain	✓	✓
<i>Plantago hispida</i>	hairy plantain	✓	
<i>Plantago varia</i>	variable plantain		✓
<i>Pleurosorus rutifolius</i>	blanket fern		✓
<i>Podolepis hieracioides</i>	long podolepis	✓	✓
<i>Podolepis jaceoides</i>	showy copper-wire daisy	✓	✓
<i>Polygala japonica</i>	dwarf milkwort	✓	✓

Scientific name	Common name/s	Monaro	SEH (excluding Monaro)
<i>Poranthera microphylla</i>	small poranthera	✓	✓
<i>Prasophyllum canaliculatum</i>	summer leek orchid	✓	
<i>Prasophyllum petilum</i>	Tarengo leek orchid	✓	✓
<i>Prasophyllum</i> sp.		✓	✓
<i>Prasophyllum wilkinsoniorum</i>		✓	
<i>Pterostylis bicolor</i>	black-tip greenhood	✓	✓
<i>Pterostylis cynocephala</i>	swan greenhood	✓	✓
<i>Pterostylis mutica</i>	blunt greenhood	✓	✓
<i>Pterostylis</i> sp.		✓	✓
<i>Ptilotus</i> sp.			✓
<i>Pultenaea procumbens</i>	heathy bush-pea	✓	✓
<i>Pultenaea</i> sp.		✓	
<i>Pultenaea subspicata</i>	low bush-pea	✓	
<i>Ranunculus amphitrichus</i>	small river buttercup	✓	✓
<i>Ranunculus inundatus</i>	river buttercup	✓	✓
<i>Ranunculus lappaceus</i>	Australian buttercup	✓	✓
<i>Ranunculus papulentus</i>	large river buttercup	✓	✓
<i>Ranunculus pimpinellifolius</i>	bog buttercup	✓	
<i>Ranunculus scapiger</i>			✓
<i>Rhodanthe anthemoides</i>	chamomile sunray	✓	
<i>Rubus parvifolius</i>	native raspberry	✓	✓
<i>Rulingia prostrata</i>	dwarf kerrawang		✓
<i>Rutidosia leiolepis</i>	monaro golden daisy	✓	
<i>Rutidosia leptorrhynchoides</i>	button wrinklewort	✓	✓
<i>Scleranthus biflorus</i>	cushion-bush		✓
<i>Scleranthus diander</i>	tufted knawel		✓
<i>Scleranthus fasciculatus</i>	knawel		✓
<i>Scleranthus</i> sp.			✓
<i>Scutellaria humilis</i>	dwarf skullcap	✓	
<i>Sebaea ovata</i>	yellow centauray	✓	✓
<i>Selliera radicans</i>	shiny swamp-mat	✓	✓
<i>Sida corrugata</i>	corrugated sida		✓
<i>Spiranthes australis</i>	Austral ladies tresses	✓	✓
<i>Stackhousia monogyne</i>	creamy candles	✓	✓
<i>Stellaria angustifolia</i>	swamp starwort	✓	✓
<i>Stellaria pungens</i>	prickly knawel	✓	
<i>Stylidium despectum</i>	dwarf triggerplant		✓
<i>Stylidium graminifolium</i>	grass trigger plant	✓	✓
<i>Stylidium</i> sp.		✓	✓
<i>Swainsona behriana</i>	Behr's swainson-pea	✓	
<i>Swainsona monticola</i>	notched swainson-pea	✓	✓
<i>Swainsona recta</i>	mountain swainson-pea, small purple pea		✓
<i>Swainsona sericea</i>	silky swainson-pea	✓	✓
<i>Swainsona</i> sp.		✓	✓
<i>Thelymitra pauciflora</i>	slender sun orchid	✓	✓
<i>Thelymitra</i> sp.		✓	
<i>Thesium australe</i>	Austral toad-flax	✓	✓
<i>Thysanotus patersonii</i>	twining fringe lily		✓
<i>Thysanotus</i> sp.		✓	✓
<i>Thysanotus tuberosus</i>	common fringe lily	✓	✓
<i>Trachymene humilis</i>	alpine trachymene	✓	✓
<i>Tricoryne elatior</i>	yellow rush lily	✓	✓
<i>Triptilodiscus pygmaeus</i>	common sunray	✓	
<i>Utricularia dichotoma</i>	aprons	✓	✓
<i>Velleia montana</i>	mountain velleia	✓	✓
<i>Velleia paradoxa</i>	spur velleia	✓	✓
<i>Veronica calycina</i>	hairy speedwell	✓	
<i>Veronica gracilis</i>	slender speedwell	✓	
<i>Veronica plebeia</i>	trailing speedwell	✓	
<i>Veronica subtilis</i>		✓	✓
<i>Viola betonicifolia</i>	native violet	✓	✓
<i>Viola sieberiana</i>		✓	
<i>Westringia eremicola</i>	slender western rosemary		✓
<i>Wilsonia rotundifolia</i>	round-leaf wilsonia		✓
<i>Wurmbea dioica</i>	early nancy	✓	✓
<i>Xerochrysum bracteatum</i>	golden everlasting	✓	
<i>Xerochrysum palustre</i>	swamp everlasting	✓	
<i>Xerochrysum subundulatum</i>	alpine everlasting	✓	✓
<i>Zornia dyctiocarpa</i>	zornia	✓	✓



P 1300 793 267 **E** info@umwelt.com.au **W** umwelt.com.au
NSW | ACT | WA | QLD | VIC | SA **ABN** 18 059 519 041



Canberra Grassland Earless Dragon Monitoring Report

Canberra Airport

Final

December 2025

Canberra Grassland Earless Dragon Monitoring Report

Canberra Airport

Final

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Canberra Airport Group

Project Director: Clare McInnes
Project Manager: Lydia Guja

Report No.: 32023_R01
Date: December 2025



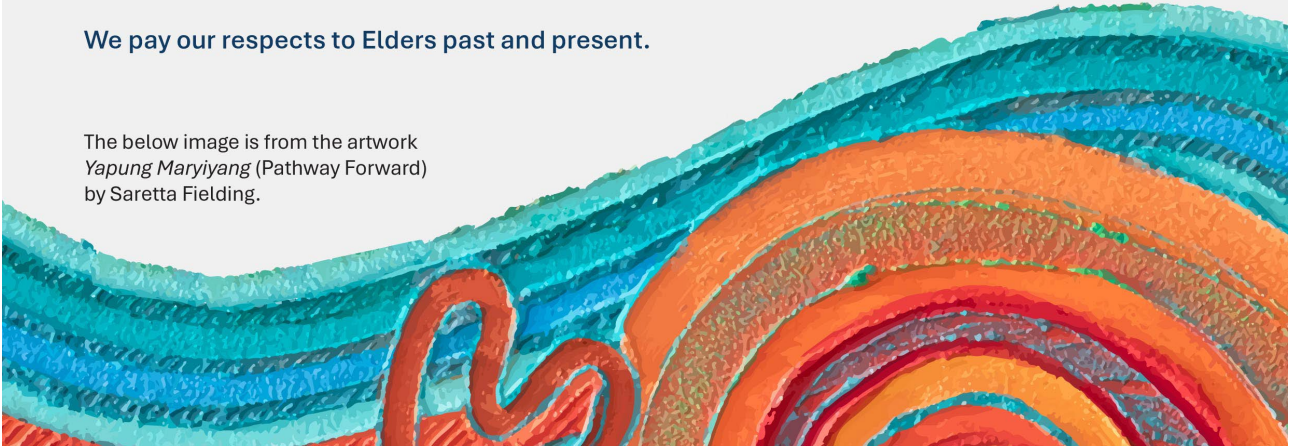
This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement of Country

Umwelt acknowledges the Traditional Owners of Country throughout Australia and their continuing values, culture and connection to the land, waters and sky.

We pay our respects to Elders past and present.

The below image is from the artwork *Yapung Maryiyang* (Pathway Forward) by Saretta Fielding.



Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V1	Lydia Guja	6/08/2025	Clare McInnes	8/08/2025
V2	Lydia Guja	27/09/2025	Clare McInnes	29/09/2025
V3	Lydia Guja	17/12/2025	Clare McInnes	18/12/2025

Acknowledgement

This document has been prepared in close collaboration with Alison Rowell Biologist and Environmental Consultant. We thank Alison for her knowledge and contributions, which have directly informed this work.

Executive Summary

Umwelt were engaged by the Canberra Airport Group to survey for the Canberra grassland earless dragon (*Tympanocryptis lineata*) (CGED) for the 2025 field season within the grounds of the Canberra International Airport. The CGED is a critically endangered species listed under the *Commonwealth Government Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *ACT Government Nature Conservation Act 2014* (NC Act). The northern part of the Canberra Airport has historically supported a population of CGED, with the first recorded in 1995. CGED monitoring and surveys have occurred at Canberra Airport since 2007. Captures and observations of the CGED since 2007 have been infrequent and declining.

An expanded Monitoring Area and new detection methods were tested in 2024. The survey design and the various methods trialled (artificial spider tubes, tiles, wooden blocks etc) were informed by the latest advice from GED experts in government, academia and consulting. The same Monitoring Area and survey design from 2024 was used again in 2025, with the survey period extended until the end of winter (based on new advice from CGED experts).

The primary objective of the survey was to detect CGED in the Monitoring Area using established methods of grids of artificial spider tubes. A secondary objective of the survey was to increase the likelihood of detection by expanding the Monitoring Area using transects, and by trialling emerging survey methods such as wooden blocks and stacked or propped roofing tiles as recommended by GED experts in government, academia and consulting. Results inform future planning and management decisions relating to the conservation of the species at the Canberra Airport.

The Monitoring Area supports patches of the critically endangered *Natural Temperate Grassland of the South Eastern Highlands* (natural temperate grassland) ecological community which is known habitat for the CGED. The CGED habitat within the Canberra Airport is managed under the Canberra Airport Threatened Species Management Plan (TSMP) (Canberra Airport 2010) via weed control, herbage mass management (high slashing), feral animal control and the maintenance and management of drainage and stormwater detention basins. Some bird species are also controlled for aircraft safety reasons, including potential predators of CGED. No data was collected on the extent and quality of the CGED habitat as part of this project.

No CGED were found during the 2025 survey period (17 February to 29 May 2025) at the Canberra Airport. This was an extended monitoring period, as recommended by the CGED experts due to recent captures of CGED during winter months in other ACT survey locations. Survey grids and transects were checked 20 times, resulting in 4,640 individual survey point checks.

CGED shelter and nest in underground burrows created by large arthropods, such as wolf spiders (*Tasmanicosa* spp.) and the Canberra raspy cricket (*Cooraboorama canberrae*) (EPSDD 2025). Observations of wolf spiders and Canberra raspy crickets provide an indication of the abundance of burrow creators and suitability of soil conditions for burrow creation and provide an indication of grassland functional quality. A moderate number of wolf spiders (*Tasmanicosa* spp.) were recorded in 2025, an increase compared to low numbers in 2024. One Canberra raspy cricket was detected. This burrow-forming species is considered rare/sensitive in the ACT and has been nominated for listing but is not currently listed under EPBC or ACT legislation.

While the number of burrow creators in 2025 was higher than 2024, observed numbers were still lower than previously monitored years. The number of burrow creators (which are an important habitat feature for the CGED) may be in decline.

Tube competitors such as slugs and frogs had lower observations in 2025, compared to the much wetter 2024 which may have provided more favourable habitat for these fauna types. Redback spiders, another tube competitor, had a large increase in 2025 compared to 2024.

A high number of black field crickets was recorded, an important prey item for the CGED. This is likely due to the lower-than-average rainfall in the 6 months preceding the survey period. Observations of black field crickets declined as the survey period progressed into wetter and colder conditions.

No CGED were detected in the Majura Valley in 2025 surveys. One CGED was found in the Majura Training Area just north of the Canberra Airport during 2024 winter surveys. There appears to be a general decline in CGED across the region in recent years.

The CGED is cryptic in nature and difficult to detect. It was considered extinct in the ACT for 30 years until 1991. Although the population at Canberra Airport may have recently declined, there have previously been periods where the CGED has not been sighted at Canberra Airport for four years (2007 – 2010) and then recorded (in 2011). The most recent observation in 2019 was from a natural burrow, outside of the current Monitoring Area. Due to the cryptic nature of the species, past multi-year fluctuations in detection, and recent (within one year) detection at an adjacent site, the continued presence of the CGED in the Canberra Airport cannot be ruled out. Therefore, continuation of monitoring and surveys at the Canberra Airport, as per the Canberra Airport Environment Strategy (Canberra Airport 2020), TSMP, and informed by the latest research, is recommended.

GED species across southeastern Australia are the subject of active research and understanding of their habitat requirements, and improvements to survey methodology, are therefore evolving. As per Canberra Airport's history of utilising the latest research and advice to inform CGED monitoring and management, future surveys could consider potential adjustments to the Monitoring Area if understanding of CGED habitat changes, continued exploration of diverse new survey methods to increase chances of detection, and utilisation of the long-term monitoring data for population research to inform management decisions.

Contents

Acknowledgement	i
Executive Summary	ii
1.0 Introduction	1
1.1 Background	1
1.2 Canberra Grassland Earless Dragon Ecology	1
1.2.1 Habitat and Ecology	1
1.2.2 Threats	2
2.0 Methods	4
2.1 Monitoring Area Description	4
2.2 Survey Design	6
2.2.1 Grids	8
2.2.2 Transects	8
2.3 Natural Burrows with Fibrescope	12
2.4 Biomass Management During the Survey	12
2.5 Surveys	13
2.6 Weather and Data Collection	13
3.0 Results	14
3.1 Survey Results	14
3.1.1 Grids and Transects	14
3.2 Weather	17
4.0 Discussion	18
4.1 Burrow Availability and Creation	18
4.2 Competition and Prey Items	18
4.3 Habitat Management	19
4.4 Survey Method Evaluation	19
5.0 Conclusion	21
6.0 References	22

Figures

Figure 2.1	CGED Monitoring Area	5
Figure 2.2	Grid and Transect Locations	7

Tables

Table 2.1	Survey Summary (2025)	6
Table 2.2	Transect Method Summary	9
Table 3.1	CGED Combined Grid Observations within the Canberra Airport 2007–2025 (Umwelt 2024; Rowell 2023; Rowell 2021; Rowell 2019; Rowell 2017; Rowell 2015; Rowell 2013; Rowell 2011; Rowell 2010; Rowell 2009; Rowell 2008; Rowell 2007)	14
Table 3.2	Summary of Species Observed	15
Table 3.3	Average Number of Wolf Spiders Observed per Survey in Each Grid (2011 – 2025) (Umwelt 2024; Rowell 2023; Rowell 2021; Rowell 2019; Rowell 2011)	15

Photos

Photo 2.1	Canvas Roof Over Artificial Burrow (Tube)	10
Photo 2.2	Roof Tile Propped at One End on a Thick Wooden Batten	10
Photo 2.3	Stack of Two Roof Tiles	11
Photo 2.4	Wooden Block with Battens Attached to Underside	11
Photo 2.5	Herbage Mass during the Monitoring Period (Transect 5)	12
Photo 3.1	Burrow-forming Canberra Raspy Cricket Observed in NW Grid	16
Photo 3.2	Tube-competitor Whistling Tree Frog Observed in NW Grid	17

Appendices

Appendix A	2025 Grid and Transect Survey Results
Appendix B	2025 Transect Setup

1.0 Introduction

1.1 Background

Umwelt were engaged by the Capital Airport Group to survey for the Canberra grassland earless dragon (*Tympanocryptis lineata*) (CGED) for the 2025 field season within the grounds of the Canberra International Airport, hereafter referred to as Canberra Airport (**Figure 2.1**). The CGED is a critically endangered species listed under the Commonwealth Government *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the ACT Government *Nature Conservation Act 2014* (NC Act).

The northern part of the Canberra Airport has historically supported a population of CGED, with the first recorded observation in 1995. Subsequent monitoring of the species confirmed their presence with two permanent survey grids established in habitat within the northern end of Canberra Airport in 2007 (referred to as Monitoring Area – see **Section 2.1**). Captures and observations of the CGED at the Canberra Airport since 2007 have been infrequent and declining, with the most recent being observed following an extensive natural burrow survey beyond the Monitoring Area in 2019 (Rowell 2019).

The Canberra Airport is required to submit an Annual Environment Report to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) and the Department of Climate Change, Energy, the Environment and Water (DCCEEW), that details the Canberra Airport's performance against obligations described in the Canberra Airport Environment Strategy (Canberra Airport 2020). This includes undertaking CGED surveys every two years to ensure land management practices at the Canberra Airport are consistent with the protection of natural values, including CGED (Canberra Airport 2020).

The CGED surveys are undertaken consistent with the management actions described in the Canberra Airport Threatened Species Management Plan (TSMP) (Canberra Airport 2010), which was developed pursuant to the approval decision for EPBC 2009/4748 under the EPBC Act.

The primary objective of the survey was to detect CGED in the Monitoring Area using established methods of grids of artificial spider tubes. A secondary objective of the survey was to increase the likelihood of detection by expanding the Monitoring Area using transects, and by trialling emerging survey methods such as wooden blocks and stacked or propped roofing tiles as recommended by GED experts in government, academia and consulting. The survey was undertaken in a Monitoring Area previously established by Alison Rowell and CAG.

This report presents the results of the surveys undertaken from February to May 2025.

1.2 Canberra Grassland Earless Dragon Ecology

1.2.1 Habitat and Ecology

The CGED was once part of a single species (originally *Tympanocryptis pinguicolla*) that had populations within New South Wales (NSW) and Victoria (VIC).

A taxonomic revision in 2019 established four species, with *T. lineata* restricted to Canberra and others occurring in Bathurst, Cooma and Victoria (Melville 2019).

The CGED was rediscovered in 1991 after a 30 year absence, with its distribution restricted to the Majura Valley and Jerrabomberra Valley, where it inhabits frost pockets in grasslands that are dominated by tall speargrass (*Austrostipa bigeniculata*), rough speargrass (*Austrostipa scabra*) and wallaby grass (*Rytidosperma* spp.), as well as well-drained sites that support red-leg grass (*Bothriochloa macra*) (DCCEEW 2023). Within the Canberra Airport, CGEDs have historically been recorded in well-drained, minimally disturbed patches of the critically endangered *Natural Temperate Grassland of the South Eastern Highlands* (natural temperate grassland) ecological community (Canberra Airport 2010).

The CGED shelter and nest in underground burrows created by large arthropods, such as wolf spiders (*Tasmanicosa* spp.) and the Canberra raspy cricket (*Cooraboorama canberae*) (EPSDD 2025). Female dragons have also been found to create their own burrows for laying their eggs (DCCEEW 2023). CGED breed from November to February, with females typically laying clutches of 3 to 7 eggs in late spring to early summer when there is an abundance of invertebrates, their main prey item, in the field (Nelson 2004). Juvenile CGED usually hatch in late summer and grow rapidly to adult size by late autumn, ready to mate in the following spring. During winter, CGED enter brumation whereby their metabolism reduces due to the colder weather, and they become dormant (EPSDD 2025). Juvenile CGED are thought to disperse soon after hatching, and adult activity ranges from torpid in winter to active periods observed throughout the year (EPSDD 2025).

The lifespan of CGEDs is typically less than two years in the wild, however they have been known to live for over five years in captivity (EPSDD 2025). Female CGED typically only live long enough to produce a single clutch of eggs. Drought is considered a limiting factor for successful recruitment for the species (A. Rowell pers. comm 2024).

The CGED diet includes ants, beetles, butterflies, moths, bugs, cockroaches, termites, crickets, spiders, flies, grasshoppers, and centipedes (DCCEEW 2023). While large CGEDs are known to prey on small spiders, large spiders may also prey on small CGED. This predator-prey relationship is further complicated by the fact that CGEDs seek refuge in spider burrows (i.e. they also compete with their prey/predator for resources within their shared habitat). These dynamics highlight the complexities of the shelter and predator-prey relationships that exist between the CGED and burrow-creating spiders (DCCEEW 2023).

1.2.2 Threats

Populations of the CGED declined dramatically between 2005 and 2009, likely due to drought conditions and exacerbated by overgrazing, which exposed individuals to heat, predation, and starvation. Monitoring suggests some post-drought recovery (EPSDD 2017); however the species remains under threat of extinction mainly from climate change and the expected increases in heatwave duration, frequency, and intensity (DCCEEW 2023).

Other threats to the CGED include the modification, degradation, loss, and fragmentation of habitat. Invasive species, in particular African lovegrass (*Eragrostis curvula*) are a major threat and if unmanaged will modify the grassland structure, resulting in a monoculture that can shroud arthropod burrows, reduce the inter-tussock spaces, and therefore reduce areas in which the CGED can nest, bask and feed (ACT Scientific Committee 2023).

Fragmentation of habitat also reduces the ability of CGEDs to move to or from adjacent patches of suitable habitat, increasing the loss of genetic diversity and inbreeding. This may impact population viability by limiting the gene pool and reducing individual fitness (EPSDD 2025).

The species' relatively low fecundity and short life span makes local populations vulnerable to the effects of environmental changes on their habitat (EPSDD 2025).

All the above threats have the potential to negatively affect CGED habitat within Canberra Airport, with the exception of overgrazing as the grassland is managed by slashing.

2.0 Methods

Surveys for CGED at Canberra Airport have been undertaken since 2007, utilising the latest research and methods informed by government, academia and consultants. The monitoring methods for 2025 were developed in consultation with Alison Rowell and the ACT Government in 2024, with the objective to increase the chance of detecting CGED within the Canberra Airport. This included utilising two established grids of artificial spider tubes, extending the Monitoring Area with transects, trialling different detection methods (such as blocks, propped and stacked tiles) and extending the survey period into the cooler months following the detection of CGEDs in winter 2023 within another site (B. Croak pers. comm. 2024). The survey design also included methods similar to those used in Victoria for the Victorian grassland earless dragon project.

The 2025 surveys are the second time the new monitoring methods have been used. They are consistent with those used in 2024 (Umwelt 2024). The methods predate the recently published *Survey guidelines for four Grassland Earless Dragons (Tympnocryptis spp.) of Southeast Australia* (DCCEEW 2024). The methods utilised at the Canberra Airport were informed by the latest knowledge and research and therefore generally align with the methods recommended in new CGED survey guidelines (DCCEEW 2024).

2.1 Monitoring Area Description

The Monitoring Area established by Alison Rowell and CAG occurs in the northern section of Canberra Airport (**Figure 2.1**). The Monitoring Area is flat to gently undulating with higher areas supporting patches of natural temperate grassland and habitat for threatened grassland species including the CGED, the vulnerable golden sun moth (*Synemon plana*) and the vulnerable perunga grasshopper (*Perunga ochracea*). Low-lying areas are dominated by paspalum (*Paspalum dilatatum*) and Chilean needlegrass (*Nassella neesiana*). African lovegrass and serrated tussock (*Nassella trichotoma*) are also present. Canberra Airport manages the NTG and CGED habitat under its TSMP (see Section 4.3).

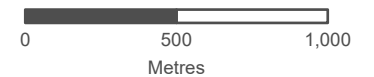
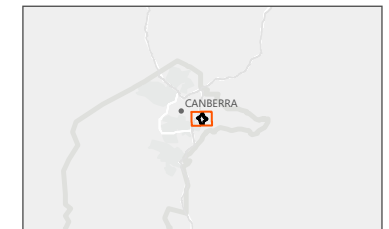
The extent of Chilean needlegrass and African lovegrass is increasing across the Monitoring Area (A. Rowell pers. comm 2024). These species are a primary threat to the quality and extent of the natural temperate grassland and grassland fauna habitat.



FIGURE 2.1
Monitoring Area

Legend

- Monitoring Area
- Canberra Airport Boundary



Scale 1:25,000 at A4
GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
APPROVED FOR AND ON BEHALF OF Umwelt



2.2 Survey Design

Surveys were undertaken within two grids and six transects (**Figure 2.2**). The tubes, which are closed (reversed) at the end of each survey season, were opened in January 2025 and left for two weeks before the initial survey in February. The grids and transects were surveyed between 17 February and 29 May 2025. The survey methods employed were:

- artificial burrows (tubes)
- tubes with canvas roofs
- tiles (with and without tubes)
- wooden blocks (with and without tubes).

Combinations of the survey methods were used across the grids and transects with details provided in **Section 2.2.1** (Grids), and **Section 2.2.2** (Transects).

The grid and transect survey periods, number of survey days, number of methods, number of survey points, and survey effort is summarised in **Table 2.1**.

Table 2.1 Survey Summary (2025)

Method	Survey Period	Number of Surveys	Number of Methods	Number of Survey Points	Survey Effort (Total Number of Checks and Points)
Grids	17 February – 29 May	20	2	112	2240
Transects	17 February – 29 May	20	6	120	2400
Total				232	4640

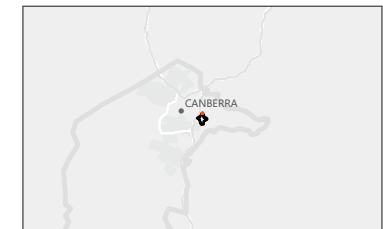
The grids and transects remained open from May to September, as advised by ACT Government to provide shelter for any CGED during the winter (R. Colley pers. comm 2025). On 17 September the two grids and transect 1 and transect 6 were closed. On 24 September the remaining transects were closed.

-LINK-C:\Users\William\Umwelt\LINK-AUSTRALIA\LINK-AUSTRALIA\PTV_LTD\2023_03_S8V02_Project\2023_R01_CSEED\Monitoring_v1_spr_2023_R01_2023_Survey\2023\Transsects



FIGURE 2.2
Survey Grids and Transects

- Legend**
- Monitoring Area
 - Canberra Airport Boundary
 - Survey Grid
- Transect Tube**
- Transect 1
 - Transect 2
 - Transect 3
 - Transect 4
 - Transect 5
 - Transect 6



Scale 1:2,250 at A4
GDA2020 MGA Zone 55



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
APPROVED FOR AND ON BEHALF OF Umwelt



2.2.1 Grids

The grids at the Canberra Airport were originally installed in 2007, to align with long term monitoring methods used by the ACT Government and the University of Canberra at other sites in the Majura Valley and Jerrabomberra Valley. The two grids are comprised of 56 (7 x 8) artificial tubes, each spaced 10 m apart, located in the north-east and north-west portions of the Monitoring Area (**Figure 2.2**).

A canvas roof was installed over every second row of tubes (56 roofs in total) prior to survey commencement. Surveys have historically been undertaken between February / March to April each year.

2.2.2 Transects

Six transects were installed in 2024 ranging from 60 to 240 metres long (T1: 230 m, T2: 210 m, T3: 240 m, T4: 205 m, T5: 170 m, T6: 60–1,115 m total), located in areas with suitable habitat for the CGED. There were 62 tubes plus 58 survey points where the other methods were used, resulting in a total of 120 survey points (**Appendix B**).

In 2025 two tubes in Transect 3 could not be located so transects instead had 60 tubes plus 60 survey points where the other methods were used, resulting in a total of 120 survey points (**Figure 2.2**).

The survey points were spaced at 10 metre intervals, with the following methods used:

- Tube with canvas roof (**Photo 2.1**) (43 replicates).
- Tube with stacked tiles (9 replicates).
- Tube with wooden block (8 replicates).
- Propped tile only (**Photo 2.2**) (20 replicates).
- Stacked tiles only (**Photo 2.3**) (19 replicates).
- Wooden block only (**Photo 2.4**) (21 replicates).

A summary of the six methods used within each transect is provided in **Table 2.2**.

Table 2.2 Transect Method Summary

Transect Number	Transect Length (m)	Number of Survey Points per Method							Total Number of Survey Points
		Tube with Canvas Roof	Tube with Propped Tile	Tube with Stacked Tiles	Tube with Wooden Block	Propped Tile Only	Stacked Tiles Only	Wooden Block Only	
1	230	9	-	4	4	2	2	3	24
2	210	8	-	-	-	5	4	5	22
3	240	9	-	4	4	4	3	2	27
4	205	8	-	-	-	5	4	5	22
5	170	9	-	-	-	3	3	3	18
6	60		-	-	-	2	3	2	7
Total Number of Survey Points		43	-	9	8	21	16	20	120



Photo 2.1 Canvas Roof Over Artificial Burrow (Tube)



Photo 2.2 Roof Tile Propped at One End on a Thick Wooden Batten



Photo 2.3 Stack of Two Roof Tiles



Photo 2.4 Wooden Block with Battens Attached to Underside

2.3 Natural Burrows with Fibrescope

The checking of natural burrows with a fibrescope was not completed in 2025 due to capacity and seasonal conditions. Due to the cold frosts that occurred during autumn, it was determined that CGED would likely be deep within burrows and not active during the day therefore difficult to detect. In addition to the poor conditions, only a small number of potential burrows were noted during the grid and transect searches (A. Rowell pers. comm 2025).

2.4 Biomass Management During the Survey

The grass within the Monitoring Area was managed to help facilitate CGED movement and to align with the airport herbage mass management guidelines. A few days prior to survey commencement (opening of tubes) in January, areas within and adjacent to the grids were mown to 150 mm (**Photo 2.5**).

Airport herbage mass management guidelines maintain a low biomass grassland. Accordingly, the methods employed in the transects did not include tubes without roofs due to CGED being more likely to be found in roofed tubes in low biomass grids (A. Rowell pers. comm 2024).

Mowing did not take place within the Monitoring Area during the survey period, however the northern end of the airport and surrounding areas outside of the Monitoring Area were mown to align with the airport herbage mass management guidelines.



Photo 2.5 Herbage Mass during the Monitoring Period (Transect 5)

2.5 Surveys

Each tube was searched using a torch, and all survey points were visually inspected for the presence of fauna.

The grids and transects were checked 20 times over 15 weeks commencing 17 February 2025 (total survey effort of 4,640 checks and points). During each check the number of individuals of fauna species found at each survey point was recorded. These species were later categorised depending on their main relationship with the CGED. Some species, e.g. the wolf spider, were assigned to more than one category. The categories were:

- B = Burrow creator
- C = Tube competitor¹
- P = Potential prey
- PR = Potential predator.

For each observation, the transect/grid number (survey point ID), fauna species name, count, and photo (if required for identification of uncommon species) was recorded. Observations such as excessive water, soil, natural burrows, or animal diggings were also recorded.

At each inspection tubes were cleared of soil, water, or grass. Spiders, slugs and crickets were removed from the tubes.

It is not known if temperature affects CGED detectability. Surveys were therefore undertaken at various times of the day (commencing between 07:15 and 15:10) to try and improve detectability.

2.6 Weather and Data Collection

Weather data was captured to assist with interpreting the survey results. Weather can directly influence CGED habitat suitability as extreme weather can impact vegetation and soil conditions, which can then affect the availability of food and shelter. Behavioural patterns can also influence CGED as they may be more active during warm temperature ranges and less active during extreme heat or cold.

Data on the weather (temperature, wind, humidity, and cloud cover), date, and time was collected at the beginning of each survey. Data was collected through Survey123 using a handheld digital device.

¹ The term 'tube competitor' has been used instead of "burrow competitor" recognising that insufficient information is available on the competitive relationship of species in a natural burrow.

3.0 Results

3.1 Survey Results

3.1.1 Grids and Transects

No CGED were recorded during the 2025 survey period.

The last CGED recorded at the Canberra Airport was from a natural burrow survey in 2019, in an area outside of the current Monitoring Area (Rowell 2019). No CGED have been detected in the grid surveys since 2017 (**Table 3.1**).

Table 3.1 CGED Combined Grid Observations within the Canberra Airport 2007–2025

(Umwelt 2024; Rowell 2023; Rowell 2021; Rowell 2019; Rowell 2017; Rowell 2015; Rowell 2013; Rowell 2011; Rowell 2010; Rowell 2009; Rowell 2008; Rowell 2007)

Year	Number of CGEDs
2025	0
2024	0
2023	0
2021	0
2019	1*
2017	1 (male - hatchling/subadult)
2015	4 (2 male – adult and subadult, 2 female – subadult)
2013	2 (female – adult, unknown – subadult)
2011	1 (female – adult)
2010	0
2009	0
2008	0
2007	0

*Natural burrow situated outside the Monitoring Area.

A number of other notable species were observed in 2025 (**Table 3.2**). This includes species that have been classified according to their main interaction with the CGED, including burrow creators, tube competitors, and potential prey and predator species (**Section 2.4**). Black field crickets were the most common species recorded across all grids and transects with 2026 observations, a significant increase on 2024 (163 observations).

Table 3.2 Summary of Species Observed

Type	Species
Burrow Creator	<ul style="list-style-type: none"> adult wolf spider (<i>Tasmanicosa</i> & <i>Venatrix</i> spp.) Canberra raspy cricket (<i>Cooraboorama canberrae</i>)
CGED Tube Competitor	<ul style="list-style-type: none"> adult wolf spider (<i>Tasmanicosa</i> & <i>Venatrix</i> spp.) hunterman spider (<i>Neosparassus</i> spp.) spotted marsh frog (<i>Limnodynastes tasmaniensis</i>) striped marsh frog (<i>Limnodynastes peronii</i>) whistling tree frog (<i>Litoria verreauxii</i>) redback spider (<i>Latrodectus hasselti</i>) garden snail (<i>Cornu aspersum</i>) slugs (species unknown)
CGED Potential Prey	<ul style="list-style-type: none"> black field cricket (<i>Teleogryllus commodus</i>) ants (multiple species) spider (other) (multiple species) pillbug (likely <i>Armadillidium</i> sp.) beetle (multiple species) native cockroach (species unknown) caterpillar (species unknown)
CGED Potential Predator	<ul style="list-style-type: none"> adult wolf spider (<i>Tasmanicosa</i> and <i>Venatrix</i> spp.) praying mantis

3.1.1.1 Burrow Creators

There were 228 observations of wolf spiders (all genera) across grids and transects, with an average of 3 wolf spiders (per survey) for the NW grid compared to 1 in 2024 (Umwelt 2024), and 3.6 for the NE grid compared to 1.6 in 2024 (Umwelt 2024). This is an increase from the low numbers recorded in 2024 (Umwelt 2024) (**Table 3.3**).

Table 3.3 Average Number of Wolf Spiders Observed per Survey in Each Grid (2011 – 2025) (Umwelt 2024; Rowell 2023; Rowell 2021; Rowell 2019; Rowell 2011)

Year*	2011		2019		2021		2023		2024		2025	
Grid	NW	NE	NW	NE	NW	NE	NW	NE	NW	NE	NW	NE
Average no. wolf spiders	5.45	2.45	6.1	5.6	6.2	4.9	4.9	10.5	1.0	1.6	3	3.6

*Data for some years has not been reported.

One mature female Canberra raspy cricket was observed in the NW grid across 10 surveys (**Photo 3.1**). It is likely this was the same individual each time as all records were in the same survey point with the cricket displaying similar features across observations. One individual was recorded in 2024 during the natural burrow surveys. No Canberra raspy crickets were observed in the grids or transects in 2024 (nor 2019 or 2021), and in 2017, 2015 and 2011, two, two and five individuals were recorded over the survey period, respectively (Umwelt 2024; Rowell 2021).

3.1.1.2 Potential Tube Competitor Species

Redback spiders (*Latrodectus hasselti*) were the most common tube competitor species recorded (118 observations) outside of wolf spiders. In 2024 slugs were the most observed competitor species, with 365 recorded. In 2025 only 7 slugs were recorded, likely reflecting the drier conditions in 2025.

Garden snails (*Cornu asperum*) were the third most frequent potential tube competitor of CGED recorded in the Monitoring Area (12 observations). Frogs had reduced numbers compared to 2024 (60 total observations, multiple species), with the striped marsh frog (*Limnodynastes peronii*; 2 observations), spotted marsh frog (*Limnodynastes tasmaniensis*; 7 observations) and whistling tree frog (*Litoria verreauxii*; 2 observations) observed (**Photo 3.2**).

The total and average number of detections per survey point for all species is presented in **Appendix A**.



Photo 3.1 Burrow-forming Canberra Raspy Cricket Observed in NW Grid



Photo 3.2 Tube-competitor Whistling Tree Frog Observed in NW Grid

3.2 Weather

The mean annual rainfall at the Canberra Airport is 616 mm, with 536 mm total rainfall recorded in the 12 months preceding the 2025 survey. The last 6 months of 2024 were particularly dry (apart from approximately twice the average monthly rainfall in December). Rainfall during the 2025 (February–May) survey period was 12% down on the long-term average, with a total of 175 mm.

Air temperatures recorded during the surveys ranged from 11°C to 29°C, with an average of 20.6 °C. Wind ranged from 0 km/h to 43 km/h (average 14 km/h). Humidity ranged from 32% to 100% (average 60%), and cloud cover ranged from 0% to 100% (average of 43%).

4.0 Discussion

No CGEDs were detected within the Monitoring Area in 2025. Other species were recorded to assist with interpreting the results and the provision of recommendations.

4.1 Burrow Availability and Creation

Grid survey results indicate higher numbers of wolf spiders using the Canberra Airport tubes during the 2025 monitoring period compared to 2024 (**Table 3.3**).

The number of wolf spiders in 2025 was higher than observed in 2024, however it is still lower than previous years. Higher recorded wolf spider numbers in 2025 could be related to the drier conditions leading up to the surveys, increasing the population numbers. The opening of the tubes in 2025 earlier in the season could also have contributed to higher numbers of observed wolf spiders, with wolf spiders choosing to settle in open and available artificial burrows for the upcoming winter, as opposed to 2024, when tubes were opened later, resulting in wolf spiders settling in natural burrows before surveys commenced.

The number of Canberra raspy crickets detected in tubes at the Canberra Airport remains low, consistent with numbers observed in 2024 and previous years. One individual was observed in 2025 in the NW grid across 10 surveys, and one individual was recorded in 2024 during the natural burrow surveys.

4.2 Competition and Prey Items

The CGED faces competition from other species for resources such as burrows. The main tube competitors recorded at the Canberra Airport in 2025 were wolf spiders and redback spiders, both of which increased compared to 2024.

Wolf spiders are both prey and predator of the CGED, with smaller spiders being prey for larger CGED and vice versa. For this reason, it is difficult to interpret how competition from wolf spiders influences CGED.

Wolf spiders and CGED are presumed to share overlapping prey resources. Higher wolf spider abundance is indicative of a well-functioning ecosystem with high prey availability. Consequently, high wolf spider populations in a given year may serve as a proxy for favourable ecological conditions also benefiting CGED populations.

Redback spiders may prevent CGED from using the tubes as they weave a thick web in the tubes making them more difficult to occupy.

Black field crickets were the most commonly detected species in the tubes during the grid surveys, with numbers decreasing as weather became colder. Black field crickets are a prey species of the CGED and should not be a deterrent for the species.

4.3 Habitat Management

The TSMP (Canberra Airport 2010) guides CGED management within the Canberra Airport. The TSMP includes actions to meet the objectives relating to improving or maintaining grassland quality including weed control, herbage mass management, feral animal control and the maintenance and management of drainage and stormwater detention basins.

EPSDD (2017) suggests that a range of food, thermal niches, and shelter for the CGED can be maximised by maintaining a varied grassland structure and avoiding herbage biomass extremes. Actions feasible for an active aerodrome have been undertaken since October 2016. For example, the grass within the Monitoring Area was slashed to a minimum of 150 mm while the rest of the Canberra Airport was mostly cut to 60-80 mm (Rowell 2018). This was an attempt to improve the structure of the CGED habitat by providing a mosaic of structure, more shelter in tussocks and increasing the density of invertebrate burrow creators and prey species (Rowell 2018). Mowing is not usually used to manage CGED habitat however is suitable in an active aerodrome and has kept biomass at Canberra Airport within the moderate range and prevented the cycle of overgrazing and accumulation of high biomass seen at many other CGED sites.

Natural temperate grassland is key habitat for the CGED, and genetic analyses have shown the CGED has limited, or no ability to disperse across degraded grasslands, rivers, or roads (DCCEEW 2023; ESPDD 2017). Considering this, understanding the current quality and extent of natural temperate grassland and the effectiveness of current management practices for maintaining or improving the quality and extent of the ecological community within the Canberra Airport is important for determining the management requirements necessary to manage the CGED.

Chilean needlegrass and African lovegrass, both highly invasive species and a primary threat to the natural temperate grassland and CGED habitat, were observed within the Monitoring Area. Patches of paspalum were also observed. Management of these species, including spot spraying, has been undertaken and has helped to reduce the spread of these species compared to what was observed in 2024. However, as an assessment of the extent and condition of this vegetation community was not included in the scope, the exact extent of invasive species, and efficacy of weed management cannot be confirmed.

4.4 Survey Method Evaluation

Various aspects of the CGED survey design aimed to increase the likelihood of detection. In addition to the two long-term grids of artificial spider tubes, an expanded Monitoring Area (using transects), and new detection methods (e.g. wooden blocks, propped and stacked tiles, **Section 2.2**), were trialled in 2024 and 2025 based on the latest advice from GED experts in government, academia and consulting. Additionally, the surveys were undertaken at different times of day, and the survey period was extended until the end of winter (based on new advice from CGED experts). Due to no detection of CGED, it is not yet possible to determine the effectiveness of each of these new detection methods or survey aspects such as time of day for detecting CGED. It is recommended that future surveys continue to test new methods, refer to the recently approved survey guidelines (DCCEEW 2024), and continue to be made in consultation with experts such as Alison Rowell, the Victorian grassland earless dragon project team and the ACT Parks and Conservation Service.

The approved survey guidelines (DCCEEW 2024) were recently released and were not available at the time when the survey design for 2024 and 2025 was developed. Both drew on the same expert knowledge. The survey design utilised at Canberra Airport is therefore largely consistent with the DCCEEW 2024 guidelines and only minor adjustments would be required to meet the guidelines in future. These adjustments include the addition of roofs above all tubes (at the time the Canberra Airport survey was designed the use of roofs varied between ACT and NSW Government therefore roofs were utilised on every second row of tubes) and a minimum fiberscope search effort (per check) across natural burrows. It is noted that the most recent detection, and the highest number of detections at Canberra Airport, was through fiberscope checks and burrow excavation (A. Rowell pers. comm 2025). Consideration could be given to new methods discussed in the guidelines such as detection dogs (DCCEEW 2024) that have not yet been trialled at the airport (if feasible in an operational aerodrome).

Surveys undertaken in 2025 were carried out at various times of the day, consistent with previous years. Given the low numbers of CGED recorded at the Canberra Airport since 2001, there is not enough data to determine the effect of survey timing on finding CGED. Continued sampling across morning and afternoon may increase the likelihood of detection until behavioural data become available.

No CGEDs were found within the Canberra Airport despite extending the survey period into cooler months (to May in 2025 and June in 2024). One CGED was found within the MTA adjacent to the Canberra Airport on 23 May 2024 (approximately four weeks after the end of the previous survey period). This is consistent with the CGED survey results from the ACT Parks and Conservation Service and suggests that the extended survey period may be effective in detecting the presence of CGED.

The CGED is a cryptic species and is known to remain undetected in known locations even with intensive surveys (DCCEEW 2023). In the ACT, the CGED was not recorded for 30 years and considered extinct until 1991 when it was rediscovered. Grids have been monitored at the Canberra Airport regularly since 2007. No CGED were found between 2007 and 2010, but low numbers were recorded in three survey years between 2011 and 2017, following the breaking of the millennium drought and then again in 2019 (Rowell 2021). The cryptic nature of the species and previous periods of non-detection suggest that CGED may still be present within the Monitoring Area despite potential regional decline and the species not having been recorded at the Canberra Airport since 2019.

5.0 Conclusion

No CGEDs were detected within the Monitoring Area at the Canberra Airport in 2025 between 17 February to 29 May 2025. This was an extended monitoring period, as recommended by the ACT CGED experts due to recent captures of CGED during winter months in other survey locations. Survey grids and transects were checked 20 times, resulting in 4,640 individual survey point checks.

In the ACT in 2025, no CGED were detected in the Majura Valley and detections in the Jerrabomberra Valley were low compared to previous years (<15 individuals per site with detections) (R. Colley pers. comm 2025).

The number of wolf spiders and Canberra raspy crickets (burrow creators) within the Monitoring Area was marginally higher in 2025 than 2024, however this was still lower than those years prior to 2024.

While an assessment of the quality and extent of habitat was not undertaken, the presence of highly invasive species (Chilean needlegrass and African lovegrass) was noted and is of concern. Species such as African lovegrass are a known threat to CGED (ACT Scientific Committee 2023). Habitat management as per the TSMP should be continued, with potential increased effort, to ensure that these invasive species are adequately controlled.

Further detection surveys in future years are recommended due to recent observation of CGEDs within the adjacent MTA in 2024 and the cryptic nature of the species. The 2024 and 2025 survey design largely aligns with the recently released guidelines (DCCEEW 2024) and would only require minor adjustments (placing roofs over all tubes, and a timed investigation of natural burrows with fiberscope at each check) to align with the guidelines in future.

GED species across southeastern Australia are the subject of active research and understanding of their habitat requirements, and improvements to survey methodology, are therefore evolving. As per Canberra Airport's history of utilising the latest research and advice to inform CGED monitoring and management, future surveys could consider potential adjustments to the Monitoring Area as understanding of CGED habitat requirements change, continued exploration of diverse new survey methods to increase chances of detection, and utilisation of the long-term monitoring data for population research to inform management decisions.

6.0 References

- ACT Scientific Committee. (2023). *Nature Conservation (Canberra Grassland Earless Dragon) Conservation Advice 2023*. ACT Government, Canberra
- Canberra Airport. (2010). *Threatened Species Management Plan*. Capital Airport Group, Canberra.
- Canberra Airport. (2020). *Airport Environment Strategy Master Plan 2020*. Capital Airport Group, Canberra.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2023). *Draft National Recovery Plan for Four Grassland Earless Dragons (Tympanocryptis spp.) of Southeast Australia*. Commonwealth of Australia, Canberra.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). *Survey guidelines for four Grassland Earless Dragons (Tympanocryptis spp.) of Southeast Australia*. Commonwealth of Australia, Canberra.
- Environment, Planning and Sustainable Development Directorate (EPSDD). (2017). *Grassland Earless Dragon Action Plan*. ACT Government, Canberra.
- Environment, Planning and Sustainable Development Directorate (EPSDD). (2025). *Action Plan for the Canberra Grassland Earless Dragon*. ACT Government, Canberra.
- Melville, J, Chaplin, K, Hutchinson, M, Sumner, J, Gruber, B, MacDonald AJ, Sarre SD. (2019). *Taxonomy and conservation of grassland earless dragons: new species and an assessment of the first possible extinction of a reptile on mainland Australia*. Royal Society Open Science. 6: 190233. <http://dx.doi.org/10.1098/rsos.190233>
- Nelson, L. (2004). *Thermal ecology and implications for life history variation in Tympanocryptis pinguicolla (Grassland Earless Dragon)*. PhD Thesis. Australian National University, Canberra.
- Rowell, A. (2007). *Grassland Earless Dragon monitoring at Canberra Airport February to August 2007*. Prepared for Capital Airport Group, Canberra
- Rowell, A. (2008). *Grassland Earless Dragon monitoring at Canberra Airport March to May 2008*. Prepared for Capital Airport Group, Canberra
- Rowell, A. (2009). *Grassland Earless Dragon monitoring at Canberra Airport February to March 2009*. Prepared for Capital Airport Group, Canberra
- Rowell, A. (2010). *Grassland Earless Dragon monitoring at Canberra Airport February to April 2010*. Prepared for Capital Airport Group, Canberra
- Rowell A. (2011). *Grassland Earless Dragon Monitoring at Canberra Airport February to April 2011*. Prepared for Capital Airport Group, Canberra
- Rowell, A. (2013). *Grassland Earless Dragon monitoring at Canberra Airport February to April 2013*. Prepared for Capital Airport Group, Canberra
- Rowell, A. (2015). *Grassland Earless Dragon monitoring at Canberra Airport 2015*. Data March to April 2025.
- Rowell, A. (2017). *Grassland Earless Dragon monitoring at Canberra Airport, 2017*. Prepared for Capital Airport Group, Canberra

Rowell A. (2018). *Wildlife hazard summary December 2017 to May 2018*. Unpublished report to Capital Airport Group, Canberra.

Rowell A (2019). *Canberra Airport Taxiway B Grassland Earless Dragon Pre-construction survey*. Prepared for Capital Airport Group, Canberra.

Rowell, A. (2021). *Grassland Earless Dragon Tympanocryptis lineata monitoring at Canberra Airport, 2019 and 2021*. Prepared for Capital Airport Group, Canberra.

Rowell, A. (2023). *Grassland Earless Dragon monitoring at Canberra Airport 2023*. Data February to June 2023.

Umwelt. (2024). *Canberra Grassland Earless Dragon Monitoring Report - Canberra Airport 2024*. Prepared for Capital Airport Group, Canberra.

Appendix A

2025 Grid and Transect Survey Results

Table A.1 Total Species Observations per Grid and Transect with Normalised Mean Values (10⁻³)*

Name	P= Prey B = Burrow Creator C = CGED Tube Competitor PR = Predator	NW Grid (n = 56)		NE Grid (n = 56)		T1 (n = 24)		T2 (n = 22)		T3 (n = 27)		T4 (n = 22)		T5 (n = 18)		T6 (n = 7)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
Ant (nest, multiple species)	P	1	0.9	1	0.9	5	10.4	3	6.8	5	9.3			2	5.6	1	7.1
Pillbugs and slaters (<i>Armadillidium</i> spp., <i>Porcellio</i> spp.)	P	1	0.9			1	2.1	1	2.3	3	5.6			1	2.8		
Beetle	P	3	2.7	2	1.8					2	3.7	1	2.3			1	7.1
Caterpillar	P			1	0.9											1	7.1
Cockroach	P							4	9.1	3	5.6						
Canberra raspy cricket (<i>Cooraboorama canberrae</i>)	B, C	10	9.0								0.0						
Garden snail (<i>Cornu aspersum</i>)	C	2	1.8									10	22.7				
Slug (<i>Gastropoda</i> spp.)	C	4	3.6	1	0.9							2	4.5				

Name	P= Prey B = Burrow Creator C = CGED Tube Competitor PR = Predator	NW Grid (n = 56)		NE Grid (n = 56)		T1 (n = 24)		T2 (n = 22)		T3 (n = 27)		T4 (n = 22)		T5 (n = 18)		T6 (n = 7)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
Unidentified isopod or slater (Isopoda (order))	P	1	0.9	1	0.9									2	5.6		
Redback spider (<i>Lactrodectus haesselti</i>)	C			3	2.7	35	72.9	30	68.2	32	59.3	10	22.7	27	75.0	8	57.1
Striped marsh frog (<i>Limnodynastes peronii</i>)	C	2	1.8														
Spotted marsh frog (<i>Limnodynastes tasmaniensis</i>)	C	2	1.8	4	3.6												
Whistling tree frog (<i>Litoria verreauxii</i>)	C	2	1.8														
Praying Mantis	PR			1	0.9	4	8.3			1	1.9						
Portuguese millipede (<i>Ommatoiulus moreletii</i>)	P					2	4.2										

Name	P= Prey B = Burrow Creator C = CGED Tube Competitor PR = Predator	NW Grid (n = 56)		NE Grid (n = 56)		T1 (n = 24)		T2 (n = 22)		T3 (n = 27)		T4 (n = 22)		T5 (n = 18)		T6 (n = 7)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
Huntsman (<i>Neosparassus</i> spp.)	PR											1	2.3				
Wolf spider (<i>Tasmanicosa</i> spp.)	C, PR	58	51.8	71	63.4	6	12.5	10	22.7	28	51.9	5	11.4	3	8.3		
Black field cricket (<i>Teleogryllus</i> <i>commodus</i>)	P	464	414.3	393	350.9	224	466.7	194	440.9	294	544.4	243	552.3	176	488.9	75	535.7
Black ground beetles (<i>Tenebrionid</i> spp.)	P	2	1.8			2	4.2					2	4.5				
Little striped wolf spider (<i>Venatrix</i> <i>furcillata</i>)	C, PR	2	1.8	1	0.9									1	2.8		

*Normalised mean values = total species sightings ÷ (survey points (n) x number of surveys (20)). Resulting values are presented as 10⁻³ for readability. For example, a total of 1 ant was observed in the NW grid resulting in a normalised mean of 0.00089 ants per survey point and check (1÷(56 x 20)). For readability 0.00089 is presented as 10⁻³ therefore 0.9.

Table A.2 Total Species Observations per Method Type with Normalised Mean Values (Scaled)*

Name	P,B,C,PR	Method 1 (tube with canvas roof, n = 99)		Method 2 (tube with stacked tiles, n = 9)		Method 3 (tube with wooden block, n = 8)		Method 4 (propped tile only, n = 21)		Method 5 (stacked tiles only, n = 19)		Method 6 (wooden block only, n = 20)		Method 7 (tube with no roof, n = 56)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
Ant (nest, multiple species)	P	3	1.5	2	11.1			3	7.1	4	10.5	3	7.5	1	0.9
Pillbugs and slaters (<i>Armadillidium</i> spp., <i>Porcellio</i> spp.)	P	1	0.5					3	7.1	4	10.5			1	0.9
Beetle	P	1	0.5	1	5.6			2	4.8	1	2.6			3	2.7
Caterpillar	P													1	0.9
Cockroach	P							1	2.4	4	10.5				
Canberra raspy cricket (<i>Cooraboorama</i> <i>canberrae</i>)	B, C	8	4.0												
Garden snail (<i>Cornu</i> <i>aspersum</i>)	C	5	2.5			1	6.3	4	9.5					2	1.8
Slug (<i>Gastropoda</i> spp.)	C													4	3.6
Unidentified isopod or slater (Isopoda order)	P	1	0.5					1	2.4	1	2.6			1	0.9

Name	P,B,C,PR	Method 1 (tube with canvas roof, n = 99)		Method 2 (tube with stacked tiles, n = 9)		Method 3 (tube with wooden block, n = 8)		Method 4 (propped tile only, n = 21)		Method 5 (stacked tiles only, n = 19)		Method 6 (wooden block only, n = 20)		Method 7 (tube with no roof, n = 56)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
Redback spider (<i>Lactrodectus haesselti</i>)	C	7	3.5	20	111.1			31	73.8	40	105.3				
Striped marsh frog (<i>Limnodynastes peronii</i>)	C	2	1.0												
Spotted marsh frog (<i>Limnodynastes tasmaniensis</i>)	C	4	2.0											2	1.8
Whistling tree frog (<i>Litoria verreauxii</i>)	C	2	1.0												
Praying Mantis	PR	4	2.0												
Portuguese millipede (<i>Ommatoiulus moreletii</i>)	P									1	2.6	1	2.5		
Huntsman (<i>Neosparassus spp.</i>)	PR											1	2.5		
Wolf spider (<i>Tasmanicosa spp.</i>)	C, PR	102	51.5							1	2.6			95	84.8
Black field cricket	P	856	432.3	107	594.4	107	668.8	133	316.7	210	552.6	182	455.0	360	321.4

Name	P,B,C,PR	Method 1 (tube with canvas roof, n = 99)		Method 2 (tube with stacked tiles, n = 9)		Method 3 (tube with wooden block, n = 8)		Method 4 (propped tile only, n = 21)		Method 5 (stacked tiles only, n = 19)		Method 6 (wooden block only, n = 20)		Method 7 (tube with no roof, n = 56)	
		Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)	Total	Mean (10 ⁻³)
<i>(Teleogryllus commodus)</i>															
Black ground beetles (<i>Tenebrionid spp.</i>)	P			1	5.6					1	2.6	2	5.0	2	1.8
Little striped wolf spider (<i>Venatrix furcillata</i>)	C, PR	2	1.0											2	1.8

*Normalised mean values = total species sightings ÷ (survey points (n) x number of surveys (20)). Resulting values are presented as 10⁻³ for readability. For example, a total of 3 ants were observed using a tube with canvas roof (Method 1), resulting in a normalised mean of 0.0015 ants per method type and check (1 ÷ (99 x 20)). For readability 0.0015 is presented as 10⁻³ therefore 1.5.

Appendix B

2025 Transect Setup



Table B.1 2025 Transect Setup (Blue = Tube, White = No Tube)

Transect 1			Transect 2			Transect 3			Transect 4			Transect 5			Transect 6		
Label	Treatment	Waypoint	Label	Treatment	Waypoint	Label	Treatment	Waypoint	Label	Treatment	Waypoint	Label	Treatment	Waypoint	Label	Treatment	Waypoint
T1-1	Canvas roof	2067	T2-1	Canvas roof	2112	T3-1	Canvas roof	2113	T4-1	Canvas roof	2179	T5-1	Canvas roof	2140	T6-1	Tiles stacked	WP_T6-1
T1-2	Tiles stacked	2068	T2-2	Tiles stacked	2111	T3-2	Tiles stacked	2114	T4-2	Tiles stacked	2178	T5-2	Tiles stacked	2141	T6-2	Wooden block	WP_T6-2
T1-3	Canvas roof	2069	T2-3	Canvas roof	2110	T3-3	Canvas roof	2115	T4-3	Canvas roof	2177	T5-3	Canvas roof	2142	T6-3	Tile propped	WP_T6-3
T1-4	Wooden block	2070	T2-4	Wooden block	2109	T3-4	Wooden block	2116	T4-4	Wooden block	2176	T5-4	Wooden block	2143	T6-4	Tiles stacked	WP_T6-4
T1-5	Canvas roof	2071	T2-5	Canvas roof	2108	T3-5	Canvas roof	2117	T4-5	Canvas roof	2175	T5-5	Canvas roof	2144	T6-5	Wooden block	WP_T6-5
T1-6	Tiles stacked	2072	T2-6	Tiles propped	2107	T3-6	Tiles stacked	2118	T4-6	Tile propped	2174	T5-6	Tile propped	2145	T6-6	Tile propped	WP_T6-6
T1-7	Canvas roof	2073	T2-7	Canvas roof	2106	T3-7	Canvas roof	2119	T4-7	Canvas roof	2173	T5-7	Canvas roof	2146	T6-7	Tiles stacked	WP_T6-7
T1-8	Wooden block	2074	T2-8	Tiles stacked	2105	T3-8	Wooden block	2120	T4-8	Tiles stacked	2172	T5-8	Tiles stacked	2147			
T1-9	Canvas roof	2075	T2-9	Canvas roof	2104	T3-9	Canvas roof	2121	T4-9	Canvas roof	2171	T5-9	Canvas roof	2148			
T1-10	Tiles stacked	2076	T2-10	Wooden block	2103	T3-10	Tiles stacked	2122	T4-10	Wooden block	2170	T5-10	Wooden block	2149			
T1-11	Wooden block	2077	T2-11	Tile propped	2102	T3-11	Canvas roof	2123	T4-11	Canvas roof	2169	T5-11	Canvas roof	2150			
T1-12	Tile propped	2078	T2-12	Tiles stacked	2101	T3-12	Wooden block	2124	T4-12	Tile propped	2168	T5-12	Tile propped	2151			
T1-13	Tiles stacked	2079	T2-13	Wooden block	2100	T3-13	Canvas roof	2125	T4-13	Canvas roof	2167	T5-13	Canvas roof	2152			
T1-14	Wooden bloc	2080	T2-14	Tile propped	2099	T3-14	Tiles stacked	2126	T4-14	Tiles stacked	2166	T5-14	Tiles stacked	2153			

Transect 1			Transect 2			Transect 3			Transect 4			Transect 5			Transect 6		
T1-15	Tile propped	2081	T2-15	Tiles stacked	2098	T3-15	Canvas roof	2127	T4-15	Canvas roof	2165	T5-15	Canvas roof	2154			
T1-16	Tiles stacked	2082	T2-16	Wooden block	2097	T3-16	Wooden block	2128	T4-16	Tile propped	2164	T5-16	Wooden block	2155			
T1-17	Wooden block	2083	T2-17	Tile propped	2096	T3-17	Canvas roof	2129	T4-17	Tiles stacked	2163	T5-17	Canvas roof	2156			
T1-18	Canvas roof	2084	T2-18	Canvas roof	2095	T3-18	Tiles stacked	2130	T4-18	Wooden block	2162	T5-18	Tile propped	2157			
T1-19	Wooden block	2085	T2-19	Wooden block	2094	T3-19	Tile propped	2131	T4-19	Tile propped	2161						
T1-20	Canvas roof	2086	T2-20	Canvas roof	2093	T3-20	Tile propped	2132	T4-20	Wooden block	2160						
T1-21	Tiles stack	2087	T2-21	Tile propped	2092	T3-21	Tiles stacked	2133	T4-21	Wooden block	2159						
T1-22	Canvas roof	2088	T2-22	Canvas roof	2091	T3-22	Wooden block	2134	T4-22	Tile propped	2158						
T1-23	Wooden block	2089				T3-23	Tile propped	2135									
T1-24	Canvas roof	2090				T3-24	Tiles stacked	2136									
						T3-25	Wooden block	2137									
						T3-26	Tiles propped	2138									
						T3-27	Tiles stacked	2139									



P 1300 793 267 **E** info@umwelt.com.au **W** umwelt.com.au
NSW | ACT | WA | QLD | VIC | SA **ABN** 18 059 519 041



Golden Sun Moth Surveys 2025

Prepared for: Canberra Airport Pty Ltd

Final

February 2026

Golden Sun Moth Surveys 2025

Prepared for: Canberra Airport Pty Ltd

Final

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Canberra Airport Group Pty Ltd

Project Director: Clare McInnes
Project Manager: Lydia Guja
Report No.: 32841 / R01
Date: February 2026



This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement of Country

Umwelt acknowledges the Traditional Owners of Country throughout Australia and their continuing values, culture and connection to the land, waters and sky.

We pay our respects to Elders past and present.

The below image is from the artwork *Yapung Maryiyang* (Pathway Forward) by Saretta Fielding.



Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V1	Clare McInnes / Lydia Guja	04/02/2026	Clare McInnes	04/02/2026
V2	Clare McInnes	18/02/2026	Clare McInnes	18/02/2026

Contents

1.0	Introduction	1
2.0	Project Area Description and Management	2
3.0	Methods	4
4.0	Results and Discussion	6
4.1	2025 Survey Results	6
4.2	Comparison with Past Survey Results	8
4.3	Recommendations	10
5.0	References	11

Figures

Figure 2.1	Project Area	3
Figure 3.1	2025 Golden Sun Moth Survey Effort	5

Tables

Table 4.1	Golden Sun Moth Survey Results 2025	7
Table 4.2	Summary of Golden Sun Moth Surveys at Canberra Airport	8

Photos

Photo 4.1	Breeding Golden Sun Moths (Photo by Deborah Jamieson)	6
-----------	---	---

Graphs

Graph 4.1	Number of Male Golden Sun Moths Recorded Per Kilometre Across Years	9
-----------	---	---

1.0 Introduction

Umwelt was engaged by Canberra Airport Pty Ltd to undertake golden sun moth (*Synemon plana*) surveys within the grounds of the Canberra International Airport (hereafter referred to as Canberra Airport) during the 2025 flight season. These surveys form part of the ongoing monitoring program for threatened species at the site and support Canberra Airport's environmental management and compliance obligations.

The surveys were undertaken in accordance with the management actions outlined in the *Canberra Airport Environment Strategy* (Canberra Airport 2020) and the *Canberra Airport Threatened Species Management Plan* (Canberra Airport 2010), developed pursuant to approval EPBC 2009/4748 under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Survey results contribute to the Annual Environment Report submitted to the Commonwealth Government Department of Infrastructure, Transport, Regional Development, Communications and the Arts, as the regulator of federally leased airports.

The golden sun moth is listed as Vulnerable under both the EPBC Act and the ACT *Nature Conservation Act 2014* (NC Act). Monitoring surveys have been undertaken at Canberra Airport since 2000, historically on a biennial basis until 2017. Due to unsuitable seasonal conditions and broader operational constraints, surveys did not recommence until 2023.

The 2025 surveys represent a continuation of this ongoing monitoring program. This report presents the results of the 2025 golden sun moth surveys and evaluates these findings in the context of previous survey results and current site management practices at Canberra Airport.

2.0 Project Area Description and Management

The Project Area has been divided into nine survey areas (**Figure 2.1**). At the request of the Canberra Airport, this included additional areas (areas 1, 4, 5, 6, and 7 on **Figure 2.1**) that had not previously been surveyed for golden sun moth.

Canberra Airport supports one of the largest remaining areas of the critically endangered Natural Temperate Grassland of the South Eastern Highlands (natural temperate grassland) ecological community in the ACT and supports populations of golden sun moth (ACT Government 2017a; ACT Government 2017b).




Within the Project Area, patches of natural temperate grassland contain a diverse assemblage of native grass species, including wallaby grasses (*Rytidosperma* spp.) and speargrasses (*Austrostipa* spp.), which are recognised habitat species for golden sun moth.

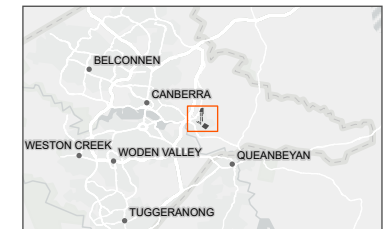
The Project Area also includes patches of exotic-dominated grassland, including patches supporting Chilean needlegrass (*Nassella neesiana*), a known food species for golden sun moth. These patches of exotic grassland are therefore also suitable golden sun moth habitat.

Golden sun moth habitat at Canberra Airport is managed under an established and consistent grassland management regime. Habitat is mown using weed-sanitised equipment set to a mowing height of approximately 10–12 cm, with mowing typically undertaken from higher-quality to lower-quality grassland where operationally practical (Canberra Airport 2010). This management approach is designed to maintain suitable grassland structure while minimising weed spread and reducing disturbance risks to threatened species habitat.



FIGURE 2.1
Project Area

- Legend**
-  Property Boundary
 -  Canberra Airport
 -  Golden Sun Moth Survey Areas



Scale 1:17,500 at A4
GDA2020



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

APPROVED FOR AND ON BEHALF OF Umwelt



3.0 Methods

Targeted golden sun moth surveys were undertaken on 8, 9, 10 and 15 December 2025, following confirmed emergence at reference monitoring sites within the ACT.

Surveys were conducted in accordance with the *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)* (DEWHA 2009) and were undertaken:

- on warm to hot days when temperatures exceeded 20°C by 10:00 am.
- between 10:00 am and 2:00 pm.
- under clear or mostly clear skies.
- as best as possible in still or relatively still wind conditions during the survey period¹.
- at least two days after rainfall >1 mm or following any unusually cold night, to ensure optimal emergence and activity.

An exception was that the last survey (15 December 2025) was undertaken following a day where 4.2 mm of rain was recorded at the Canberra Airport. Overcast days and forecasts of rain were common during the flying season. This caused seasonal delays in commencing all golden sun moth surveys. A decision to proceed on the final survey day was made based the forecast of an otherwise clear day with a high forecast temperature, and concern that the season may be coming to an end.

Weather conditions were recorded at the start of each survey.

Ecologists walked transects together, spaced approximately 10 m apart, moving in a systematic pattern through each of the nine survey areas. The total survey effort is depicted in **Figure 3.1**.

Each team member counted flying male golden sun moth within their field of view, while a designated recorder logged all observers' counts using a hand-held GPS device to ensure consistent and accurate data collection. Incidental observations of female golden sun moth were also recorded.

The Project Area was surveyed once.

The area immediately north of the main runway is restricted due to the presence of an Instrument Landing System. This area was not surveyed due to airport operational restrictions.

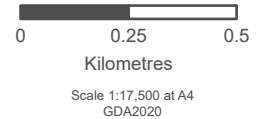
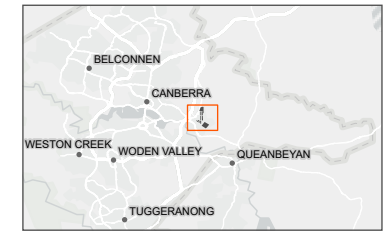
¹ The Canberra Airport is located at low elevations in a valley. It is an exposed site that is regularly windy and therefore difficult to find still days for surveys. Wind speed usually increased in the afternoons, and the team were mindful of this when determining when to finish surveys.

\\LINK-C:\Users\williamson\UMWELT\LINK- (AUSTRALIA) PTY. LTD\32841 - 03 S8 W02_Projects\32841_R01_GSM\Surveys_v2.aprx - 32841_R01_0301_GoldenSunMothSurveyEfort



FIGURE 3.1
2025 Golden Sun Moth Survey Effort

- Legend**
- Property Boundary
 - Canberra Airport
 - Golden Sun Moth Survey Areas
 - Instrument Landing System - Restricted Area
 - Golden Sun Moth Records
- Golden Sun Moth Survey Transects**
- 8/12/2025
 - 9/12/2025
 - 10/12/2025
 - 15/12/2025



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.
 APPROVED FOR AND ON BEHALF OF Umwelt

4.0 Results and Discussion

4.1 2025 Survey Results

The 2025 golden sun moth survey season was considered favourable due to generally dry and warmer conditions. Survey weather was compliant with the guidelines with the surveys generally undertaken on clear, warm to hot days and on days that were more than two days since rain. Winds ranged from light to gentle breeze, consistent with the exposed setting of Canberra Airport (**Table 4.1**).

Across the Project Area, a total of 885 golden sun moth were recorded, with 879 males and six females. Counts varied between areas, with the highest numbers in Area 1 (154), Area 6 (149) and Area 7 (120) (**Table 4.1**).

Courtship behaviour between males and females was also observed (**Photo 4.1**).



Photo 4.1 Breeding Golden Sun Moths (Photo by Deborah Jamieson)

Table 4.1 Golden Sun Moth Survey Results 2025

Area	Date Survey was Conducted	Survey Start Time (AEDST)	Temperature (°C)	Wind Speed (km/hr)	No. Days Since Last Rain >1 mm	Surveys Distance (km)	Total Male Golden Sun Moth Counted	Total Female Golden Sun Moth Counted
1	10/12/2025	10:32	20	11	>10	7.74	154	5
2	9/12/2025	11:45	29	17	>10	3.38	93	0
3	9/12/2025	10:33	27	17	>10	4.18	52	0
4	9/12/2025	13:53	33	20	>10	9.11	78	1
5	8/12/2025	11:02	28	11	>10	5.59	71	0
6	9/12/2025	11:45	29	17	>10	6.40	149	0
7	9/12/2025	12:49	30	18	>10	7.76	120	0
8	10/12/2025	11:51	23	19	>10	11.11	77	0
9	10/12/2025	13:21	26	13	>10	21.02 total across both days	19	0
	15/12/2025	10:00	18	7	1		66	0
Total						76.29	879	6

4.2 Comparison with Past Survey Results

Golden sun moth surveys have been conducted at the Canberra Airport since 2000, providing a valuable long-term understanding of the population (**Table 4.2**). Numbers of flying males vary between seasons, with counts ranging from fewer than 100 to several thousand across years. Across the long-term dataset, 2025 had a relatively high number of male golden sun moths counted, especially in comparison with the 2023 results, which were the lowest on record.

The total level of survey effort (km of transects) in 2025 was however greater compared to previous years. In 2025 an average of 12 moths per kilometre was recorded (**Table 4.2**). This is one of the lowest counts on a per kilometre basis and is consistent with an overall downward trend in counts (**Graph 4.1**).

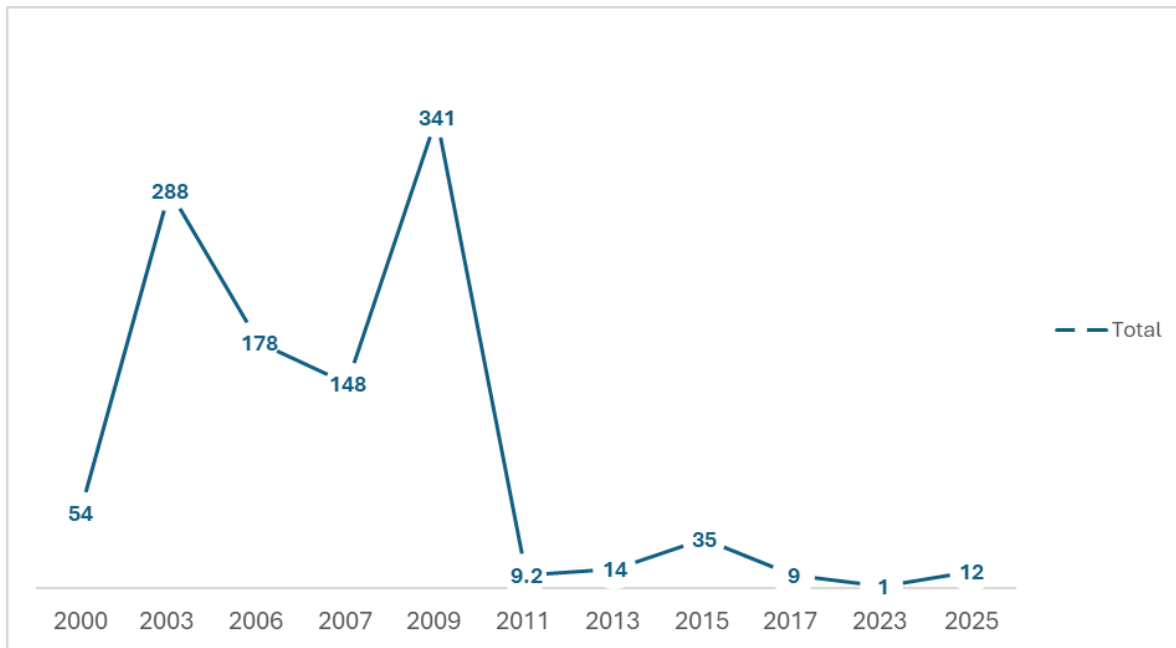
Female golden sun moth have been recorded far less frequently than males in all survey years.

The downward trend in the number of golden sun moths recorded overtime is likely due to multiple reasons such as differences between annual weather conditions, changes in long term weather conditions and / or changes in the extent and quality of habitat. Annual variation in survey effort could also account for fluctuations. It is feasible that following consecutive years of low emergence that breeding success would also be reduced, potentially leading to an overall population decline.

The overall downward trend does however indicate that continued management for the species, especially increased and sustained weed control effort (especially within and adjacent to patches of native dominated grasslands and the natural temperate grassland ecological community) is critical.

Table 4.2 Summary of Golden Sun Moth Surveys at Canberra Airport

Survey Year	Survey Distance (km)	Total Male Golden Sun Moth Counted	Total Female Golden Sun Moth Counted	Golden Sun Moths per Kilometre Surveyed	Reference
2000	9.3	503	0	54	Crawford (unpublished)
2003	18.4	5300	5	288	Rowell & Bishop (2004)
2006	18.5	3300	4	178	Rowell (2007)
2007	8.5	1257	12	148	Biosis Research (2008)
2009	18.2	6200	85	341	Rowell (2010)
2011	6.4	59	0	9.2	Rowell (unpublished)
2013	Approximately 17	255	0	14	Rowell (unpublished)
2015	Approximately 17	612	2	35	Rowell (unpublished)
2017	17.6	156	0	9	Rowell (2018)
2023	35	41	1	1	Umwelt (2024)
2025	76.29	878	6	12	This report



Graph 4.1 Number of Male Golden Sun Moths Recorded Per Kilometre Across Years

Habitat fragmentation from invasive weeds is a key threat to the golden sun moth (DEWHA 2009).

Weed invasion, particularly by exotic perennial grasses and broadleaf species, has the potential to reduce golden sun moth habitat suitability by altering vegetation structure, displacing larval food plants, and limiting adult emergence and mating activity.

While golden sun moth habitat within the Canberra Airport includes Chilean needlegrass dominated patches, it is not considered appropriate to maintain these patches due to the threat this highly invasive species poses on the natural temperate grassland ecological community (and the associated threatened species). Eradication of the Chilean needlegrass, especially in areas that also support patches of natural temperate grassland and at a minimum suppression (ideally eradication) in patches of native grassland, therefore remains a priority. This is consistent with the *Canberra Airport 2016 Weed Management Plan* (Canberra Airport 2016).

Monitoring the effectiveness of the Canberra Airport (2016) weed control program, and producing baseline maps of the extent and density of weeds would improve the ability to assess whether the current weed management approach is achieving the objectives outlined in the plan.

Opportunities to increase the extent of patches of native dominated golden sun moth habitat could also be investigated. This includes incorporating golden sun moth habitat species in the planned natural temperate grassland restoration program that is being delivered (associated with the offset strategy for EPBC 2008/4170).

Finally, understanding of the extent and condition of habitat across the full extent of the Canberra Airport would aid in providing targeted habitat management recommendations for the golden sun moth. This would not only inform on-going habitat management, with the aim of either maintaining or improving the extent and condition of golden sun moth habitat across the Canberra Airport but would also inform where the future surveys should occur, so that the distribution of the species across the Canberra Airport is well understood. The past surveys have been limited in extent across the Canberra Airport. While the 2025 surveys included additional areas, it is possible that additional habitat or populations may exist.

4.3 Recommendations

- On-going biannual surveys to monitor the golden sun moth population.
- On-going targeted weed management is critical to maintain or enhance golden sun moth habitat.
- Regular mapping of the extent and density of invasive weeds and weed control effort to support an evaluation of the effectiveness of weed control effort against conservation management objectives.
- Mapping the extent and condition of golden sun moth habitat to inform on-going habitat management and survey extent.
- Planned natural temperate grasslands restoration works within the Canberra Airport to include golden sun moth habitat species.

5.0 References

ACT Government. 2017a. *Natural Temperate Grassland Endangered Ecological Community Action Plan*. Available at: [Natural Temperate Grassland Endangered Ecological Community Action Plan](#).

ACT Government. 2017b. *Golden sun Moth Synemon plana Action Plan*. Available at: [Golden Sun Moth \(Synemon Plana\) Action Plan](#).

Biosis Research Pty Ltd (Biosis). 2008. *Monitoring study for Golden Sun Moth Synemon plana: Canberra International Airport*. Prepared for Canberra International Airport, Canberra.

Canberra Airport. 2010. *Threatened Species Management Plan*. Available at: <https://www.datocms-assets.com/88007/1675732819-canberra-airport-threatened-species-management-plan-9-3-10.pdf>.

Canberra Airport. 2020. *Canberra Airport Environment Strategy*. Available at: <https://www.datocms-assets.com/88007/1676347045-cag-approved-2020-master-plan-environment-strategy.pdf>

Canberra Airport. 2016. *Canberra Airport 2016 Weed Management Plan*. Canberra Airport, Canberra.

Department of the Environment, Water, Heritage, and the Arts (DEWHA). 2009. *Background Paper to EPBC Act Policy Statement 3.12 - Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana)*. Available at: <https://webarchive.nla.gov.au/awa/20141218145546/http://www.environment.gov.au/resource/significant-impact-guidelines-critically-endangered-golden-sun-moth-synemon-plana>.

Rowell, A. 2016. *Remapping of Grasslands at the Canberra Airport 2013-14*. Prepared for Canberra Airport, Canberra.

Rowell, A. 2023. *Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2023 and other grassland areas with potential for rehabilitation*. Prepared for Capital Airport Group, Canberra.

Rowell, A. 2018. *Golden Sun Moth survey at Canberra Airport, 2017*. Prepared for Canberra Airport, Canberra.

Rowell, A. and Bishop, N. 2004. *Grassland mapping and threatened fauna surveys, Canberra International Airport, 2003-2004*. Prepared for Capital Airport Group, Canberra.

Rowell, A. 2007. *Golden Sun Moth Synemon plana monitoring at Canberra International Airport December 2006*. Prepared for Capital Airport Group, Canberra.

Rowell, A. 2010. *Golden Sun Moth Synemon plana monitoring at Canberra Airport November 2009*. Prepared for Capital Airport Group, Canberra.

Umwelt. 2024. *Canberra Airport Golden Sun Moth Surveys 2023*. Prepared for Canberra Airport, Canberra.



P 1300 793 267 **E** info@umwelt.com.au **W** umwelt.com.au
NSW | ACT | WA | QLD | VIC | SA **ABN** 18 059 519 041