

2023/2024 COMPLIANCE REPORT TAXIWAY BRAVO EXTENSION PROJECT

EPBC 2008/4170
31 October 2024



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2023/2024 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

Managing Director, 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 7 of this Report.

1.7 Date of Preparation of the Report

The report is dated 31 October 2024 following approval by the Approvals Compliance Section of DCCEEW (email dated 9 September 2024) for an extension to submit the report.

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 2023/2024

Section 4.8	<i>October 2024 – Resurvey of Grassland Remnants Surrounding Taxiway Bravo</i>
Page 10	<p>In October 2024, Alison Rowell, Biologist and Environmental Consultant, surveyed and remapped the grasslands surrounding Taxiway Bravo.</p> <p>In 2024, the ten patches of native-dominated grassland previously identified were revisited, and 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.</p> <p>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) p12 of this compliance Report. 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.</p>
Section 4.9	<i>October 2024 - Outcome of Taxiway Bravo Resurvey and Mapping</i>
Page 13	<p>In 2024 the total area of the NTG patches was 2.46 hectares compared to 2.6 ha in 2023.</p>
Section 4.10	<i>Other Grassland Areas with Potential for Rehabilitation</i>
Page 13	<p>During Canberra Grassland Earless Dragon (CGED) surveys from March to June 2024, and in October 2024, other grassland areas (particularly north of the main runway) were assessed for their potential to be used as trial sites for different methods of grassland rehabilitation to reach native-dominated grassland or NTG status. Some of these areas and others were identified and mapped previously (Rowell 2023).</p> <p>During the CGED surveys, seeds of native grasses and forbs were hand-collected for use in such future restoration work, and planning is under way for construction and operation of an on-Airport seed nursery to provide seed and plants for grassland revegetation/rehabilitation on the Airport.</p>
Section 4.11	<i>Grassland Rehabilitation Projects</i>
Page 14	<p>Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to implement the rehabilitation works recommended (A. Rowell October 2024, Section 5 p13).</p>
Section 4.12	<i>Canberra Grassland Earless Dragon (CGED) Monitoring at Canberra Airport</i>
Page 15	<p>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.</p>

	<p>Although CGED monitoring was undertaken in 2023, the Airport decided to undertake CGED monitoring in 2024 and, in consultation with Alison Rowell, Umwelt was engaged to undertake the 2024 CGED monitoring.</p> <p>In collaboration with the ACT Government, Canberra Airport adopted the same extended monitoring period of 26 March to 26 June 2024 and introduced multiple new survey methods to trial. As no CGED were found in the latest round of monitoring (2024), this means that none have been seen at the northern end of Canberra Airport since 2017.</p>
Section 4.13	<i>Golden Sun Moth</i>
Page 15	<p>Suitable weather conditions (warm to hot, sunny and relatively calm) were present during the Summer of 2023 and a survey was undertaken by Umwelt between the 5-7 and 12 December 2023. The GSM surveys between 2018 and 2022 did not occur as they were either impacted by unsuitable weather conditions or the Covid pandemic.</p> <p>It is noted that for 2023, the survey distance of 35km was approximately double that of previous surveys of 17.6km. However, the surveyed numbers of GSM were down on previous years.</p> <p>GSM monitoring is next planned for mid-November to mid-December 2025.</p>
Section 4.14	<i>Ongoing Fieldwork and Mapping/Assessment</i>
Page 16	<p>The Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other consultants, over the next three/four years to undertake fieldwork to map and assess the condition of the NTG on Airport. This will include sourcing NTG seed and forbs in order to rehabilitate the NTG in compliance with the conditions applying to EPBC 2008/4170.</p> <p>Site assessments have been scheduled for approximately October 2024 and January, June and November 2025.</p>
Section 5.1	<i>Seed Collection</i>
Page 17	<p>Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake rehabilitation works.</p>
Section 5.2	<i>Further Develop Grassland Experiments</i>
Page 18	<p>Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to further develop the NTG experiments/trials in the NTG areas identified as opportunities for grassland rehabilitation on Airport.</p> <p>Also refer to Sections 4.10 (p13) and 4.11 (p14) of this Compliance Report.</p>
Section 5.3	<i>Broad Acre Seeding</i>
Page 18	<p>Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake further rehabilitation works.</p>

Section 5.4	<i>Replanting Forbs</i>
Page 18	Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake further rehabilitation works.
Section 5.5	<i>Maintain Revegetation</i>
Page 18	Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to implement a plan for increasing the Taxiway Bravo NTG area by spraying and replanting as recommended in the A. Rowell report October 2024 (p9) (<i>Attachment 2</i>).

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:

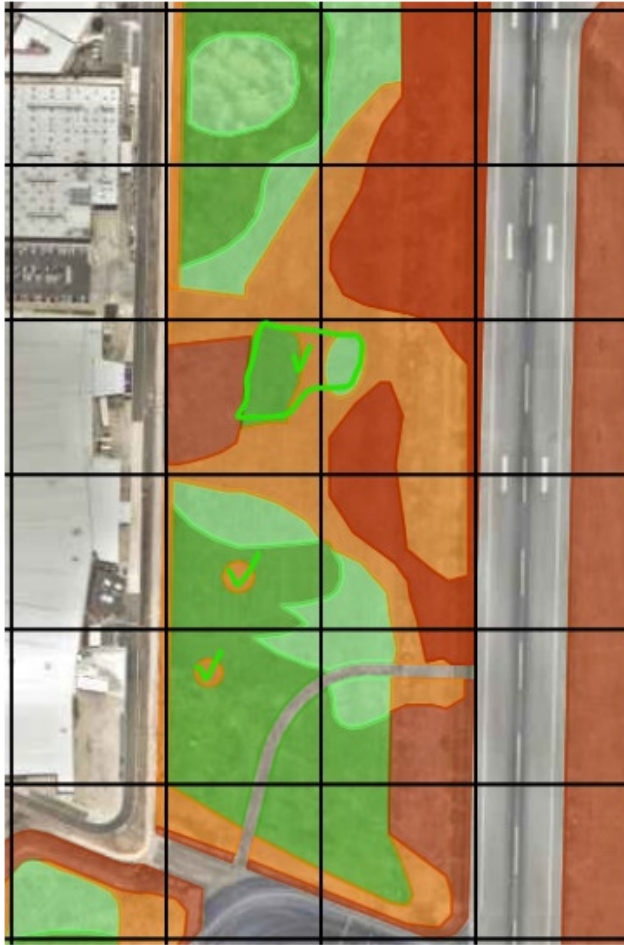
“You asked me to inspect the re-grassing around the Taxiway Bravo area to determine whether additional NTG had been created after grassing of the verges of Taxiway B. This may be because you have noticed the growth of native forbs (wildflowers) on some areas where exotic grasses have been sown, including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



Image of Native Forbs and Exotic Grass – Taxiway Bravo SE Verge – 15 February 2021, A Rowell



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, there had been 2.39 hectares of new NTG along the Taxiway Bravo alignment. This equated to a total of 8.39 hectares of new NTG since 2018, derived from various experiments undertaken over time.

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.

A. 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 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 is provided at **Attachment 2**.

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).

Figure 1 is shown on page 12 of this Compliance Report.

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).



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 Other Grassland Areas with Potential for Rehabilitation

A. Rowell report October 2024, Section 2.2 (p4) states:

During Canberra Grassland Earless Dragon (CGED) surveys from March to June 2024, and in October 2024, other grassland areas (particularly north of the main runway) were assessed for their potential to be used as trial sites for different methods of grassland rehabilitation to reach native-dominated grassland or NTG status. Some of these areas and others were identified and mapped previously (Rowell 2023).

During the CGED surveys, seeds of native grasses and forbs were hand-collected for use in such future restoration work, and planning is under way for construction and operation of an on-Airport seed nursery to provide seed and plants for grassland revegetation/rehabilitation on the Airport.

4.11 Grassland Rehabilitation Projects

A. Rowell report October 2024, Section 5: Grassland rehabilitation projects (p13) states:

There are areas in and around the Taxiway B NTG patches in need of rehabilitation, as well as within the large NTG patch north of the main runway. These include patches dominated by Tall Fescue, wetter areas dominated by Paspalum, a large African Lovegrass patch and incursions of Serrated Tussock and Chilean Needlegrass. 1.7 hectares of weedy grassland was identified in 2023 as having potential for rehabilitation (Rowell 2023).

There are patches of grassland which are exotic-dominated due to historic site damage or more recent weed invasion, and others which contain a moderate cover of native grasses but do not currently meet the criteria for NTG.

These areas present opportunities for grassland rehabilitation trials in monitored plots using various methods which have been trialled elsewhere in the ACT. To this end, a proposal for a seed and plant nursery has been developed by an Airport staff member. Materials required and potential sites for the nursery have been identified. Sites are currently being evaluated for suitability on the basis of accessibility, water provision, drainage, shelter from sun and wind etc.

Native grass and forb seed was hand-collected across the northern end of the Airport during autumn 2024 and has been stored for use in the first trials of nursery culture and field planting. This work will be undertaken after consultation with Greening Australia, an organisation that Canberra Airport has worked with before and which has extensive experience with native production nurseries, revegetation and rehabilitation.

Spot-spraying of Serrated Tussock with Eaze (Glyphosate) has been increased in 2024 and a boom-spraying trial with selective herbicide Taskforce (Fluproponate) for African Lovegrass, Chilean Needlegrass and Paspalum has begun, and the results will be monitored. Controlling the patch of African Lovegrass in the north-east corner of the Airport is a priority, as it has grown in the last two years and is now encroaching on the best Airport habitat for the critically endangered Canberra Grassland Earless Dragon. Use of the selective herbicide in 2024 appears to have had some effect on these grasses, but further applications are likely to be necessary.

In the native-dominated grasslands north of the runway, areas where patches of Serrated Tussock had been sprayed with herbicide in the past have often revegetated with a mixture of exotic and some native species. The native species included grasses but also forbs such as the New Holland Daisy and Yellow Buttons, species of small daisies that can quickly form dense patches on bare ground and persist under mowing.

It is suggested that after exotic grass patches have died off after spraying, native species such as grasses and/or some fast-growing forbs should be planted to compete for space and nutrients with exotic species that may have seeds in the soil. Some herbicides may have a

residual effect on the subsequent establishment of native plants, so trials of herbicide use versus weed-chipping before replanting could be undertaken.

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to implement the rehabilitation works recommended.

4.12 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, 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, the Airport decided to undertake CGED monitoring in 2024 and, in consultation with Alison Rowell, Umwelt was engaged to undertake the 2024 CGED monitoring. In collaboration with the ACT Government, Canberra Airport adopted the same extended monitoring period of 26 March to 26 June 2024 and introduced multiple new survey methods to trial. As no CGED were found in the latest round of monitoring (2024), this means that none have been seen at the northern end of Canberra Airport since 2017.

Following the upgrading of the CGED to critically endangered status in May 2023, Alison Rowell has drafted a management plan for this grassland to supplement the Canberra Airport Threatened Species Management Plan (TSMP). The management plan is currently being reviewed by Canberra Airport.

4.13 Golden Sun Moth

In accordance with the Airport Environmental Strategy, GSM 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 2023 and a survey was undertaken by Umwelt between the 5-7 and 12 December 2023. The GSM surveys between 2018 and 2022 did not occur as they were either impacted by unsuitable weather conditions or the Covid pandemic.

It is noted that for 2023, the survey distance of 35km was approximately double that of previous surveys of 17.6km. However, the surveyed numbers of GSM were down on previous years.

Umwelt noted the following as possible reasons for the low surveyed numbers in this reporting period:

- *Localised rainfall at Canberra Airport two days prior to this survey.*
- *The low numbers are also likely due to restrictions in the areas that were accessible for surveys, recognising that golden sun moths had previously been recorded in between the Taxiway Bravo and the main runway, areas east from the main runway, and within the natural temperate grassland within the area subject to helicopter operations. These areas could not be surveyed for safety and / or security reasons.*

- *Low counts of golden sun moth were recorded in the northern natural temperate grassland patches in 2023 compared to previous years. Site investigations in 2023 determined that large patches within areas previously mapped as natural temperate grassland are now dominated by exotic species (Chilean needlegrass, African lovegrass and mixed exotics) (Figure 3.2) and are no longer considered preferred habitat for the species (Rowell 2023).*

The Umwelt Briefing Note also stated that based on research in conservation reserves into the impacts of extreme weather could have also affected the low numbers:

Studies suggested that local weather conditions, especially extremes, affect golden sun moth distribution and abundance (Kutt et al. 2015; Brown et al. 2012). Kutt et al. (2015) undertook golden sun moth surveys from 2008-2009 to 2011-2012 in a conservation reserve in south-eastern Australia and discovered that distribution and abundance dramatically declined from a drought period in 2008-2009 to above-average rainfall in 2011-2012.

A summary of the results of GSM surveys undertaken at Canberra Airport is provided in the following table:

Survey Year	Survey Distance (km)	Total Male Golden Sun Moth Counted	Total Female Golden Sun Moth Counted	Reference
2000	9.3	503	0	Crawford (unpublished)
2003	18.4	5300	5	Rowell & Bishop (2004)
2006	18.5	3300	4	Rowell (2007)
2007	8.5	1257	12	Biosis Research (2008)
2009	18.2	6200	85	Rowell (2010)
2011	6.4	59	0	Rowell (unpublished)
2013	Similar survey distance to 2017 survey	255	0	Rowell (unpublished)
2015	Similar survey distance to 2017 survey	612	2	Rowell (unpublished)
2017	17.6	156	0	Rowell (2018)
2023	35	41	1	Umwelt (unpublished)

GSM monitoring is next planned for mid-November to mid-December 2025.

4.14 Ongoing Fieldwork and Mapping/Assessment

The Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other consultants to undertake fieldwork to map and assess the condition of the NTG on Airport. This will include sourcing NTG seed and forbs in order to rehabilitate the NTG in compliance with the conditions applying to EPBC 2008/4170.

The projected program of work will include, but not be limited to, the production of mapping of the status of NTG to compare with Taxiway Bravo pre-construction and further site assessments have been scheduled for approximately October 2024 and January, June and November 2025.

5. Biodiversity Offset Strategy – Year 4 Tasks and Targets

The Strategy identifies the following Tasks and Targets for Year 4:

Task	Description	Target
Seed Collection	Collect, dry and store seed from Master Plan offset property and on-Airport harvesting.	Year 1-4
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 1-2
Broad acre seeding	Using the outcomes of Grassland experiments, broad acre seeding of areas of vegetation within the Airport lease.	Year 1-2
Replanting forbs	Replanting propagated forbs and forbs located within areas affected by the development in areas of vegetation.	Year 2-4
Maintain revegetation	Maintain revegetation areas through watering, weed control and additional planting/seeding if required.	Year 2-5

5.1 Seed Collection

A. Rowell report October 2024, Section 5: Grassland rehabilitation projects (p13) states:

There are patches of grassland which are exotic-dominated due to historic site damage or more recent weed invasion, and others which contain a moderate cover of native grasses but do not currently meet the criteria for NTG.

These areas present opportunities for grassland rehabilitation trials in monitored plots using various methods which have been trialled elsewhere in the ACT. To this end, a proposal for a seed and plant nursery has been developed by an Airport staff member (Gurnett-Attard 2024). Materials required and potential sites for the nursery have been identified. Sites are currently being evaluated for suitability on the basis of accessibility, water provision, drainage, shelter from sun and wind etc.

Native grass and forb seed was hand-collected across the northern end of the Airport during autumn 2024 and has been stored for use in the first trials of nursery culture and field planting. This work will be undertaken after consultation with Greening Australia, an organisation that Canberra Airport has worked with before and which has extensive experience with native production nurseries, revegetation and rehabilitation.

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake recommended rehabilitation works.

5.2 Further Develop Grassland Experiments

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to further develop the NTG experiments in the NTG areas identified on Airport. Over the years, these experiments 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.

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to implement a plan to further develop the NTG experiments/trials in the NTG areas identified in the A. Rowell report October 2024 (**Attachment 2**) as opportunities for grassland rehabilitation on Airport.

Also refer to Sections 4.10 (p13) and 4.11 (p14) of this Compliance

5.3 Broad Acre Seeding

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake further rehabilitation works.

5.4 Replanting Forbs

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, and other relevant parties, to source seed and/or forbs to undertake further rehabilitation works.

5.5 Maintain Revegetation

As noted in Section 2: Results (p5) of A. Rowell report October 2024:

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). 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).

Canberra Airport will continue to work with Alison Rowell, Biologist and Environmental Consultant, as well as other relevant parties, to implement a plan for increasing the Taxiway Bravo NTG area by spraying and replanting as recommended in the A. Rowell report October 2024, Section 4: Recommendations (p9) (**Attachment 2**).

6. Approval by Minister of Revised Biodiversity Offset Strategy – February 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.

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

7. Approval by Minister to Extend the Timeframe for Rehabilitation


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).

8. 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)	Noel McCann
Position (please print)	Director of Planning and Government Relations
Organisation (please print including ABN/ACN if applicable)	Canberra Airport Pty Ltd ACN 080 361 548
Date	31 October 2024

Summary of Attachments:

Attachment 1 Compliance Table EPBC 4170

Attachment 2 Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2024 – With notes on other grassland areas with potential for rehabilitation – Alison Rowell

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>	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, the revised 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>

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<p>ii. Measures to rehabilitate at least 17.1 hectares of Vegetation quality 4 and 5 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>		<p>In line with Condition 2.a.ii, and as stated in the Strategy, Option 2 was chosen in the first instance being:</p> <p><i>“OPTION 2 is for the rehabilitation of Vegetation quality 4 and 5 within the Canberra Airport lease to meet the definition of Natural Temperate Grassland.”</i></p> <p>Compliance Report 1 submitted to then DAWE on 16 October 2020, advised that “Works to re-establish NTG within the construction zone has commenced”.</p> <p>Section 4 (page 4) of the 2022/2023 Compliance Report provides further information in terms of On-Airport Rehabilitation Measures Taken to Date.</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	<p>On 31 August 2021, the Airport wrote to the Minister requesting that the Minister consider deferring the date of commencement of the action from 4 June 2019 for a year to commence 4 June 2020 on the basis that the prevailing conditions for rehabilitation have been unfavourable due to the drought that occurred throughout 2019 and into 2020.</p>

Condition Number	Condition	Is the project complaint with this Condition?	Evidence / Comments
			<p>This request was subsequently approved by a delegate of the Minister on 11 March 2022. The approval letter states:</p> <p><i>“In accordance with conditions 2A the outcome required for rehabilitation by condition 2.a.ii may not be achieved within 6 years of commencement of implementation (by 2025)”.</i></p> <p>NTG rehabilitation work on the Airport site has commenced and is progressing.</p>
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	
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</p>	Compliant	<p>The revised Biodiversity Offset Strategy was submitted on 31 August 2021 and approved by a delegate of the Minister on 11 March 2022.</p> <p>Refer Attachment 5 of 2021/2022 Annual Compliance Report.</p>

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	submitted to the Minister for approval. The approved plan must be implemented.		
4	If the Minister believes that it is necessary or desirable for the better protection of the environment, the Minister may request that the 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.	Compliant	
5	<i>Revision of action management plans</i> 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.	Not activated at this time	
5A	The person taking the action may choose to revise an action management plan or measure approved by the Minister under condition 3, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the	Not activated at this time	

Condition Number	Condition	Is the project complaint with this Condition?	Evidence / Comments
	EPBC Act , if the taking of the action in accordance with the RAMP would not be likely to have a new or increased impact .		
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"> 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"> an electronic copy of the RAMP. 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. an explanation of the differences between the approved action management plan or measure and the RAMP. the reasons the person taking the action considers that taking the action in accordance with the RAMP would not be likely to have a new or increased impact, and 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. 	Not activated at this time	

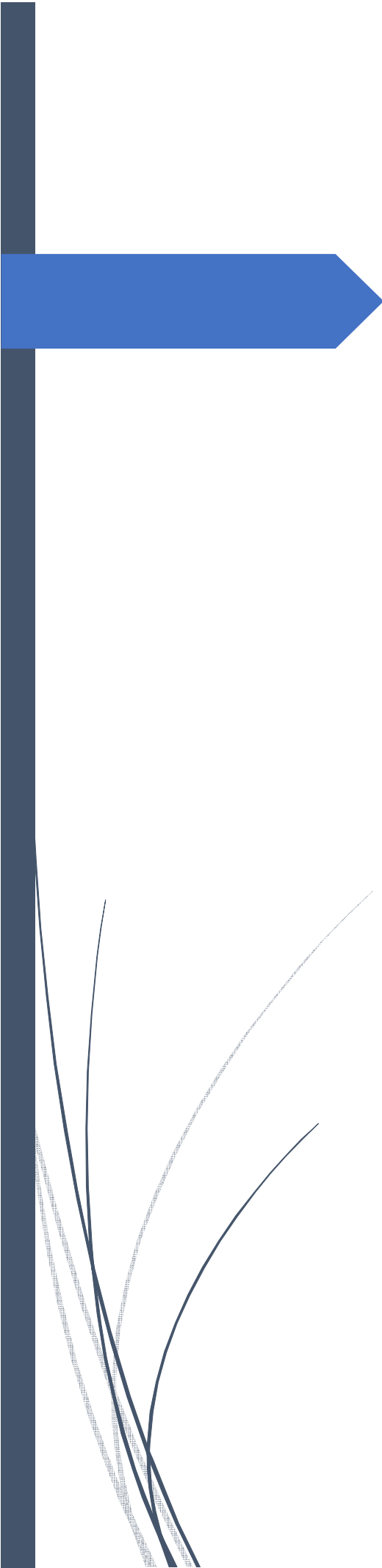
Condition Number	Condition	Is the project complaint with this Condition?	Evidence / Comments
	b. subject to condition 5D, implement the RAMP from the RAMP implementation date.		
5C	The person taking the action may revoke the choice to implement the RAMP under condition 5A at any time by giving written 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.	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> <p>b. the person taking the action must implement the action management plan or measure specified by the Minister in the notice.</p>	Not activated at this time	
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	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
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	<i>Compliance records</i> The person taking the action must maintain accurate and complete compliance records .	Compliant	
8	If the Department makes a request in writing, the person taking the action must provide electronic copies of compliance records to the Department within the timeframe specified in the request. 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.	Noted	Noted
9	<i>Preparation and publication of plans</i> The person taking the action must: 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 .	Compliant	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	c. keep plans published on the website until the end date of this approval, unless otherwise agreed to in writing by the Minister .		
10	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 accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department.	Compliant	Noted
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> <ul 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 	Compliant	<p>The 2023/2024 Compliance Report was submitted to DCCEEW on 31 October 2024 following a request and subsequent approval by DCCEEW for an extension of time to submit the report.</p> <p>The Airport will comply with 11a, b, c, d and e.</p>

Condition Number	Condition	Is the project complaint with this Condition?	Evidence / Comments
	<p>e. where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the 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> <p>a. the condition which is or may be in breach; and</p> <p>b. a short description of the incident and/or non-compliance.</p>	Compliant	<p>The Department was notified of a non-compliance of Condition 3A on 6 July 2021.</p> <p>Refer to Section 4 of the 2020/2021 Compliance Report.</p>
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 the Minister, after becoming aware of the incident or non-compliance, specifying:</p>	Compliant	

Condition Number	Condition	Is the project compliant with this Condition?	Evidence / Comments
	<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	



Canberra Airport: Resurvey of grassland remnants surrounding Taxiway B extension, 2024

With notes on grassland
rehabilitation

Alison Rowell

BIOLOGIST AND ENVIRONMENTAL CONSULTANT
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OCTOBER 2024

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Canberra Airport

Resurvey of grassland remnants surrounding Taxiway B extension, 2024, 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 possibly 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) and again in October 2024 (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 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.

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 NTG surrounding Taxiway B meet the above description, with breaks and areas within the NTG patch 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.

2.2 Other grassland areas with potential for rehabilitation

During Canberra Grassland Earless Dragon (CGED) surveys from March to June 2024, and in October 2024, other grassland areas (particularly north of the main runway) were assessed for their potential to be used as trial sites for different methods of grassland rehabilitation to reach native-dominated grassland or NTG status. Some of these areas and others were identified and mapped previously (Rowell 2023).

During the CGED surveys, seeds of native grasses and forbs were hand-collected for use in such future restoration work, and planning is under way for construction and operation of an on-Airport seed nursery to provide seed and plants for grassland revegetation/rehabilitation on the Airport.

3. Results

3.1 Grassland surrounding Taxiway B extension

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. There were more non-grass species and more indicator species recorded in 2024, probably due to the later timing of the survey (Table 2). (Photographs 1 to 3).

Two active (and one recently active) burrows of the Canberra Raspy Cricket *Cooraboorama canberra* were found in the southern part of Patch East/G (Photograph 4). 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). 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.

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).



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

Table 1. Native species observed in Natural Temperate Grassland patches, October 2024.
(Species in bold type are indicator (=significant/sensitive) species)

NATIVE GRASSES	COMMON NAME	FREQUENCY IN NTG PATCHES
<i>Anthosachne scaber</i>	Common Wheatgrass	Occasional
<i>Austrostipa bigeniculata</i>	Tall Speargrass	Common
<i>Austrostipa scabra</i>	Rough Speargrass	Common
<i>Bothriochloa macra</i>	Redleg Grass	Very common
<i>Rytidosperma</i> species	Wallaby Grasses	Common
<i>Rytidosperma carphoides</i>	Short Wallaby Grass	Common
<i>Themeda triandra</i>	Kangaroo Grass	Occasional, patchy
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>Convolvulus angustissimus</i>	A Bindweed	Occasional
<i>Crassula sieberiana</i>	Australian Stonecrop	Rare
<i>Dichondra repens</i>	Kidneyweed	Occasional
<i>Erodium crinitum</i>	Blue Crowfoot	Occasional
<i>Eryngium ovinum</i>	Blue Devil	Occasional
<i>Geranium solanderi</i>	A native Geranium	Occasional
<i>Glycine tabacina</i>	Variable Glycine	Rare
<i>Goodenia pinnatifida</i>	Scrambled Eggs	Common
<i>Leptorhynchus squamatus</i>	Scaly Buttons	Common
<i>Lomandra bracteata</i>	A Matrush	Rare
<i>Oxalis perennans</i>	A Soursob	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	Common
<i>Vittadinia muelleri</i>	New Holland Daisy	Common
<i>Wahlenbergia communis</i>	Tufted Bluebell	Occasional
<i>Wahlenbergia luteola</i>	A Bluebell	Occasional

Table 2. Native species in NTG around Taxiway B, 2023 and 2024.

Plant type	Number in July 2023	Number in October 2024
Native grass species	8	7
Native non-grass species	11	21
Indicator species	4	7

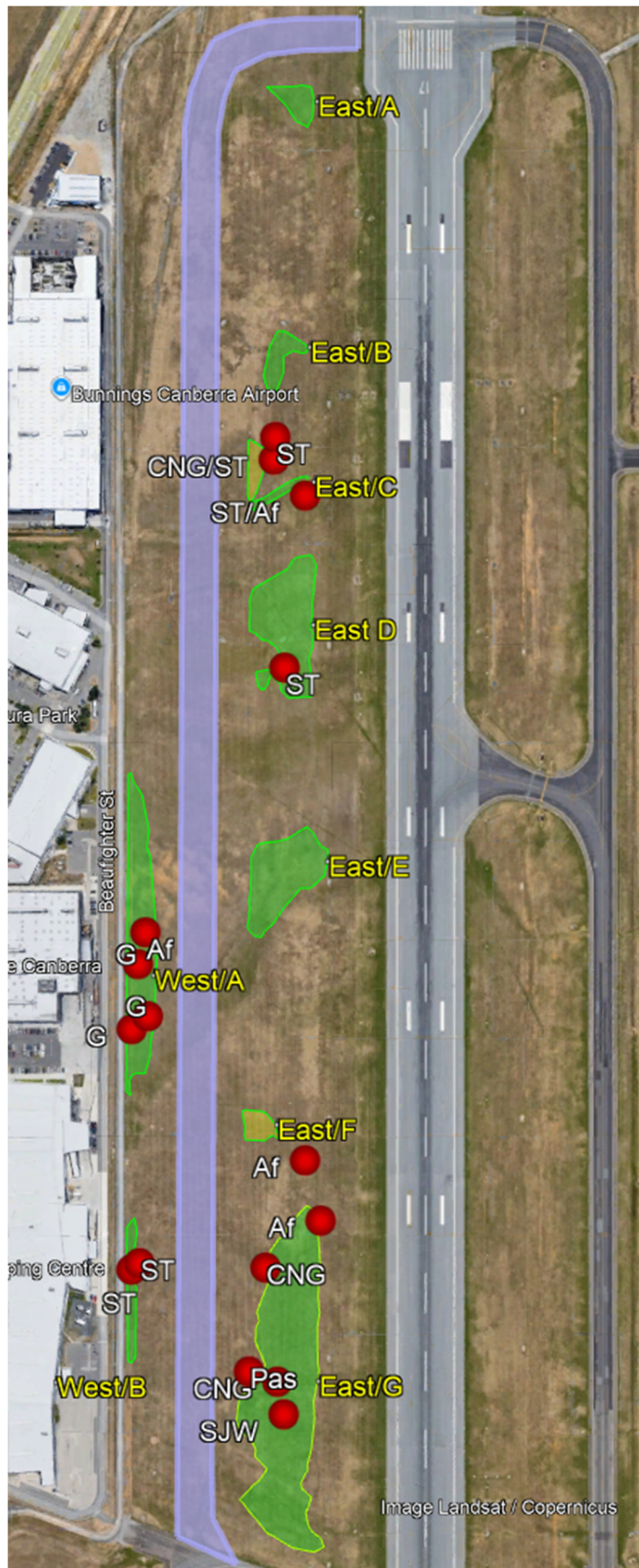


Figure 2. Some weed patches for control in/near NTG.

CNG=Chilean Needlegrass, Pas=Paspalum, SJW=St Johns Wort, ST=Serrated Tussock, Af=African Lovegrass, G=Gorse.

4. Recommendations

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.



Photograph 1. A variety of native forb species in Patch West/A, plants dwarfed due to low nutrient compacted soil (which also keeps most weeds out).



Photograph 2. A different suite of native forbs dominating wetter soil in Patch West/A.



Photograph 3. Blue Devil (indicator species), young plants in Patch East/G. October 2024.



Photograph 4. Active burrow of Canberra Raspy Cricket in Patch East/G.



Photograph 5. Serrated Tussock invading native grass patch, October 2024.



Photo 6. Gorse in Patch West/A.

5. Grassland rehabilitation projects

There are areas in and around the Taxiway B NTG patches in need of rehabilitation, as well as within the large NTG patch north of the main runway. These include patches dominated by Tall Fescue, wetter areas dominated by Paspalum, a large African Lovegrass patch and incursions of Serrated Tussock and Chilean Needlegrass. 1.7 hectares of weedy grassland was identified in 2023 as having potential for rehabilitation (Rowell 2023).

There are patches of grassland which are exotic-dominated due to historic site damage or more recent weed invasion, and others which contain a moderate cover of native grasses but do not currently meet the criteria for NTG.

These areas present opportunities for grassland rehabilitation trials in monitored plots using various methods which have been trialled elsewhere in the ACT. To this end, a proposal for a seed and plant nursery has been developed by an Airport staff member (Gurnett-Attard 2024). Materials required and potential sites for the nursery have been identified. Sites are currently being evaluated for suitability on the basis of accessibility, water provision, drainage, shelter from sun and wind etc.

Native grass and forb seed was hand-collected across the northern end of the Airport during autumn 2024 and has been stored for use in the first trials of nursery culture and field planting. This work will be undertaken after consultation with Greening Australia, an organisation that Canberra Airport has worked with before and which has extensive experience with native production nurseries, revegetation and rehabilitation.

Spot-spraying of Serrated Tussock with Eaze (Glyphosate) has been increased in 2024 and a boom-spraying trial with selective herbicide Taskforce (Fluproponate) for African Lovegrass, Chilean Needlegrass and Paspalum has begun, and the results will be monitored. Controlling the patch of African Lovegrass in the north-east corner of the Airport is a priority, as it has grown in the last two years and is now encroaching on the best Airport habitat for the critically endangered Canberra Grassland Earless Dragon. Use of the selective herbicide in 2024 appears to have had some effect on these grasses, but further applications are likely to be necessary.

In the native-dominated grasslands north of the runway, areas where patches of Serrated Tussock had been sprayed with herbicide in the past have often revegetated with a mixture of exotic and some native species. The native species included grasses but also forbs such as the New Holland Daisy and Yellow Buttons, species of small daisies that can quickly form dense patches on bare ground and persist under mowing.

It is suggested that after exotic grass patches have died off after spraying, native species such as grasses and/or some fast-growing forbs should be planted to compete for space and nutrients with exotic species that may have seeds in the soil. Some herbicides may have a residual effect on the subsequent establishment of native plants, so trials of herbicide use versus weed-chipping before replanting could be undertaken.



6. References

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