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WHYTE YARCOWIE WIND FARM

INTG Assessment Report

FINAL

May 2025

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Prepared by
Umwelt (Australia) Pty Limited
for
Whyte Yarcowie Wind Farm Pty Ltd

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

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
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V4	A. Carpenter	07/05/2025	Dr T. How	19/05/2025

Glossary

Table 1.1 Glossary

Term	Description
Class A INTG	Condition Class A INTG (The highest quality representation of Iron-grass Natural Temperate Grassland). Class A INTG is protected by the EPBC Act.
Class B INTG	Condition Class B INTG (Iron-grass Natural Temperate Grassland of high quality with less native species diversity than Condition Class A). Class B INTG is protected by the EPBC Act.
Class C INTG	Condition Class C INTG (Iron-grass Natural Temperate Grassland that is typically significantly degraded, but amenable to rehabilitation). Class C INTG is not protected by the EPBC Act.
Disturbance Footprint	The 645.814-ha area proposed to be impacted for the construction of the Project, as shown in mapping.
Project Area	The 10,341.906-ha area (or boundary) in which the Project will be located, as shown in mapping. This is distinct from the Disturbance Footprint of the Project.
Project	The proposed Whyte Yarcowie Wind Farm.
Proponent	Whyte Yarcowie Wind Farm Pty Ltd (a subsidiary of Wind Prospect Group Ltd).
Significant impact	As defined in *Matters of National Environmental Significance: Significant impact guidelines 1.1*.

Abbreviations

Abbreviation	Full name
BESS	Battery Energy Storage System
BOM	Bureau of Meteorology
CEMP	Construction Environmental Management Plan
DA	Development Application
DCCEEW	Department of Climate Change, Energy the Environment and Water
DEWHA	Department of the Environment, Water, Heritage and the Arts
DEWR	Department of the Environment and Water Resources
DoE	Department of the Environment (now DCCEEW) (Australian Government)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmental Stewardship Area
GPS	Global Positioning System
GWh	Gigawatt hours
INTG	Iron-grass Natural Temperate Grassland [of South Australia]
Met Mast	Meteorological Mast
MW	MegaWatt
OEMP	Operational Environmental Management Plan
OHL	Overhead transmission line
PBTL	Pygmy Blue-tongue Lizard
SA	South Australia / South Australian
sp.	species (singular)
spp.	species (plural)
SPRAT	Species Profile and Threats (database)
TEC	Threatened Ecological Community

Abbreviation	Full name
TSSC	Threatened Species Scientific Committee
Wind Prospect	Wind Prospect Group Ltd (on behalf of Whyte Yarcowie Wind Farm Pty Ltd)

Executive Summary

Whyte Yarcowie Wind Farm Pty Ltd is proposing to develop, construct and operate a wind farm with up to 83 wind turbine generators (WTG) in the mid-north of South Australia. Umwelt has been engaged by Wind Prospect Group Ltd (Wind Prospect) on behalf of Whyte Yarcowie Wind Farm to undertake targeted assessments of Iron-grass Natural Temperate Grassland [of South Australia] (INTG) across the proposed Whyte Yarcowie Wind Farm (the Project). INTG is listed as a Critically Endangered threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Act 1999* (EPBC Act).

The Project is located east, south-east and south of the town of Whyte Yarcowie, 190 km north of Adelaide in South Australia. The small town of Whyte Yarcowie is 20 km north of Hallet, 8 km south of Terowie and 25 km east of Jamestown. The Project Area covers approximately 10,341.906 ha. The overhead transmission line (OHL) runs 18 km west of the Project Area to an existing substation at Belalie East. The Disturbance Footprint of the Project is 645.814 ha.

A design for the Disturbance Footprint within the wind farm was finalised by Wind Prospect in June 2024. An EPBC Act Referral for the Project, based on the design of June 2024, was lodged to the Department of Climate Change, Energy the Environment and Water (DCCEEW) in August 2024 (EPBC ref no 02534) based on likely significant impact to INTG and two other Matters of National Environmental Significance. The referral lapsed due to pending details of the OHL and Battery Energy Storage System (BESS). The OHL alignment and BESS location were confirmed on 11 March 2025. The OHL and BESS are included in the Project Area and Disturbance Footprint within this report.

Field surveys were completed by Umwelt over the OHL alignment and the BESS area between September 2024 to February 2025. Surveys included vegetation surveys and targeted surveys for the EPBC listed, Endangered Pygmy Blue-tongue Lizard (PBTL) (*Tiliqua adelaidensis*). The EPBC listed Iron-grass Natural Temperate Grassland of South Australia (INTG) was also targeted in surveys.

The INTG threatened ecological community (TEC) is endemic to South Australia and consists of tussock-forming perennial grasses, iron-grasses (*Lomandra effusa* and/or *L. multiflora* ssp. *dura*) and a low presence (<10%) of trees and tall shrubs. Between 10 and 70% of the ground cover is covered by *Lomandra* spp. and a range of herbaceous plant species occur between grass tussocks.

The objectives of the targeted INTG assessment include to:

- Broadly map the occurrence, extent and class of INTG across the Project Area.
- Feed INTG mapping into the design process to avoid and minimise impacts to INTG where possible.

- Calculate the magnitude of potential impact to INTG from construction and operation of the proposed Project.
- Use the information gathered for investigations into an offset strategy for the Project.

Targeted INTG surveys across the proposed Whyte Yarcowie Wind Farm have been carried out under a range of seasonal conditions over the following dates since 2019:

- 2019 baseline survey - INTG was broadly mapped across the Project Area in the 2-6 December 2019. Conditions were too poor to assess INTG condition in 2019.
- 2021-2022 - Opportunistic field mapping was undertaken November 2021, May and September 2022 whilst undertaking met mast vegetation and fauna surveys, to verify the condition of some of the INTG that was broadly mapped in 2019.
- 7-11 November 2022 - A second targeted field survey was undertaken in ideal spring conditions, to map the occurrence, extent and condition class of INTG in parts of the Project Area which had not already been surveyed.
- 25-29 September 2023 - A third targeted survey was conducted in spring 2023 to further refine INTG mapping across the Project Area. This survey was carried out under less ideal conditions than in 2022, due to seasonal variation in rainfall conditions. A conservative approach was taken to INTG mapping as per guidance from Turner (2012). For example, where an INTG patch assessed as Class C joined a patch that was assessed as Class B, the whole area was assessed as Class B. Where an area/patch did not classify as Class B due to missing a marginal number of species, it was upgraded to Class B. To account for seasonal inaccuracies, survey results from seasons that were ideal, overrode later results in less-than-ideal conditions.
- 3 September 2024 – Small pockets of unsurveyed areas of INTG in the Disturbance Footprint were surveyed.
- 28 Oct -1 November 2024 - The OHL was surveyed and potential offset areas surrounding the wind farm were broadly surveyed to assess the presence and class of INTG.
- 25-26 February 2025 - The remainder of the OHL was surveyed to assess the presence and class of INTG.

Methods

Surveys in areas of INTG followed the criteria outlined in the *EPBC Act Policy Statement 3.7: Iron-grass Natural Temperate Grassland of South Australia* (DEWR 2007). Condition classes for each patch of INTG were determined by searching for and recording all species found within a 50 m x 50 m (or equivalent 2,500 m^2) quadrat within a representative area of each patch.

All flora species observed within the quadrats were then categorised (i.e. broad-leaved herbaceous plant, perennial grass / tussock, disturbance resistant species) and compared against the benchmark criteria for Classes A to C, as outlined in the 2007 EPBC Act Policy Statement. Data recorded on data sheets included a GPS point, photograph, native plant species list, perennial tussock density (based on a visual estimate), confirmation of *Lomandra* spp. as the dominant species and record of *Lomandra* spp. density.

Results

Within the Disturbance Footprint, 49.31 ha of INTG Class A and B has been mapped.

Recommendations

The following recommendations in regard to INTG are provided:

- Avoid, where possible, impacting INTG Class A and B through detailed design / micro-siting of the Disturbance Footprint.
- Identify a suitable INTG offset area to offset residual impact of the Project on INTG. This includes the loss of up to 49.31 ha of Class A and B INTG.
- Prepare offset documentation as per the DCCEEW requirements, including an Offset Strategy and INTG Management Plan.

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1.0 Introduction

Whyte Yarcowie Wind Farm Pty Ltd is proposing to develop, construct and operate a wind farm with up to 83 wind turbine generators (WTG) in the mid-north of South Australia. The Project Area has been chosen due to its high wind resource and location near existing transmission infrastructure.

Wind Prospect has been undertaking wind monitoring at the site since 2012. In November 2022, two 130 m temporary monitoring masts were installed on the Project Area.

1.1 Objectives

The objectives of the targeted INTG assessment included to the following:

- Broadly map the occurrence, extent and class of INTG across the Project Area.
- Feed INTG mapping into the design process to avoid and minimise impacts to INTG where possible.
- Calculate the magnitude of potential impact to INTG from construction and operation of the proposed Project.
- Use the information gathered for investigations into an offset strategy for the Project.

1.2 Project Area

The Whyte Yarcowie Wind Farm (the Project) site is located east, south-east and south of the town of Whyte Yarcowie, 190 km north of Adelaide, in South Australia. The small town of Whyte Yarcowie is 20 km north of Hallet, 8 km south of Terowie and 25 km east of Jamestown. The Project is east of the Barrier Highway, on private land under ownership of three landowners. The Project Area covers 10,341.906 ha. The Disturbance Footprint covers 645.814 ha.

An 854.77 ha Environmental Stewardship Area (ESA) (MEC1_MDB_003 Ulooloo) exists within the Project Area. The ESA was set up in 2011 under Commonwealth Caring for Our Country funding. The purpose of this ESA was to protect the nationally Critically Endangered Iron-grass Natural Temperate Grassland of South Australia (INTG) which is known to occur within the ESA.

The Project Area occurs within the Goyder Local Government Area, Northern and Yorke Landscape Management Region, the Terowie Hundred and the Kimberley County (see **Figure 1.1**).

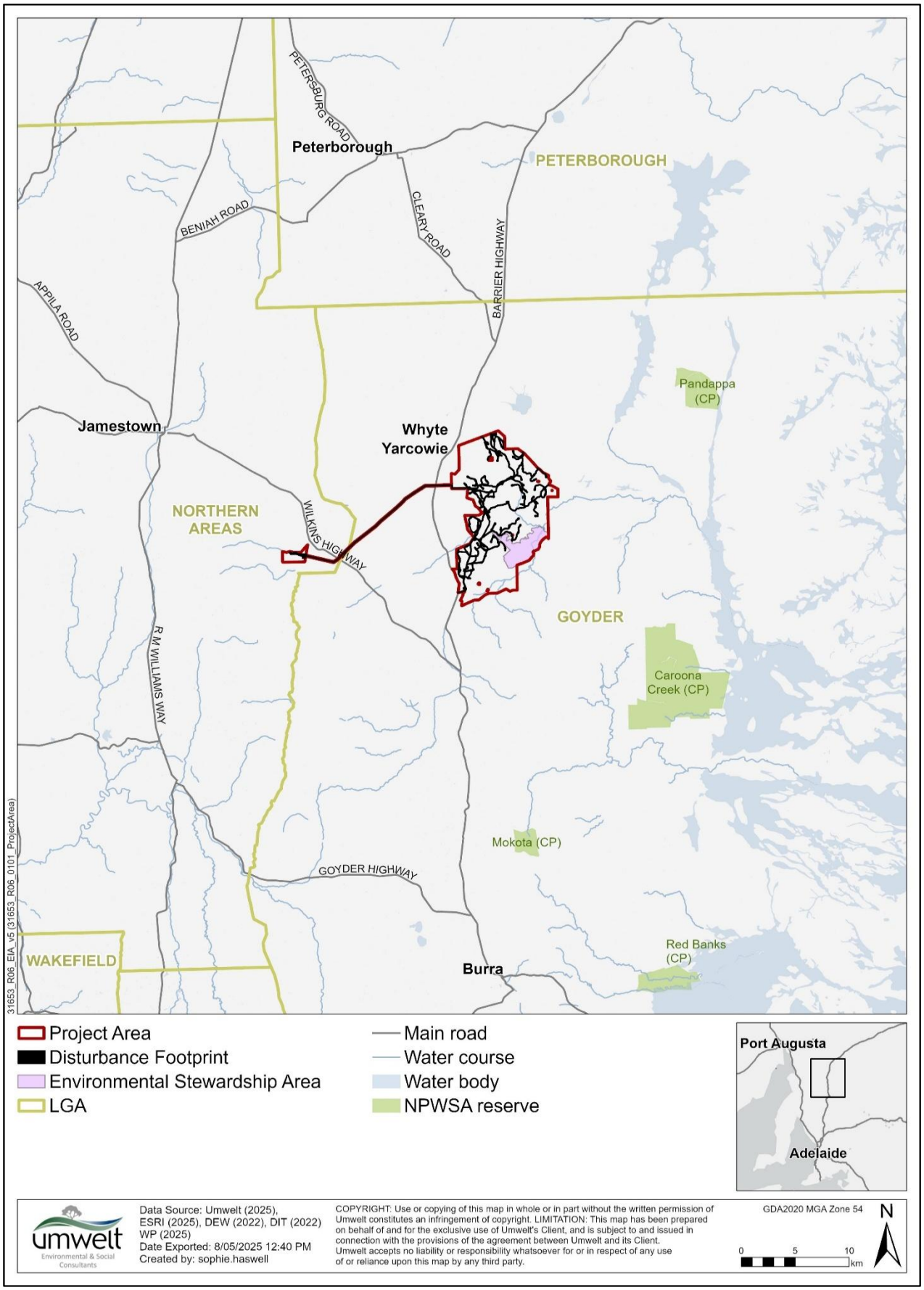

Figure 1.1 General Location Map

1.3 General Description

The Whyte Yarcowie Wind Farm Project Area is characterized by rugged hills with a relatively high cover of woodland and native grassland for the mid north.

Of the 7,295.50 ha that has been surveyed within the 10, 341.91 ha Project Area, the following broad vegetation types are present:

- ~ 63 % - *Austrostipa*/*Enneapogon*/Lomandra Grassland (4,584.25 ha).
- ~ 23 % woodland (1,674.80 ha) (another 928 ha is expected to be present within the Project Area which has not been surveyed (bringing the estimated total to 25 % of the Project Area).
- ~ 10 % - cropping (694.17 ha).
- ~ 3 % - native shrubland (201.51 ha).
- ~ 1 % - exotic vegetation (99.74 ha).

See Table 1.1 below for a summary of vegetation associations within the Project Area.

Table 1.1 Vegetation Associations Impacted by the Proposed Project.

Ass. #	Vegetation Association	Project Area (ha)	Impacted by Project (ha)
A1	Lomandra Grassland (includes INTG TEC and Class C which is not the TEC)	1929.34	69.09
A2	*Maireana aphylla* Shrubland	185.31	30.10
A3	*Eucalyptus porosa* Mallee Woodland	934.31	69.61
A4	*Callitris gracilis* Woodland	37.71	2.55
A5	*Eucalyptus leucoxylon* ssp. *pruinosa* Woodland	386.97	14.23
A6	*Eucalyptus oleosa* ssp. *oleosa* / *Eucalyptus socialis* ssp. *socialis* Mixed Mallee	309.12	22.42
A7	*Austrostipa* spp. / *Rytidosperma* spp. Very Open Grassland	2646.87	328.86
A8	*Ptilotus obovatus* and *Sclerolaena obliquicuspis* Shrubland	14.43	0
A10	*Eucalyptus gracilis* woodland	6.69	0.65
B2	*Maireana aphylla* Shrubland	0.79	0
B7	*Austrostipa* spp. / *Rytidosperma* spp. Very Open Grassland	1.13	0.14

Ass. #	Vegetation Association	Project Area (ha)	Impacted by Project (ha)
B11	*Maireana brevifolia* Shrubland	0.81	0
B14	*Enneapogon nigricans* Grassland	6.91	0.28
B15	*Maireana rohrlachii* Shrubland	0.18	0.05
Subtotal native vegetation (ha)		**6460.56**	**537.98**
Cropping		694.17	73.69
Exotic		99.74	21.85
Existing infrastructure (e.g. roads)		41.00	12.06
Area not surveyed		3046.44	0.23
Total		**10341.91**	**645.81**

Numbers have been rounded to two decimal places for ease of comparison.

2.0 Iron-grass Natural Temperate Grassland (INTG)

2.1 Conservation Status

The EPBC Act legal status and associated documents for INTG, as provided within Department of Climate Change, Energy the Environment and Water (DCCEEW's) Species Profile and Threats (SPRAT) Database (online) SPRAT Profile for INTG (DCCEEW 2024), are presented in Table 2.1**.**

Photo 2.1 Small Area of Class A INTG on the east side of Project Area, November 2022

Table 2.1 EPBC Legal Status and Associated Documents for INTG

EPBC Act Listing Status	Listed as Critically Endangered (date effective 21 June 2007)
Approved Conservation Advice	Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Iron-grass Natural Temperate Grassland of South Australia.* Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/37-conservation-advice.pdf. In effect under the EPBC Act from 16-Dec-2008.
Listing Advice	Threatened Species Scientific Committee (2007). *Commonwealth Listing Advice on Iron-grass Natural Temperate Grassland of South Australia*. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/l-effusa.pdf. In effect under the EPBC Act from 22-Jun-2007.
Adopted/Made Recovery Plans	Turner, J. (2012). *National Recovery Plan for the Irongrass Natural Temperate Grassland of South Australia ecological community 2012*. Department of Environment and Natural Resources, South Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-iron-grass-natural-temperate-grassland-sa. In effect under the EPBC Act from 24-Jul-2012.
Adopted/Made Threat Abatement Plans	No Threat Abatement Plan has been identified as being relevant for this ecological community

Source: DCCEEW (2024)

2.2 Biology and Description

The INTG threatened ecological community (TEC) is endemic to South Australia and consists of tussock-forming perennial grasses, iron-grasses (*Lomandra effusa* and/or *L. multiflora* ssp. *dura*) and a low presence (<10%) of trees and tall shrubs (DEWHA 2008; Turner 2012). Between 10 and 70% of the ground cover is covered by *Lomandra* spp. and a range of herbaceous plant species occur between tussocks (DEWHA 2008; TSSC 2007). Remaining patches of this ecological community typically occur on gentle to moderate slopes, hilltops and adjacent plains, on sandy-loam to clay-loam soil. The annual rainfall is between 300 and 600 mm per year (TSSC 2007).

Ploughing the arable lower slopes and plains in South Australia has cleared the ecological community from the deeper soils and less rocky areas. Once cleared, these areas have generally been maintained for cropping and sown pastures, and iron-grasses have been prevented from regenerating (Turner 2012).

2.3 Criteria for INTG and Condition classes

The *National Recovery Plan for the Iron-grass Natural Temperate Grassland of South Australia ecological community, 2012* (Turner 2012) lists a set of criteria for which a patch of INTG must be assessed in order to determine if it is of sufficient quality to qualify as the listed TEC (protected by the EPBC Act) or have potential for rehabilitation (**Table 2.2**).

Areas of Class A INTG are considered the highest quality representation of the community. Condition Class B INTG areas are also considered of high quality, but do not have the native species diversity of Class A INTG. Classes A and B INTG are the listed TEC.

Class C INTG areas are typically significantly degraded (low condition), are not included as the listed ecological community and therefore do not trigger the 'significant test' of the EPBC Act. Class C INTG is still considered to be amenable to rehabilitation through measures such as weed control, natural regeneration and protection from grazing.

Table 2.2 Criteria for listing INTG as a Threatened Ecological Community.

Condition class	Minimum size	Diversity of native species[1]	No. broad-leaved herbaceous species[1] in addition to identified disturbance resistant species[2]	No. perennial grass species[1]	Tussock count[3]
Listed Threatened Ecological Community					
A	0.1 ha	> 30	≥ 10	≥ 5	1/m
B	0.25 ha	> 15	≥ 3	≥ 4	1/m
Degraded patches amenable to rehabilitation					
C	No minimum	> 5	No minimum	≥ 1	No minimum

[1]Surveyed within a 50 x 50 metre (m) (or equivalent 2,500m^2) quadrat within a representative area of each patch

[2]Disturbance resistance species: Ptilotus spathulatus; Sida corrugata; Oxalis perennans; Euphorbia drummondii; Maireana enchylaenoides; Convolvulus angustissimus).

[3]Average count as measured along a 50m transect, including all native perennial tussock species i.e. true grasses, as well as species of Lomandra, Dianella, Gahnia, Lepidosperma and other perennial sedges and rushes.

3.0 Methods

3.1 Field Survey

Surveys in areas of INTG followed the criteria outlined in the *EPBC Act Policy Statement 3.7: Iron-grass Natural Temperate Grassland of South Australia* (DEWR 2007). Condition classes for each patch of INTG were determined by searching for and recording all species found within a 50 m x 50 m (or equivalent 2,500 m2) quadrat within a representative area of each patch. All species observed within the quadrats were then categorised (i.e. broad-leaved herbaceous plant, perennial grass / tussock, disturbance resistant species) and compared against the benchmark criteria for Classes A to C, as outlined in the EPBC Act Policy Statement (DEWR 2007). Data recorded on data sheets included a GPS point, photo, native plant species list, perennial tussock density (based on a visual estimate) and confirm *Lomandra* spp. as the dominant species and record density. An example of the field data sheet used in surveys November 2023 onwards is provided in **Appendix 1**.

The following field surveys have been completed for the Project:

- 2019 baseline survey - INTG was broadly mapped across the wind farm part of the Project Area in the 2-6 December 2019. Conditions were too poor to assess INTG condition in 2019.
- 2021-2022 - Opportunistic field mapping was undertaken November 2021, May and September 2022 whilst undertaking met mast vegetation and fauna surveys, to verify the condition of some of the INTG that was broadly mapped in 2019.
- 7-11 November 2022 - A second targeted field survey was undertaken in ideal conditions, to map the occurrence, extent and condition class of INTG in parts of the Project Area which had not already been surveyed. Surveys in areas of INTG followed the criteria outlined in the EPBC Act Policy Statement 3.7: Iron-grass Natural Temperate Grassland of South Australia (DEWR 2007). Condition classes for each patch of INTG were determined by searching for and recording all species found within a 50 m x 50 m (or equivalent 2,500 m^2) quadrat within a representative area of each patch. All species observed within the quadrats were then categorised (i.e. broad-leaved herbaceous plant, perennial grass / tussock, disturbance resistant species) and compared against the benchmark criteria for Classes A to C, as outlined in the EPBC Act Policy Statement (DEWR 2007). Survey points and data on data sheets, along with photo points were recorded.
- 25-29 September 2023 - A third targeted survey was conducted to further refine INTG mapping across the wind farm part of the Project Area. This survey was carried out under less ideal conditions than in 2022. A conservative approach was taken to mapping as per guidance from Turner (2012). For example, where a patch assessed as Class C joined a patch that was assessed as Class B, the whole area was assessed as Class B.

- Where an area missed out on being Class B by a marginal number of species, it was upgraded to Class B. To account for seasonal inaccuracies, survey results from seasons that were ideal, overrode later results in less-than-ideal conditions.
- 3 September 2024 – Small pockets of unsurveyed areas in the Disturbance Footprint were surveyed and refinement of INTG mapping in small pockets was completed.
- 28 Oct - 1 November 2024 - Part of the OHL and BESS area was surveyed and potential offset areas surrounding the wind farm were broadly surveyed to assess the presence and class of INTG and any other TEC present. Vegetation mapping for potential offset areas is not included within this report.
- 25-26 February 2025 - The remainder of the OHL was surveyed to assess the presence and class of INTG.

4.0 Results

4.1 Occurrence in the Project Area

Mapping of INTG within the Project Area is shown in **Figure 4.1.**

A total of 49.31 ha of the Critically Endangered TEC (INTG Class A and B) may be impacted by the Disturbance Footprint (see **Table 4.1**). INTG is confined to the wind farm part of the Project Area. No INTG was found to occur in the proposed OHL or BESS.

Table 4.1 Occurrence of INTG within the Project Area.

INTG Class (A, B or C)	Survey class	INTG TEC (yes/no)	Project Area (ha)	Impacted by Disturbance Footprint (yes/no)	Disturbance Footprint (ha)	Percent impacted %
Lomandra Grassland A	A	Yes	191.77	Yes	8.37	
Subtotal INTG Class A		*Yes*	*191.77*	*Yes*	*8.37*	*4.36%*
Lomandra Grassland B	B	Yes	1096.03	Yes	38.48	
	Class B (Possible Class A)	Yes	25.08	Yes	0.12	
	Possible Class B	Yes	345.69	Yes	2.35	
Subtotal INTG Class B		*Yes*	*1466.79*	*Yes*	*40.95*	*2.79%*
Lomandra Grassland C	C	No	234.99	Yes	19.42	
	Possible Class C	No	30.98	Yes	0.06	
	Not Surveyed	No	4.80	Yes	0.31	
Subtotal INTG Class C		*No*	*270.78*	*Yes*	*19.78*	*7.31%*
Total all Lomandra Grassland			**1929.34**		**69.09**	**3.58%**
Total Maximum TEC (includes Class A, B)			**1658.56**		**49.31**	**2.97%**

Numbers have been rounded to two decimal places for ease of comparison.

4.2 Total Area of INTG Remaining in South Australia

INTG once extended over an estimated 750,000 to 1,000,000 ha in South Australia (Specht 1972; Hyde 1995). However, the ecological community has declined dramatically in area and integrity across its natural range, to the point where it is now considered EPBC Critically Endangered.

The total area remaining, including modified and degraded INTG remnants, has been estimated at less than 50,000 ha (Department of Transport, Urban Planning and the Arts 2000), while the area in good condition is thought to be less than 5,000 ha (Hyde 1995).

For the purposes of assessing the potential impact of the Project on INTG, the following has been compared in **Table 4.2** below:

- The area of all INTG / Lomandra Grassland (Class A, B and C) proposed to be impacted by the Project as a percentage of the 50,000-ha estimated to be remaining in South Australia.
- The area of INTG TEC (Class A and B) which is proposed to be impacted by the Project as a percentage of the area estimated to be remaining in good condition in South Australia (5,000 ha).

The Project (as per the Disturbance Footprint of June 2024) impacts on 0.09% of total INTG and 0.99% of INTG in 'good condition' (**Table 4.2**).

See Section **4.1** for details of Lomandra Grassland within the Project Area.

Table 4.2 The Estimated total Area of INTG Remaining in SA and Impact of the Project.

Total INTG remaining in SA (ha) (DTUPA 2000)	Total INTG (Class A, B, C) impacted by the Disturbance Footprint (ha)	Percentage of total INTG in SA impacted %	Remaining INTG in 'good condition' in SA (ha) (Hyde 1995)	INTG TEC impacted by the Disturbance Footprint (ha)	Percentage of INTG in 'good condition' impacted by the Project
50,000	49.31	0.09 %	5,000	49.31	0.99 %

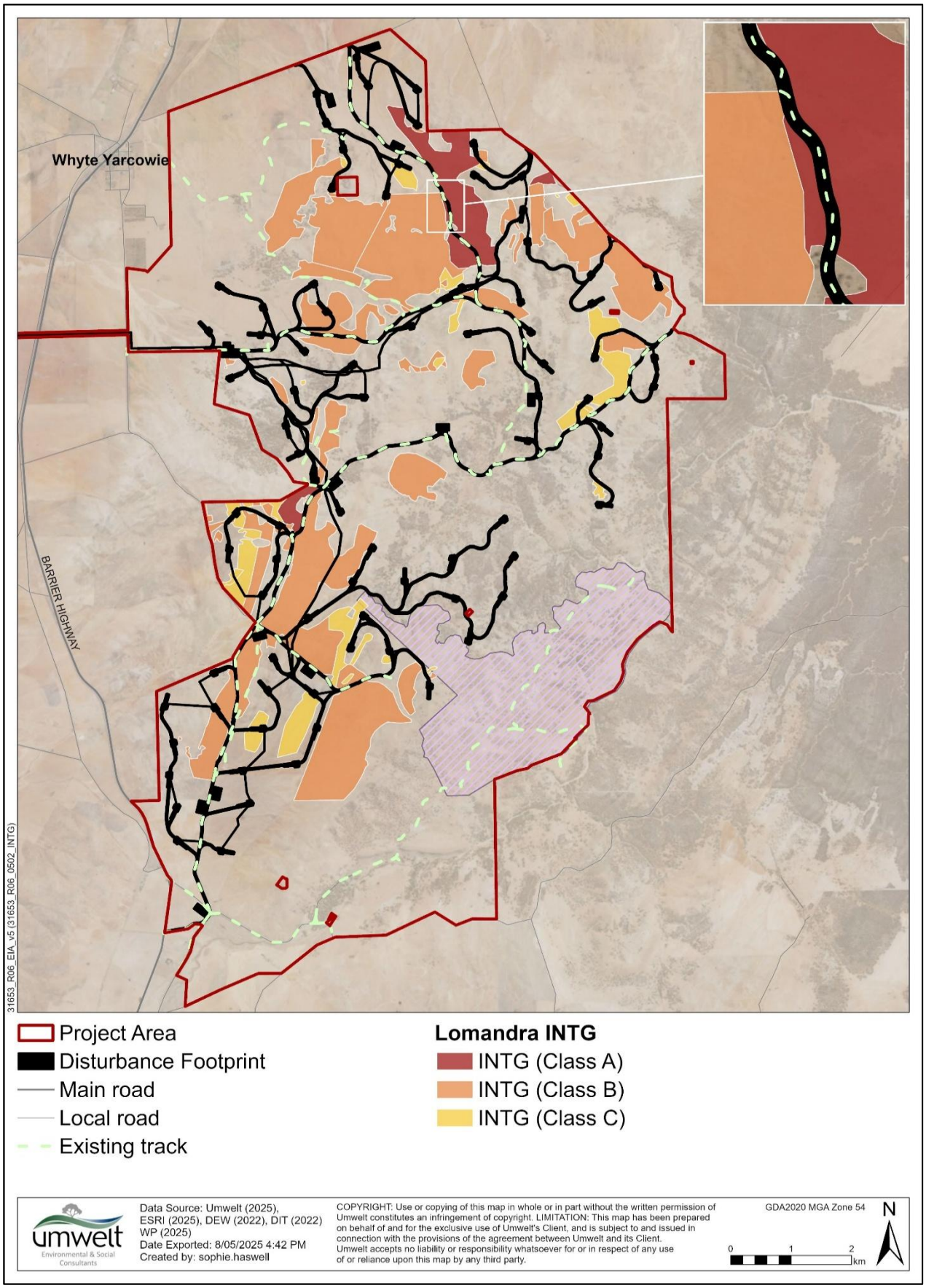

Figure 4.1 INTG Mapping within the Project Area.

4.3 Significant Impact Assessment for INTG

Table 4.3 Assessment of Impact According to DotE (2013a) and National Recovery Plan for INTG

Significant Impact Criterion	Direct Impact (Yes/No)	Indirect Impact (Yes/No)	Justification
Reduce the extent of an ecological community.	**Yes**	**No**	The Disturbance Footprint has been designed to minimise impact to the INTG. The Disturbance Footprint may impact a maximum of 49.31 ha of INTG TEC which is 0.99 % of the ecological community that is in 'good condition' (Table 4.2). However, a proportion of INTG proposed to be impacted is along the arbitrary mapped edges of INTG patches which is likely to be already disturbed by previous clearance for access tracks and roads and may not be INTG. INTG within the Project Area has been mapped in Figure 4.1**.**
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines.	**Yes**	**No**	The Disturbance Footprint has been designed to minimise fragmenting large patches of INTG where possible, particularly Class A INTG. However, there may be instances where it has not been possible to avoid passing through the middle of a patch of Class B INTG. Construction contractors will follow measures outlined in a Construction Environmental Management Plan (CEMP) such as clearly delineating the area to be cleared to ensure that no clearance occurs outside of the approved Disturbance Footprint.
Adversely affect habitat critical to the survival of an ecological community.	**No**	**No**	The Disturbance Footprint has been designed to minimise impact to the INTG. Areas of INTG which are proposed to be impacted are on the edge of patches, where possible and are often already disturbed by existing access tracks. The patches of high quality INTG have been avoided. Therefore, it is unlikely that the impact (0.99 % of the ecological community that is in 'good condition') will adversely affect habitat critical to the survival of the community.

Significant Impact Criterion	Direct Impact (Yes/No)	Indirect Impact (Yes/No)	Justification
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels or substantial alteration of surface water drainage patterns.	**No**	**No**	The Whyte Yarcowie Wind Farm Project will not modify or destroy abiotic factors necessary for the survival of INTG. The Project is not expected to impact on soil, nutrient or groundwater levels. Construction contractors will follow measures outlined in a CEMP to minimise the impact on surface water flows through the construction of the linear Disturbance Footprint. As such the Project is unlikely to impact on abiotic factors necessary for the INTG survival.
Cause a substantial change in the species composition of an occurrence of an ecological community through causing a decline or loss of functionally important species.	**No**	**No**	The Whyte Yarcowie Wind Farm Project is unlikely to cause a substantial change in the species composition of the INTG as no broad scale actions such as tilling or sowing of other pasture or crop species are not going to be undertaken as part of the Project.

Significant Impact Criterion	Direct Impact (Yes/No)	Indirect Impact (Yes/No)	Justification
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community by: 1. Assisting invasive species, that are harmful to the listed ecological community to become established; or	**No**	**No**	The Disturbance Footprint is unlikely to cause a substantial reduction in the quality or integrity of an occurrence of an ecological community by assisting harmful species to become established. Construction contractors will follow measures outlined in a CEMP such as weed hygiene measures and other biosecurity measures to ensure that invasive species do not become established. Additionally, the land-use of the area will remain the same (grazing) and as such, the Project is unlikely to assist invasive species to become established.
2. Cause regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit growth of species in the ecological community.	**No**	**No**	The Whyte Yarcowie Wind Farm Project is unlikely to cause regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community. Construction contractors will follow measures outlined in a CEMP to limit and prevent the movement of chemicals and pollutants. Additionally, the land-use of the area will remain the same (grazing) and as such, the proposed Project is unlikely to cause regular mobilisation of fertilisers, herbicides and other pollutants.
Interfere with the recovery of an ecological community.	**No**	**No**	Wind Prospect have designed the Disturbance Footprint to avoid and minimise impact to the INTG, however impact of up to 49.31 ha is proposed which may interfere with the recovery if not offset.
Outcome	**Significant impact is likely to occur.**		

5.0 Discussion

The Project has considered the mitigation hierarchy during Project design and has sought to avoid and minimise impacts to INTG. Avoidance of impact to INTG has been one of the key influences during the design phase of the Disturbance Footprint. Following ecological surveys, all spatial INTG data was sent to the proponent and this information used in the design process.

The following points have been taken into consideration by Wind Prospect when considering the design of the Disturbance Footprint:

- Wind Prospect has sought to avoid intersecting and fragmenting the Critically Endangered INTG TEC (Class A and Class B patches) as a key priority in the design process.
- The boundary of INTG TEC is arbitrary. It does not end at a definite point and cannot be mapped from aerial imagery. Therefore, the area calculated as impacted INTG by the linear Disturbance Footprint is likely to be a slight overestimation, where the impact is at the boundary of an INTG TEC.
- Wind Prospect has prioritised the placement of the Disturbance Footprint in already disturbed areas such as existing access tracks, where possible to minimise disturbance to INTG. Areas surrounding existing access tracks are likely to be already disturbed, so by placing the Disturbance Footprint in these locations, it reduced the impact on INTG in good condition (see inset in **Figure 4.1** for an example of mapped INTG Class A over an existing access track).
- As a precautionary measure, INTG in Class C has also been avoided where possible as it is recognised that condition classes can change quickly under altered grazing regimes and by changes in seasonal conditions. Evidence of this was observed at the Project Area during surveys since 2019.
- Further infrastructure micro-siting will include consideration of minimising disturbance to INTG.

6.0 Recommendations

The following recommendations in regard to INTG are provided:

- Avoid, where possible, impacting INTG Class A and B through detailed design / micro-siting of the Disturbance Footprint.
- Identify a suitable INTG offset area to offset residual impact of the Project on INTG. This includes the loss of up to 49.31 ha of Class A and B INTG.
- Prepare offset documentation as per the DCCEEW requirements, including an Offset Strategy and INTG Management Plan.

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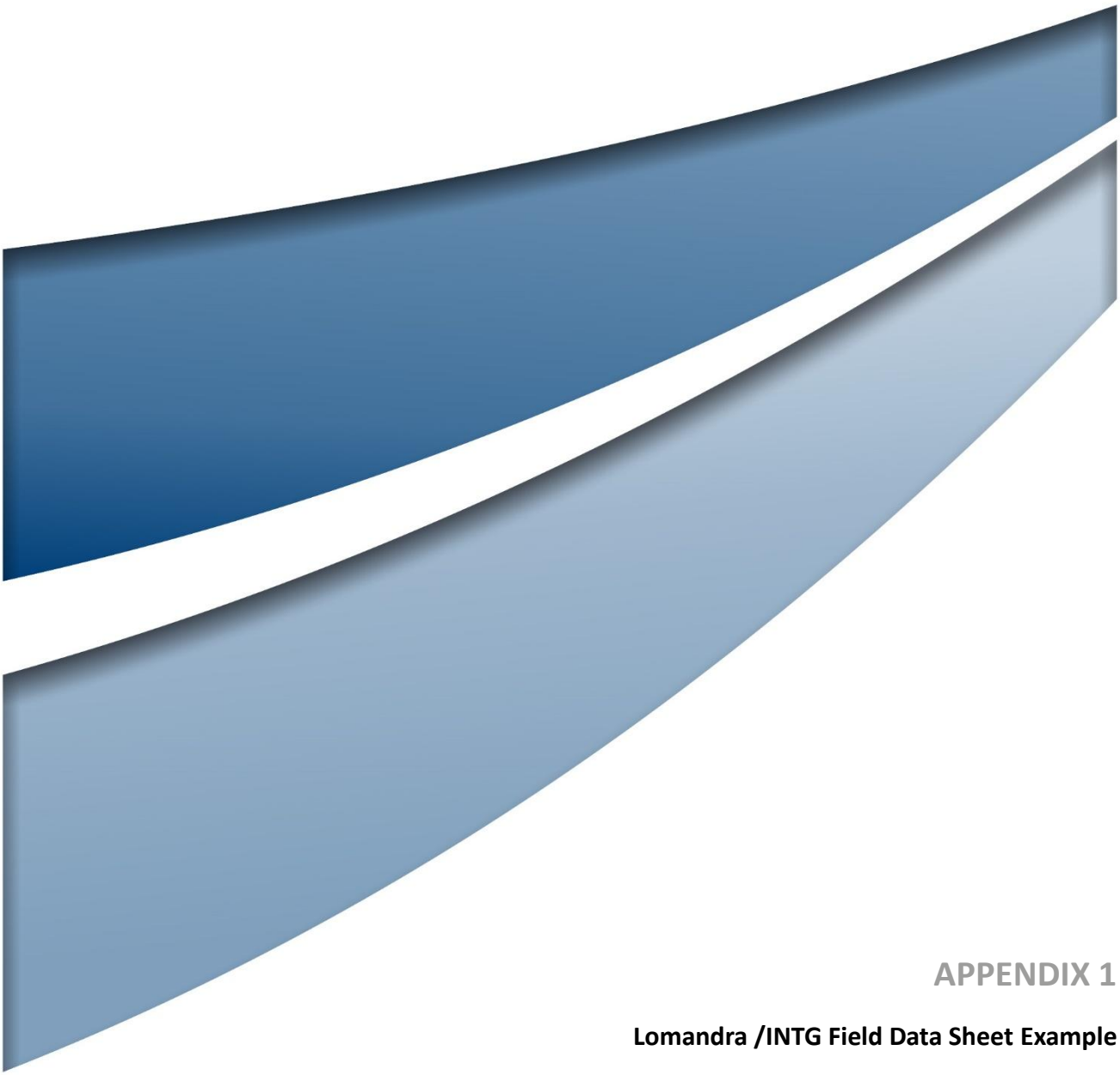

APPENDIX 1

Lomandra /INTG Field Data Sheet Example

Lomandra /INTG Field Data Sheet example

Site: AC LOM1 Recorder: AC BM Date: 9/9/24 Wpt: Ac Lom 1 Photo no + d'r: Field Maps North

Veg and site description:

Tussock count (inc. true grasses, Lomandra, Dianella, etc and other perennial sedges and rushes) per m: 3

Lomandra Cover on site (%) (Range: 10-70%): 6% Lomandra Class: C

	Native species	Dominant (D)	Broad leaved herb (exc. DRS) (Y)	Perennial native grass species (Y)
1	Scleranthus pungens			
2	Linum thing (marginale?)		✓	
3	Tiny tube flower Rhodanthe pygmaea, Pigmy s...		✓	
4	Goodenia Pusiflora		✓	
5	Maireana enchy			
6	Rhytidosperma spp			✓
7	Wurmbea? digica brev.		✓	
8	Lomandra effusa	✓		
9	Ptilotus spath			
10	Lomandra multiflora			
11	Convolvulus angus			
12	Wahlenbergia stricta		✓	
13	Blue squill? / Arthropodium / Bulbine		✓	
14	Enneapogon?			✓
15	Enchylaena tomentosa			
16	Podolepis? Brachyscome graciloba		✓	
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50m x 50 m quadrat

DRS: Ptilotus spathulatus; Sida corrugata; Oxalis perennans; C. erubescens; Euphorbia drummondii; M. enchylaenoides

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