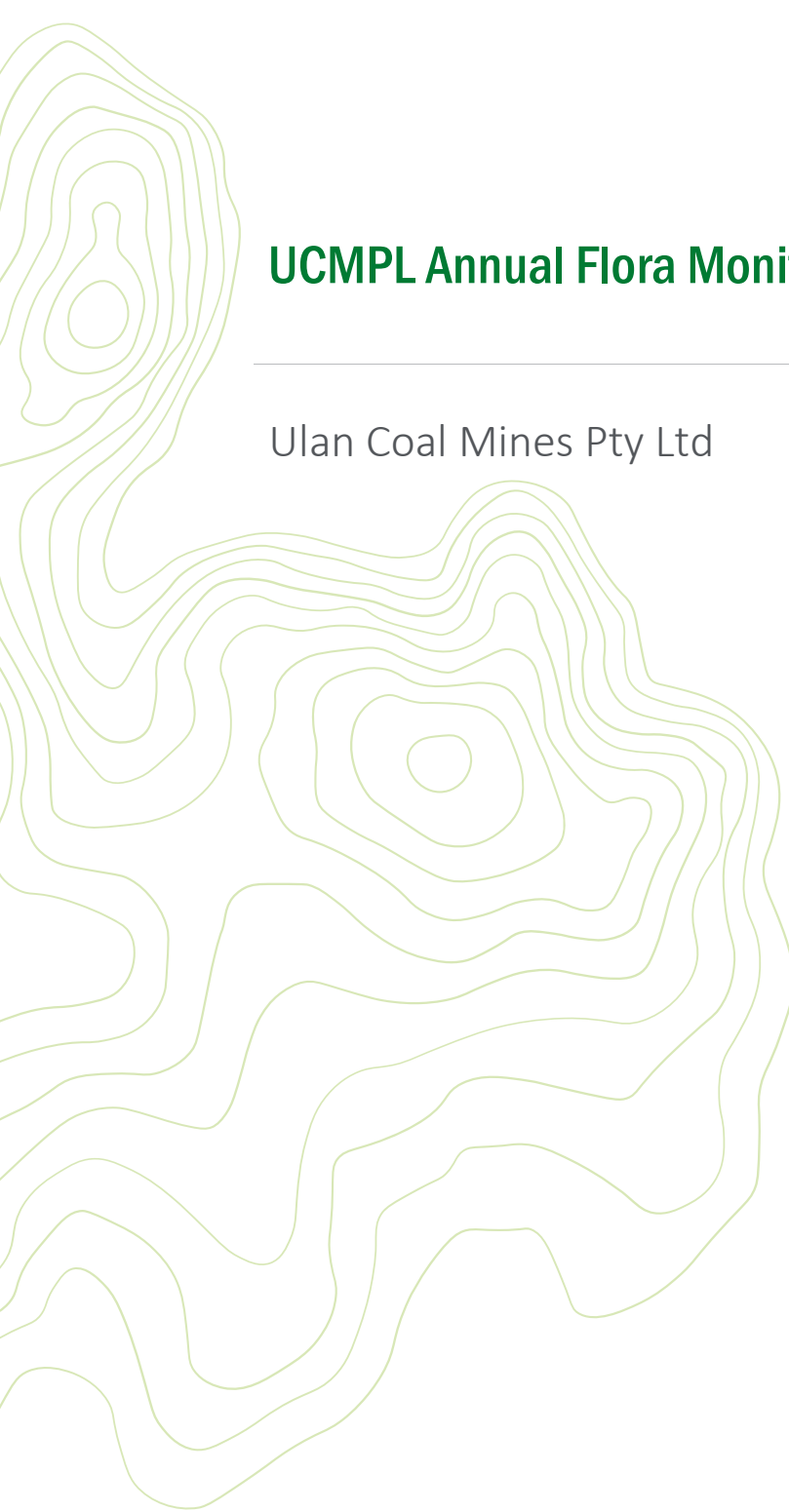




UCMPL Annual Flora Monitoring Report 2025

Ulan Coal Mines Pty Ltd

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Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BMP	Biodiversity Management Plan
BOA	Biodiversity Offset Areas
BSA	Biodiversity Stewardship Agreement
CTRSWMP	Central Tablelands Regional Strategic Weed Management Plan 2023 – 2027
CDI	Combined Drought Indicator
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
CA	Conservation Agreements
DBH	Diameter at breast height
ELA	Eco Logical Australia
FBS	Floristic based subsidence
GCCA	Glencore Coal Assets Australia Pty Limited
GBW	Grey Box Woodland
HTE	High Threat Exotic
IEM	Initial Establishment Monitoring
LTM	Long-term Monitoring
LW	Longwall
MZ	Management Zone
DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
DPIE	NSW Department of Planning, Industry and Environment
PCT	Plant Community Types
PA	Project Approval
RMP	Rehabilitation Management Plan
RRC	Rehabilitation Report Card
SOA	Salinity Offset Area
SIF	Sedimentary Ironbark Forest
TEC	Threatened Ecological Community
UCMPL	Ulan Coal Mines Pty Limited
UCC	Ulan Coal Complex
USO	Ulan Surface Operations
UUG	Ulan Underground
UW	Ulan West Underground
UHNF	Upper Hunter Native Forest
VOA	Vegetation Offset Area

Executive Summary

Eco Logical Australia (ELA) was engaged by Ulan Coal Mines Pty Limited (UCMPL) to undertake floristic monitoring during autumn and spring 2025 at the Ulan Coal Complex (UCC). Monitoring was undertaken in accordance with the requirements of the Biodiversity Management Plan (BMP) (UCMPL 2024) and the Rehabilitation Management Plan (RMP) (UCMPL 2025).

During 2025, 52 sites were monitored across 13 open cut rehabilitation areas (polygons). Results indicate that for open cut rehabilitation areas, species composition, and tree cover and abundance for all polygons monitored during 2025 are consistent with the target vegetation community. All other metrics for the open cut rehabilitation areas are ongoing.

Floristic monitoring within the BOAs is undertaken in accordance with Table 8.1 of the BMP (UCMPL 2024) and any relevant Conservation Agreements. Results indicate that Management Zone (MZ) 2 dry sclerophyll forest and grassy woodland sites are showing an upward trend in species diversity towards analogue sites. Stem density within the majority MZ2 sites has remained above the MZ1 historical minimum since 2016 and the majority of MZ2 sites were above the MZ1 historical minimum in 2025.

Monitoring of MZ3 sites indicates upward trend in species diversity and density towards analogue sites within the targeted vegetation community. Stem density at MZ3 dry sclerophyll forest sites is comparable to analogue sites, while median stem density for grassy woodland sites remains lower than the median stem density for MZ1 sites.

Presence of *Hypericum perforatum* may be hindering restoration success throughout some MZ2 and MZ3 areas within Bobadeen VOA. The recorded pfc of this species in 2025 was slightly lower than 2024, indicating implemented weed management may be reducing the extent.

Natural regeneration monitoring transects between 100 m to 200 m in length are established in MZ2 to monitor and spatially map the change in density and extent of natural regeneration within the BOAs and SOAs. Natural regeneration transects were monitored during 2025, along with the completion of a drive-over to map the extent of natural regeneration. All transects recorded a significant increase in stems <15 cm DBH in 2025 compared to 2020. The drive-over verified that natural regeneration is occurring throughout Bobadeen VOA and the SOA, typically along the fringes of remnant vegetation.

Floristic based subsidence monitoring was undertaken along six longwall panels during 2025 in autumn and spring. No longwalls have recorded a >10% decrease in canopy cover when compared to baseline (pre-mining) data.

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1. Introduction

Eco Logical Australia (ELA) was engaged by Ulan Coal Mines Pty Limited (UCMPL) to undertake floristic monitoring during autumn and spring 2025 at the Ulan Coal Complex (UCC). Monitoring was undertaken in accordance with the requirements of the Biodiversity Management Plan (BMP) (UCMPL 2024) and the Rehabilitation Management Plan (RMP) (UCMPL 2025).

1.1. Project background

UCMPL is wholly owned and managed by Glencore Coal Assets Australia Pty Limited (GCAA). The UCC is located within the Mid-Western Regional Council Local Government Area, approximately 1.5 kilometres from the village of Ulan and 38 kilometres northeast of Mudgee. The UCC landholdings straddle the Great Dividing Range and are located at the headwaters of the Goulburn and Talbragar River catchments.

UCMPL operations consist of Ulan Surface Operations (USO), Ulan Underground (UG) and Ulan West Underground (UW) mines. Five Conservation Agreements (CA) and one Biodiversity Stewardship Agreement (BSA) have been established between UCMPL and the NSW Department of Planning, Industry and Environment (DPIE) (now the NSW Department of Climate Change, Energy, the Environment and Water; DCCEE) to satisfy commitments to secure biodiversity offsets relating to NSW Project Approval (PA) 08_0184 and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval EPBC 2009/5252. Annual floristic monitoring and reporting is undertaken in accordance with each Offset Area (Table 1).

Table 1: Offset Areas and associated reporting 2025

Area	Report
Bobadeen Vegetation Offset Area (VOA)	Eco Logical Australia 2025a. <i>UCMPL Bobadeen Vegetation Offset Area Monitoring Report 2025</i> . Prepared for Ulan Coal Mines Pty Ltd.
Spring Gully Conservation Area.	Eco Logical Australia 2025b. <i>UCMPL Spring Gully Cliffline Management Area Monitoring Report 2025</i> . Prepared for Ulan Coal Mines Pty Ltd.
Brokenback Area 1 Conservation Area	Eco Logical Australia 2025c. <i>UCMPL Brokenback Conservation Area – Area 1 Monitoring Report 2025</i> . Prepared for Ulan Coal Mines Pty Ltd.
Brokenback Area 3 Conservation Area	Eco Logical Australia 2025d. <i>UCMPL Brokenback Conservation Area – Area 3 Monitoring Report 2025</i> . Prepared for Ulan Coal Mines Pty Ltd.
Highbett Road Conservation Area	Eco Logical Australia 2025e. <i>UCMPL Highbett Road Acacia ausfeldii Management Area Monitoring Report 2024</i> . Prepared for Ulan Coal Mines Pty Ltd.
Bobadeen West Offset Area	Eco Logical Australia 2025a. <i>Bobadeen West BSS monitoring letter report</i> . Prepared for Ulan Coal Mines Pty Ltd.
EPBC 2009/5252 area (Bobadeen VOA, Brokenback Conservation Area – Areas 1 and 2, Spring Gully Conservation Area)	Eco Logical Australia 2025b. <i>UCMPL EPBC 5-yearly offset and cliffline management areas report</i> . Prepared for Ulan Coal Mines Pty Ltd.

1.2. Performance indicators and completion criteria

1.2.1. Rehabilitation Management Plan

The RMP has been prepared in accordance with the requirements outlined in Schedule 3 Condition 57 of PA 08_0184. The RMP contains the following Final Land Use Domains at UCC:

- Native Ecosystem (Code A) – includes areas of open cut rehabilitation and tree screens.
- Water Management Areas (Code F) – includes all water management infrastructure that is required during post closure or forms part of the final landform.
- Water Storage (excluding Final Void) (Code G) – water storage areas including dams retained for the final land use.

All other Final Land Use Domains are not applicable to UCC (UCMPL 2025).

The ecological rehabilitation performance indicators and completion criteria used in this report as extracted from Appendix D of the RMP are summarised in Table 2. The ecological rehabilitation performance indicators and completion criteria relate to the following target vegetation communities:

- Grey Box Woodland
- Ironbark Open Forest on Sandstone
- Native Woodland
- Native Grassland or Derived Native Grassland

The RMP also contains landform stability performance indicators and completion criteria, with items relevant to this report summarised in Table 3.

Table 2: Ecological rehabilitation ROBJs, indicators and completion criteria per Appendix D of RMP (UCMPL 2025)

ROBJ	Performance Indices	Completion Criteria	Section of report
Species composition of the rehabilitation contains flora species characteristic of the target community	Native plant species recorded from 0.04 hectare fixed monitoring plots are characteristic of the target vegetation community.	Native plant species are characteristic of the target vegetation community(s) when compared to analogue sites.	Section 3.1.1
The vegetation structure of the rehabilitation is recognisable as, or is trending towards the target community	Cover and abundance of plant growth forms recorded from 0.04 hectare fixed monitoring plots are characteristic of the target vegetation community, or an ongoing trend toward becoming characteristic is evident from the monitoring data	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the target vegetation community type(s).	Section 3.1.2
Restore ecosystem function of the rehabilitation within the target community, including maintaining or establishing self-sustaining eco-systems.	Indicators of nutrient cycling are suitable for sustaining the target vegetation community.	Litter cover is within 10th-90th percentile variation range of reference sites/data	Section 3.1.3
	Evidence of plant regeneration from 0.04 hectare fixed monitoring plots or a walk over of the ecological rehabilitation area	Second generation individuals of trees are within the 10th-90th percentile variation range of reference sites/data approved by the consent authority	Section 3.1.3
	Cover of exotic species within 0.04 hectare fixed monitoring plots is low	Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	Section 3.1.3
	Soil health is suitable to sustain the target vegetation community(s) (e.g. Plant Community Type; PCT)	Total organic carbon is within 10th-90th percentile variation range of reference sites/data; and Total microbial biomass is within 10th-90th percentile variation range of reference sites/data approved by the consent authority; and The ratio of fungus to bacteria (fungal: bacterial) biomass is within 10th-90th percentile variation range of reference sites/data	Not assessed as part of this report
	Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes	Resilience to drought and fire	Section 3.1.3.4
	Threats to rehabilitation	Vertebrate pest species – presence and damage is recorded at a level that does not cause significant risk to rehabilitation. Domesticated stock - presence and damage is recorded at a level that does not cause significant risk to rehabilitation.	Assessed in <i>UCMPL Annual Fauna Monitoring Report 2025</i> (ELA 2026)

Table 3: Landform stability ROBJs, indicators and completion criteria (UCMPL 2025)

ROBJ	Performance Indices	Completion Criteria	Section of report
The final landform is stable and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna	Visual - indicators of erosion and land instability. Visual - indicators that surface water management structure are functioning as designed. Measured – erosion rates from field trials and or surveys on both target analogue sites (representative of final land use) and rehabilitated profiles (tonnes / ha). Measured - Survey of rehabilitated landform to verify final landform construction in accordance with Final Landform and Rehabilitation Plan. Measured - survey of rehabilitated landform to specifically monitor settlement and/or material loss via erosion. Modelled – long term erosional stability (e.g. Landform Evolution Modelling) to verify the long-term stability of rehabilitated landform. Modelled – long term geotechnical stability (e.g. stability analysis) to verify the long-term stability of rehabilitated landform.	Visual- minimal erosion that would not require moderate to significant ongoing management and maintenance works. Visual – no signs of land instability such as mass movement. Visual - no areas of active gully erosion. Visual - no evidence of tunnel erosion. Visual – no evidence of active scour likely to compromise surface water management structure. Survey verifies final landform complies with final landform construction in accordance with Final Landform and Rehabilitation Plan. Survey verifies that settlement and/or material loss is within predicted limits and will not compromise final landform drainage via differential settlement. Erosion rate monitoring verifies that erosion levels are within the range of target analogue sites representative of final land use. Significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design. High risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.	Section 3.1.4 (visual Completion Criteria only)

1.2.2. Biodiversity Management Plan

The BMP (UCMPL 2024) was developed by UCMPL to guide management of the UCC subject to the requirements of Condition 44, Schedule 3 of PA 08_0184 and the requirements of the EPBC 2009/5252. The BMP contains completion criteria and performance indicators relevant to the Biodiversity Offset Areas (BOAs). The BOAs are stratified into the following Management Zones (MZs):

- MZ1a – benchmark vegetation including forest and woodland communities which are relatively intact, in good condition and have high species richness.
- MZ1b – benchmark vegetation including forest and woodland communities which are relatively intact, in good condition, have high species richness and have regenerated from historical clearing activities.
- MZ2 – naturally regenerating areas which are close to sources of natural recruitment.
- MZ3 – assisted revegetation through planting tube stock and / or seedling.

Table 4 summarises the MZs present within each BOA.

Ecosystem and land use establishment phase completion criteria relevant to this report extracted from Table 5.1 of the BMP (UCMPL 2024) is provided in Table 5. The BMP (UCMPL 2024) also contains performance measures relating to impacts to threatened species, populations and communities from underground mining (Table 6).

Table 4: MZs mapped within each BOA

BOA	MZs
Bobadeen VOA	MZ1, MZ2, MZ3
Spring Gully Cliffline Management Area	MZ1
Brokenback Conservation Area – Area 1	MZ1
Brokeback Conservation Area – Area 2	MZ1
Highbett Road <i>Acacia ausfeldii</i> Management Area	MZ1 and MZ2
Bobadeen West BSS	MZ1

Table 5: BOA completion criteria as extracted from Table 5.1 of BMP (UCMPL 2024)

Domain Objective	Performance indicator	Completion criteria	Relevant BOAs
Ecosystem and land use establishment phase			
Facilitate the natural regeneration of MZ2 areas	Natural regeneration	Monitoring to indicate upward trend in species diversity and density towards analogue sites within the targeted vegetation community	Bobadeen VOA
Re-establish native woodlands / open forest within MZ3 areas	Revegetation	Monitoring to indicate upward trend in species diversity and density towards analogue sites within the targeted vegetation community	Bobadeen VOA
Weeds and feral animal species do not present a risk to rehabilitation	Weed presence	Weed presence does not pose a risk to the establishment of rehabilitation areas	All BOAs
Erosion does not present a safety hazard or compromise the post mining land capability	Erosion and sediment control	Visual monitoring indicates that there is no erosion present that compromises land capability or the intended final land use	All BOAs

Table 6: Subsidence monitoring performance measures from BMP (UCMPL 2024).

PA_08_0184 Performance measures	Monitoring of environmental consequence			Data analysis to assess against performance indicator	Performance indicators	Assessment of performance indicator	Assessment of performance measure
	Site	Parameter	Frequency				
Threatened species, populations, habitat or ecological communities – Negligible impact	Subsidence Floristic Plots within Project Area	Monitoring to identify any deterioration of the vegetation health of communities above mining areas.	In accordance with the Subsidence Monitoring Program (Section 7.21.4). Spring & Autumn Before longwall mining of each panel in Autumn and after longwall mining during the same period for another 2 years	Analysis of vegetative characteristics from each subsidence floristic plot in accordance with the methodology in Section 8.4.1.3.	The vegetation communities located above longwall panels in the subsidence zone are not expected to experience changes in condition different to changes in the corresponding sites located in the transition zone.	An indicator will be considered to have been triggered if: Analysis of subsidence-based flora data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and Analysis of subsidence-based flora data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined areas of the vegetation community. If data analysis indicates the performance indicators have been exceeded, an assessment will be made against the performance measure to determine if the impact is a result of mining and whether any Box Gum Woodland CEEC present above the longwall has exceeded performance measure.	The performance measure is exceeded if investigation shows subsidence has resulted in greater than negligible impacts to the Box Gum Woodland CEEC within mined areas.
	Subsidence Fauna Monitoring Terrestrial sites and Aquatic	Monitoring to identify any deterioration of potential threatened species or associated habitat.	In accordance with the Subsidence Monitoring Program Spring & Autumn	Analysis of threatened species occurrence in accordance with the methodology in Section 8.4.4 & 8.4.6 of the BMP.	No changes in known threatened fauna species occurrence, apart from seasonal variations.	This indicator will be considered to have been exceeded if: Masked Owl: reduction in abundance and/or condition of HBTs at Floristic Based Subsidence (FBS) monitoring sites; and Regent Honeyeater and Swift Parrot: >10% (percentage points) decrease	The performance measure is exceeded if subsidence fauna monitoring indicates the secondary extraction has resulted in greater than negligible

PA_08_0184 Performance measures	Monitoring of environmental consequence			Data analysis to assess against performance indicator	Performance indicators	Assessment of performance indicator	Assessment of performance measure
	Site	Parameter	Frequency				
						in canopy foliage cover of key feed species at FBS monitoring sites. If data analysis indicates the performance indicators have been exceeded, an assessment will be made against the performance measure to determine if the impact is a result of mining.	impacts has occurred to threatened fauna species and associated habitat.
	Cliff lines over mined areas (Targeted Cliff Line Monitoring for micro- bats)	Monitoring to identify decreasing trends in threatened micro-bat species activity levels. Section 8.4.6.6 of the BMP	In accordance with the Subsidence Monitoring Program (Section 8.4.4.6) Before longwall mining of each panel between October to February and after longwall mining during the same period.	Analysis of micro-bat surveys results of potential micro-bat roosting/breeding cave habitats before and after longwall mining.	No change to endangered micro-bat activity levels pre and post mining.	An indicator will be considered to have been triggered if: Analysis of micro-bat monitoring data identifies decreasing activity levels (>10% decline) of endangered micro-bats species during cliff line monitoring within mined areas over two or more monitoring periods outside of seasonal variations. If data analysis indicates the performance indicators have been exceeded, an assessment will be made against the performance measure to determine if the impact is a result of mining.	The performance measure is exceeded if mining is shown to have caused greater than negligible impacts to potential micro-bat cave roosting habitat, based on bat activity levels pre and post mining, confirmed by UCMPL's specialist micro-bat ecologist.

1.2.3. Ulan West EPBC 2015/7511 Area

Development of a monitoring program for, and subsequent, baseline monitoring of Box Gum Woodland condition and extent throughout the Ulan West Underground EPBC Referral Area was undertaken during 2022 (ELA 2023) as required by Condition 3 of EPBC Referral 2015/7511. The monitoring program and baseline monitoring also seeks to track progress against Condition 2 of EPBC Referral 2015/7511. Performance measures outlined in the monitoring program (ELA 2023) are presented in Table 7. This monitoring program is not yet included in the BMP.

Following the completion of undermining, patches surveyed as part of the baseline assessment will be re-surveyed to provide a comparison of pre-mining and post-mining condition and extent of Box Gum Woodland (ELA 2023).

Table 7: Ulan West EPBC 2015/7511 performance measures (per ELA 2023)

Performance Measure	Performance Indicator	Assessment of performance indicator/measure
Negligible impact on Box Gum Woodland.	Box Gum Woodland located above longwall panels in the subsidence zone are not expected to experience changes in condition different to changes in the corresponding sites located in the transition zone.	An indicator will be considered to have been triggered if: Analysis of FBS data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and Analysis of FBS data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined reference sites. The performance measure is exceeded if investigation shows subsidence has resulted in greater than negligible impacts to the Box Gum Woodland within mined areas.
	At the completion of undermining, Box Gum Woodland patches continue to meet the condition thresholds described in the Policy Statement (DEH 2006).	An indicator will be considered to have been triggered if assessment against the condition thresholds within the Policy Statement (DEH 2006) are no longer met, with no negative impacts and/or decline in condition also recorded in Box Gum Woodland reference.

2. Methodology

2.1. Rehabilitation

2.1.1. Floristic monitoring

During 2025, 52 sites were monitored across 13 open cut rehabilitation areas (polygons) (Table 8 and Figure 1). Monitoring was undertaken by ELA ecologists between 3 and 17 September 2025

There are two phases of monitoring methodologies implemented at UCC:

- Initial Establishment Monitoring (IEM) involving rapid assessment of young (0–3-year-old) rehabilitated areas completed at 2 years and 3 years to determine germination success and landform stability, undertaken during the same season. No IEM was completed during 2025 as no polygons are <4 years old.
- Long-term Monitoring (LTM) involving detailed floristic and remote sensing assessment comparison of established rehabilitation areas (>4-year-old).

The completion criteria (Section 1.2.1) includes assessment of monitoring data against analogue site data. Analogue sites used in the assessment are listed in Table 8.

Table 8: Rehabilitation polygons and sites monitored during 2025

Polygon	Final Landuse Domain	Vegetation community	Year	Age	Phase	Sites	Analogue sites
Polygon 1	Domain A: Native Ecosystem	White Box Woodland	2017	8	LTM	1a, 1b, 1c, 1d	BOB11B, BOB4B, BOBC1, BOBC9, BOBE2
Polygon 2	Domain A: Native Ecosystem	Native Woodland	2008	17	LTM	2b, 2c, OC4A	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 3	Domain A: Native Ecosystem	Native Woodland	2018	7	LTM	3a, 3b, OC11A	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 4	Domain A: Native Ecosystem	Native Woodland	2012	13	LTM	4a, 4e, 4d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 5	Domain A: Native Ecosystem	Ironbark Open Forest	2017	8	LTM	5c, 5d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 6	Domain A: Native Ecosystem	Grey Box Woodland	2017	8	LTM	6c, 6d, 6e	RPA16, RPA17, RPA7
Polygon 9	Domain A: Native Ecosystem	Grey Box Woodland	Unknown		LTM	9a, 9b, 9c, OC8A, OC8C	RPA16, RPA17, RPA7
Polygon 10	Domain A: Native Ecosystem	Native Woodland	2008	17	LTM	10a, 10b, OC4C, OC4B	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 11	Domain A: Native Ecosystem	Native Woodland	2014	11	LTM	11b, 11c, 11d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 12 (relinquished)	Domain A: Native Ecosystem	Native Woodland	2008	17	LTM	12a, 12b, OC6A, OC6B, OC7E	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 13 (relinquished)	Domain A: Native Ecosystem	Native Woodland	2000	25	LTM	13a, 13b, 13c, 13d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 14	Domain A: Native Ecosystem	Native Woodland	2000	25	LTM	14a, 14b, 14c, 14d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 16	Domain A: Native Ecosystem	Native Woodland	1997	28	LTM	16a, 16b, 16c	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18
Polygon 17	Domain A: Native Ecosystem	Riparian Woodland	1980's-2018	7-45	LTM	17a, 17b, 17c, 17d	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18

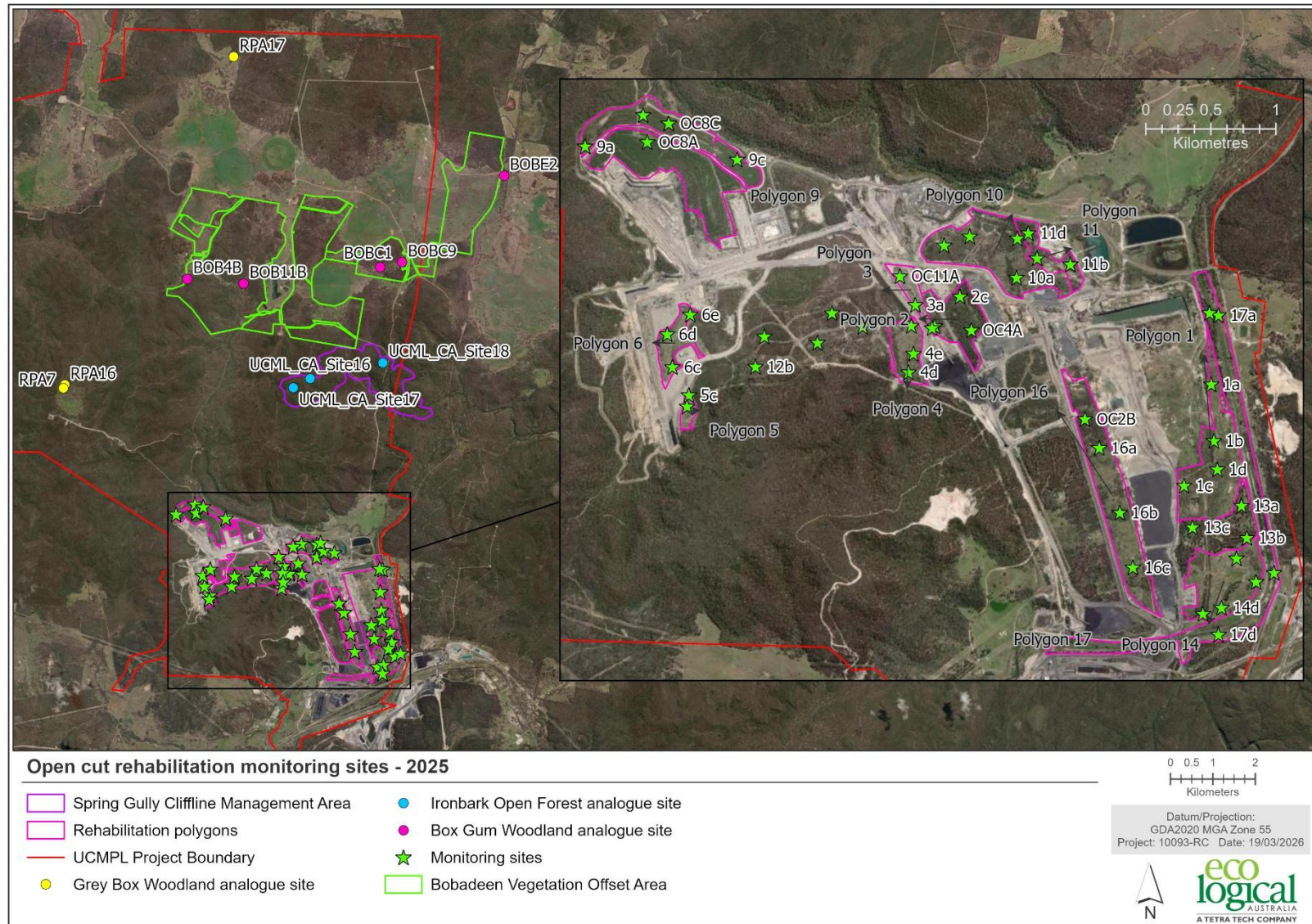


Figure 1: Open cut rehabilitation monitoring sites – 2025

2.1.1.1. Field survey methodology

Each floristic plot consists of a 20 x 50 m quadrat with a nest 20 x 20 m quadrat. Within the 20 x 20 m quadrat, projected foliage cover (from 0.1-10% and then to nearest 5%) and estimated abundance (1-10, 20, 50, 100, 500, 1000 or specified greater number of individuals) for every species present was recorded. The following data was collected within the 20 x 50 m quadrat:

- Photographs - a photograph will be taken along the transect from the start location with the end location positioned in the centre of the photograph; along with a photograph taken from the end location with the start location positioned in the centre of the photograph.
- Litter cover assessed within five (5) 1 x 1 m quadrats.
- Presence of trees in the following stem size classes (5-9 cm, 10-19 cm, 20-29 cm, 30-39 cm, 40-49 cm, >50 cm diameter at breast height (DBH)).
- Point-intersects at every 1 m along the 50 m transect for the following categories: litter, bare soil, rock, cryptogram, native grass, native shrub (<1 m in height), native other (herb, forb, climber, sedge, etc) and exotic species.
- Assessment of projected foliage cover of shrub (>1 m in height) and canopy cover at five (5) m intervals along the 50 m transect.
- Number of hollow bearing trees.
- Length of large woody debris >10 cm diameter.
- Presence of naturally regenerating canopy and midstorey species.
- Estimated stem density of canopy species within the 20 x 50 m quadrat.
- Height range of native plant growth forms (herb, forb, other, shrub, tree).
- Erosion - including the type, width, depth and position (distance from start, m) along the transect. Erosion identified will be rated using the following:
 - 1 – no erosion.
 - 2 – sheet erosion.
 - 3 – rill erosion < 0.3 m deep.
 - 4 – gully erosion > 0.3 m, < 1 m deep.
 - 5 – gully.

General site notes were also recorded at each monitoring site, including:

- Vegetation condition.
- Opportunistic fauna observations or micro-habitats (i.e. nests), including habitat present for threatened species.

2.1.1.2. GCAA Rehabilitation Report Card

Monitoring and assessment against the Rehabilitation Report Card (RRC) was undertaken in accordance with the following documents:

- Development of the Annual Rehabilitation Report Card (NSW) Procedure (Draft version, GCAA 2021a).

- Scientific Background Report NSW Rehabilitation Report Card (Draft version, GCAA 2021b).
- NSW Rehabilitation Data Workbook Template Version 2 Final issued 4 August 2021 (GCAA 2021c).
- NSW Rehabilitation Calculator Version 12 Final issued 4 August 2021 (GCAA 2021d).

The RRC requires a list of 'diagnostic species' for targeted vegetation types within the open cut rehabilitation being Grey Box Woodland and Ironbark Open Forest Complex on Sandstone communities. A list of diagnostic species has been built for each community using data from remnant condition MZ1 monitoring sites at the UCC (Table 9). Species associated with the target vegetation types for relevant PCTs listed in the NSW BioNet Vegetation Classification, have also been included in the diagnostic species list. The target vegetation types correspond to the following Plant Community Types listed in Table 9.

Targeted vegetation types also require calculation of structure and function scores using the Biodiversity Assessment Method (BAM) (DPE 2020), which uses benchmark data derived from plot data within the same vegetation formation and class.

The RRC does not split rehabilitation into the target vegetation types per the RMP, with the only vegetation type available in the RRC being Upper Hunter Native Forest (UHNF). However, reference sites (and PCTs) used to generate the reference structure, function and regeneration attributes required by the RRC are presented in Table 9.

Table 9: Nominated reference sites monitored during 2025 and associated PCTs used in the BAM-C

Target vegetation (RRC)	Target vegetation per Final Landuse	Polygon/s	Reference sites (used to derive spp list)	PCT used in BAM-C for benchmarks
UHNF	Ironbark Open Forest Complex on Sandstone	Polygon 5	UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18	PCT 3753: Dunedoo Sandstone Ironbark Forest
	Grey Box Woodland	Polygons 6 and 9	RPA16, RPA17	PCT 3532: Western Hunter Ironbark-Box Forest
	White Box Woodland	Polygon 1	BOB11B, BOB4B, BOBC1, BOBC9, BOBE2	PCT 483: Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
	Native Woodland	Polygons 2, 3, 4, 10, 11, 12, 13, 14, 16, 17	No reference sites required	Not applicable

2.1.1.3. Assessment against RMP Completion Criteria

The completion criteria provided in the RMP differ from target ranges for monitoring attributes provided in the RRC. As such, assessment against the RMP completion criteria is reported on separately within this report.

Flora species assemblages for the target native vegetation communities as per the '*Rehabilitation areas contain flora species assemblages characteristic of each Growth Form for the target native vegetation communities*' completion criteria has been developed based on species lists built from remnant Ironbark Open Forest Complex, Grey Box Woodland, and White Box Woodland Community sites, at the UCC listed in Table 9 above (i.e. the same as the diagnostic species used in the RRC).

2.1.2. Rehabilitation walkover

Rehabilitation walkovers were undertaken across the polygons listed in Table 8 above. While covering the area on foot, opportunistic assessments and identification of the following were recorded:

- Erosion features and processes – including an assessment of severity using the following criteria:
 - Sheet erosion or rills <100 mm.
 - Rills 100mm - <300 mm.
 - Gullies 300mm - <500 mm.
 - Gullies 500mm - <1 m.
 - Gullies >1m in depth or severe tunnel erosion.
- Stability and functioning of erosion and sediment control and water management structures (including potential drainage issues).
- Continuous areas of recalcitrant bare ground >400 m² in size, and collection of soil samples (where required).
- Presence of Priority Weed species listed under the Local Land Services *Central Tablelands Regional Strategic Weed Management Plan 2023 – 2027* (CTRSWMP; LLS 2022), other problematic weed species and severity of infestations.
- Evidence of vegetation health issues (e.g., diseases, predation, poor growth rates, etc.).
- Evidence of spontaneous combustion processes and associated impacts.
- Presence of vertebrate pests and evidence/severity of associated impacts.
- Presence, type, and location of constructed artificial habitat features.

2.2. Biodiversity Offset Areas

2.2.1. Floristic monitoring

Floristic monitoring within the BOAs is undertaken in accordance with Table 8.1 of the BMP (Table 10, UCMPL 2024) and any relevant Conservation Agreements. The location of monitoring sites is provided in Figure 2. Floristic monitoring was undertaken by ELA ecologists between the 14 and 30 May 2025 and 3 and 17 September 2025 across sites listed in Table 10.

Table 10: Floristic plot methodology per Table 8.1 of the BMP (UCMPL 2024)

Attribute	Survey requirements
Floristic Composition and Structure 20x20 m plot	
Growth form	Growth form for each recorded species: (T) Tree; (S) Shrub; (G) Grass and grass-like; (F) Forb; (E) Fern; (O) Other
Cover	Estimate of the appropriate cover measure for each recorded species; from 0.1–10 and then to the nearest 5%
Abundance	A relative measure of the number of individuals or shoots of a species within the plot, using the following intervals: 1-10, 20, 50, 100, 500, 1000 or specify a number greater than 1000 if required
Function 20x50 m plot	
50 m biometric transect	At 1 m intervals recording vegetative ground cover (Native Ground Cover Grass; Native Ground Cover Shrub; Native Ground Cover Other; Exotic Ground Cover) or non-vegetative ground cover (Litter; Bare Soil / Rock; Cryptogam) At 5 m intervals recording Native and Exotic Overstorey Cover and Native and Exotic Midstorey Cover
Tree stem size classes (DBH)	<5 cm, 5-9 cm, 10-19 cm, 20-29 cm, 30-49 cm, 50-79 cm and 80+ cm

Attribute	Survey requirements
Number of large trees	>50 cm diameter at breast height (DBH)
Regeneration (<5cm DBH)	Note each tree species actively regenerating
Fallen logs (m)	The total length of fallen logs in metres greater than 10 cm in diameter, that is dead and entirely or partly on the ground
Litter cover quadrats	Five (5) 1 m x 1 m litter quadrats at 10 m intervals on alternating sides of the transect, recording cover estimates (%) of litter, bare soil, rock and cryptogam
Number of trees with hollows	The number of both living and dead trees with hollows

Table 11: Biodiversity offset area sites monitored during 2024

Season	Location	MZ	Site	Method
Autumn	Bobadeen VOA	MZ1	Floristic plots: BOB4B, BOBC1, BOBC3, BOBC4, UCML_CA_Site10, UCML_CA_Site11, UCML_CA_Site13, UCML_CA_Site53, UCML_CA_Site6, UCML_CA_Site7, BOBE3, Biodiversity Report Card: ULN-BOB-RMN-0479-06, ULN-BOB-RMN-0479-05	Floristic plots: As specified by the <i>Bobadeen Vegetation Offset Area Conservation Agreement</i> (UCMPL 2019b) and the BMP (UCMPL 2024)
		MZ2	Floristic plots: BOB9, BOBC10, BOBC4, BOBE1, BOBE11, BOBE13, BOB18, BOB22, Biodiversity Report Card: ULN-BOB-RGN-0478-04, ULN-BOB-RGN-0478-03, ULN-BOB-RGN-0478-02 Natural regeneration transects: BOBCT1, BOBCT2, BOBCT3, BOBET1, BOBET2, BOBET3	
		MZ3	Floristic plots: BOB10B, BOB12, BOB17, BOB19, BOBC11, BOBC8B, BOBE6, BOBE7A, BOBE8, BOBE9, UCML_CA_Site9, BOB23 Biodiversity Report Card ULN-BOB-RVG-0623-16-02, ULN-BOB-RVG-0623-16-03	
	Highett Road <i>Acacia ausfeldii</i> Management Area	NA	Floristic plots: ACQ1, ACQ2, UCML_CA_Site51, UCML_CA_Site52	As specified by the <i>Highett Road Acacia ausfeldii Management Area Conservation Agreement</i> (UCMPL 2019c) and the BMP (UCMPL 2024)
	Brokenback Conservation Area – Area 1	NA	Floristic plots: UCML_CA_Site24, UCML_CA_Site25, UCML_CA_Site28, UCML_CA_Site29, UCML_CA_Site30	As specified by the <i>Brokenback Conservation Area – Area 1 Conservation Agreement</i> (UCMPL 2019d) and the BMP (UCMPL 2024)
	Brokenback Conservation Area – Area 2	NA	Floristic plots: UCML_CA_Site1, UCML_CA_Site2, UCML_CA_Site3, UCML_CA_Site3, UCML_CA_Site5, UCML_CA_Site23, BB1	As specified by the <i>Brokenback Conservation Area – Area 2 Conservation Agreement</i> (UCMPL 2019e) and the BMP (UCMPL 2024)
Spring	Bobadeen West Offset Area	NA	Photo point monitoring: P1, P3, P7	As specified by the Biodiversity Stewardship Agreement (NSW Government 2023)
	Salinity Offset Area	MZ2	Floristic plots: ALIN1, ALIN2, RPA17, BOB9, BOB10, UCML_CA_Site7, UCML_CA_Site9, UCML_CA_Site10, UCML_CA_Site11, BOB11, BOB4B, BOB18, BOB17, BOB15B, BOB22, UCML_CA_Site53, BOB21, BOB10B, BOB20, BOB12, BOB19 Natural regeneration transects: SOA1, SOA2, SOA3, SOA4, SOA5, SOA6	As specified by the BMP (UCMPL 2024)
	Spring Gully Cliffline Management Area	NA	Floristic plots: UCML_CA_Site14, UCML_CA_Site15, UCML_CA_Site16, UCML_CA_Site17, UCML_CA_Site18, UCML_CA_Site19, UCML_CA_Site20, SG1	As specified by the <i>Spring Gully Cliffline Management Area Conservation Agreement</i> (UCMPL 2019f) and the BMP (UCMPL 2024).

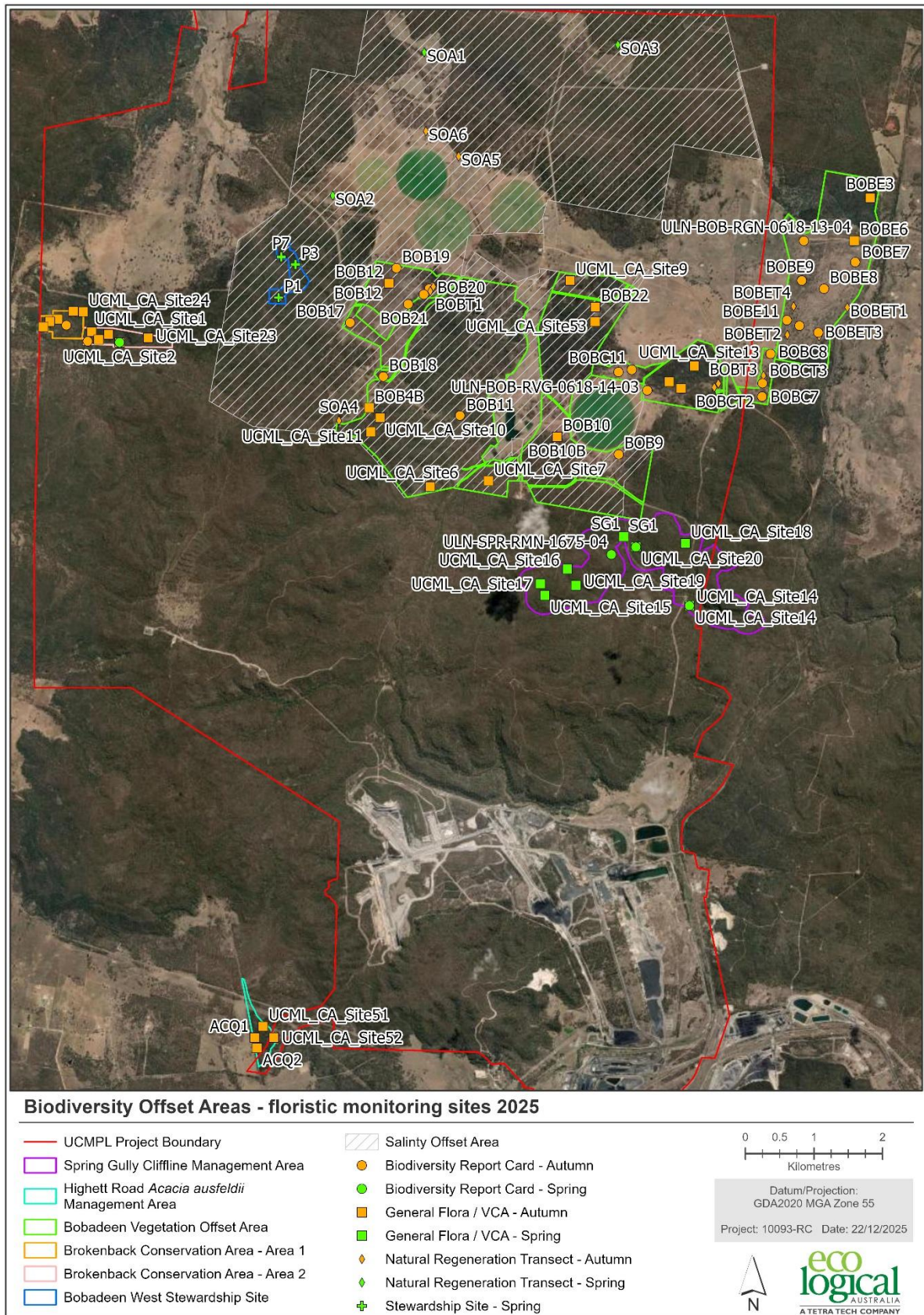


Figure 2: Biodiversity Offset Areas –floristic monitoring sites 2025

2.2.2. Box Gum Woodland condition assessments

Grassy Woodland areas throughout UCMPL are associated with the Threatened Ecological Community (TEC) White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands (hereafter referred to as Box Gum Woodland) which is listed under the *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act.

In accordance with Section 5.4 of the BMP (UCMPL 2024), Box Gum Woodland within Domain F (Bobadeen VOA) are monitored for improvement of the ecological community's condition. The condition assessment has been undertaken for each MZ mapped within Bobadeen VOA. Table 5.2 of the BMP (UCMPL 2024) presents condition class criteria, which are summarised in Table 12.

Table 12: Condition class criteria (UCMPL 2024)

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/ seeding/ management intervention
Dominant tree species	Eucalyptus		Eucalyptus		Eucalyptus	
Age-structure	Medium sized woodland trees and regeneration present		Trees reaching maturity		Immature trees	
Overstorey foliage cover	Open Canopy	Few trees in landscape	Open canopy	Few trees in landscape	Open canopy	Few trees in landscape
Shrub cover	Shrub layer scattered or patchy across offset area <30% across offset area	Shrub layer scattered or patchy across offset area <30% across offset area	Shrub layer scattered or patchy across offset area <30% across offset area			
Perennial exotic species	Very low (<10%) presence of perennial exotic species in groundcover					>50% presence of perennial exotic species in groundcover
Percentage of native species perennial cover	Native Perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Presence of native perennial groundcover	Presence of native perennial groundcover
Understorey composition and cover	Native understorey of comprising tussock native grasses dominant 12 native, non-grass understorey species (such as shrubs,	Native understorey comprising of native tussock grasses dominant 12 native non-grass understorey species (such as forbs,	Native understorey comprising of native tussock grasses dominant	Native understorey comprising of native tussock grasses dominant	Native understorey comprising of native tussock grasses dominant	

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/ seeding/ management intervention
	forbs, and ferns sedges) At least one of the understorey species should be an important species (e.g. grazing- sensitive, regionally significant or uncommon species; such as Kangaroo Grass or orchids)	shrubs, ferns and sedges) At least one of the understorey species should be an important species (e.g. grazing sensitive regionally significant or uncommon species; such as Kangaroo Grass)				

2.2.3. Natural regeneration

Natural regeneration monitoring transects between 100 m to 200 m in length are established in MZ2 to monitor and spatially map the change in density and extent of natural regeneration within the BOAs and SOAs. Natural regeneration transects are monitored once every five (5) years in accordance with the BMP (UCMPL 2024).

All individual occurrences of canopy species regeneration within 25 m on either side of the transect will be recorded using a handheld GPS, and the species recorded. Regeneration is stratified into the following two categories:

- <5cm DBH
- 5-15 cm DBH

A drive over / fly over will be undertaken every five years coinciding with the year of monitoring of the natural regeneration transects in each area to monitor and record natural regeneration on a larger scale.

A total of 12 natural regeneration transects were monitored during 2025 (Table 11, Figure 2). A drive over of Bobadeen VOA and the SOA was completed by ELA ecologists on 9 July 2025.

2.3. Floristic based subsidence monitoring

Floristic based subsidence (FBS) monitoring was undertaken along six longwall panels during 2025 in autumn and spring (Table 13; Figure 3).

Monitoring commences one year (two seasons) prior to underground mining and continues for at least two years after mining is completed above each longwall (LW) (UCMPL 2024). Sites are paired, with

one site set up within the 'transition zone' and one site located within the 'maximum subsidence zone':

- Transition zone – maximum change in slope. Occurs from the centre of the longwall pillar to approximately 75 m into the panel (ELA 2015).
- Longwall zone – maximum predicted subsidence. Located within the centre of the longwall panel and varies in width, depending on the width of the panel (ELA 2015).

The following data was collected from each site:

- Projected foliage cover (in 5% increments) of upper canopy.
- Canopy health and defoliation (all in 5% increments):
 - Percentage of epicormic foliage in relation to total tree foliage.
 - Proportion of primary branches within canopy that have died back.
 - Percentage of current canopy foliage as a proportion of the estimated canopy foliage volume/potential canopy.
 - Percentage of canopy foliage discoloured.
- Photograph of the canopy (camera placed on top of the star picket, facing up); photograph facing due north, south, east and west from the north-west star picket.

Any evidence of subsidence opportunistically observed was also recorded with a handheld GPS.

Table 13: FBS sites monitored during 2025

Mine	LW	Mining commenced	Monitoring commenced	Estimated mining completion date [^]	Estimated monitoring completion [^]	Sites	Season
Ulan West	LW 7	July 2022	Autumn 2021	March 2024	Autumn 2026	UWLW7 L1-L10	Autumn and spring
	LW 8	May 2024	Autumn 2023	October 2025	Spring 2027	UWLW8 L1-L10	Autumn and spring
	LW 9	May 2026 ^{^^}	Spring 2024	June 2027	Spring 2029	UWLW9 L1-L10	Autumn and spring
Ulan Underground	LW West 8	December 2025	Autumn 2024	April 2027	Spring 2029	UGLWW8 L1-L10	Autumn and spring
	LW 30	2022	Autumn 2021	October 2023	Autumn 2026	UGLW30 L1-L10	Autumn and spring
	LW 31	October 2023	Autumn 2023	March 2025	Autumn 2027	UGLW31 L1-L10	Autumn and spring

[^] based on period progress plots dated 24 April 2024 (UW) and 6 January 2025 (UG).

^{^^} pers coms Amanda Sales, March 2026

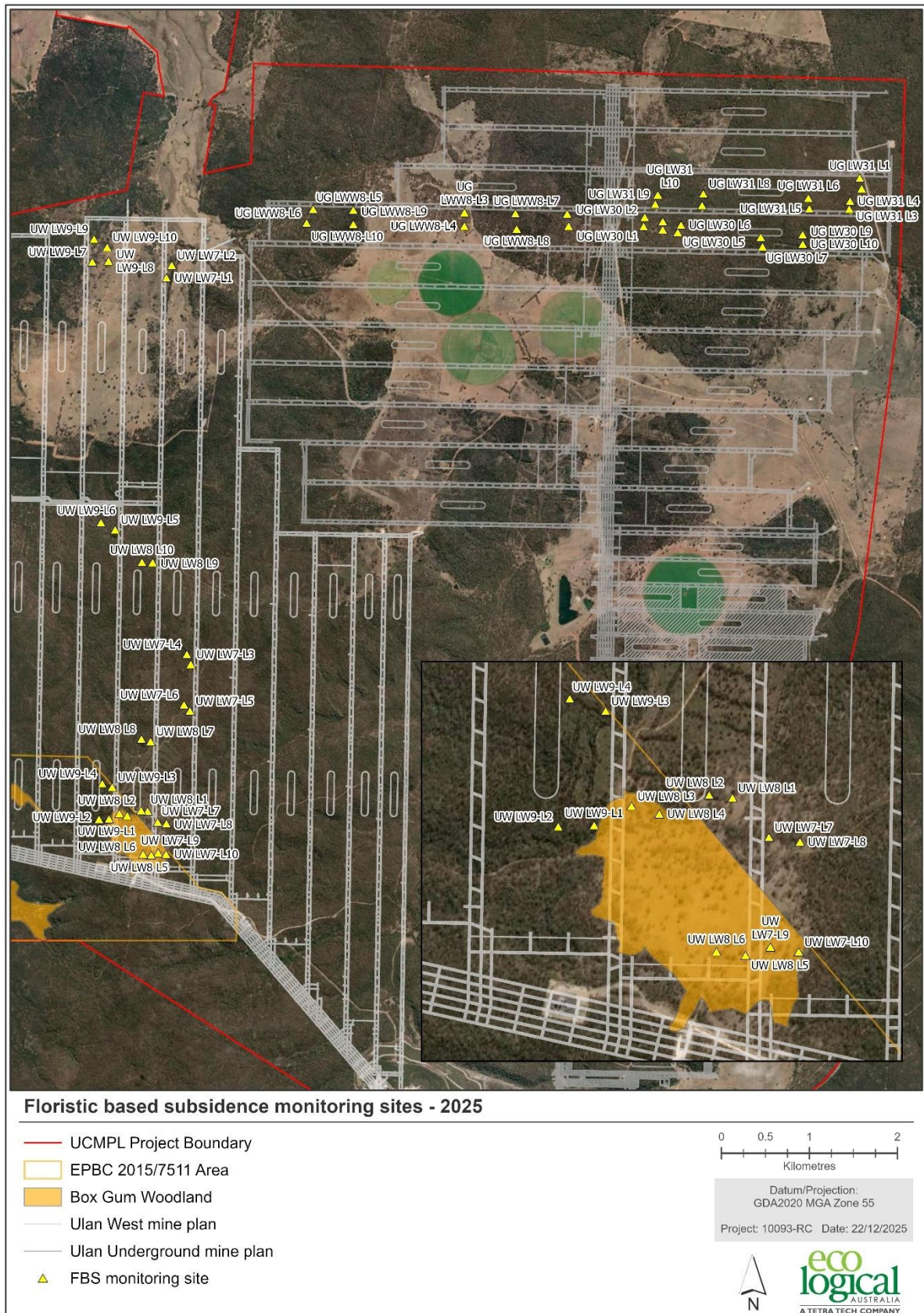


Figure 3: Floristic based subsidence monitoring sites - 2025

2.4. Ulan West EPBC 2015/7511 Area monitoring

2.4.1. Floristic based subsidence

The EPBC 2015/7411 referral area contains ten FBS monitoring sites (Table 14, Figure 3). Six of these sites are located within patches mapped as Box Gum Woodland during baseline assessments (ELA 2023).

Areas of UW LW10, UW LW11 and UW LW12 are also within the EPBC 2015/7411 referral area. Sites will be established on these longwalls once mining progresses.

Monitoring in the EPBC 2015/7411 referral area is consistent with the FBS methodology outlined in Section 2.3.

Table 14: EPBC 2015/7511 referral area monitoring sites and corresponding vegetation

Longwall	Site	Vegetation
UW LW7	L9	Box Gum Woodland
	L10	Box Gum Woodland
UW LW8	L3	Box Gum Woodland
	L4	Box Gum Woodland
	L5	Box Gum Woodland
	L6	Box Gum Woodland
UW LW9	L1	Dry Sclerophyll Forest
	L2	Dry Sclerophyll Forest
	L3	Dry Sclerophyll Forest
	L4	Dry Sclerophyll Forest

2.4.2. Box Gum Woodland

Field surveys to determine the baseline condition of Box Gum Woodland CEEC were undertaken across three separate patches of Box Gum Woodland, within the EPBC referral area during 2022 (ELA 2023). The EPBC Act Policy Statement (DEH 2006) defines a patch as a continuous area containing the ecological community, and the patch is the larger of:

- An area that contains five or more trees in which no tree is > 75 m from another tree, or
- The area over which the understorey is predominately native.

The three (3) patches correspond to the mapped extent of two (2) Plant Community Types (PCTs) mapped by Umwelt (2009) and adapted by ELA (2018), within the EPBC referral area:

- PCT 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion (Patch B and Patch C)
- PCT 618 - White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley (Patch A).

In order to meet Condition 3 of EPBC ref 2015/7511, a pre-mining assessment of the condition and extent of Box Gum Woodland CEEC within Patch A, Patch B and Patch C was undertaken by ELA during 2022. Patches of Box Gum Woodland were assessed in accordance with the following literature:

- Department of the Environment and Heritage (DEH) (2006) *EPBC Act Policy Statement White Box – Yellow Box – Blakely’s Red Gum grassy woodlands and derived native grasslands* (hereafter referred to as the Policy Statement).
- *Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Ecological Communities under the EPBC Act* (TSSC 2006) (hereafter referred to as the Listing Advice).
- Department of Environment, Climate Change and Water NSW (2010) *National Recovery Plan. White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland – a critically endangered ecological community* (hereafter referred to as the Recovery Plan).

Box Gum Woodland assessments in accordance with the Policy Statement (DEH 2006) and the above methodology were undertaken for Patch A (UW LW7 and UW LW8 within EPBC 2015/7511 Area) to determine if the patch continues to meet the condition thresholds described in the Policy Statement (DEH 2006) post-mining. Condition assessments were undertaken during March 2025, aligning with the recommended survey timing provided in the Policy Statement (DEH 2006).

3. Results and discussion

3.1. Rehabilitation

3.1.1. Species composition

3.1.1.1. *White Box Woodland*

During 2025, at least 50% of the native species recorded within all White Box Woodland sites are characteristic of the target community (Figure 4).

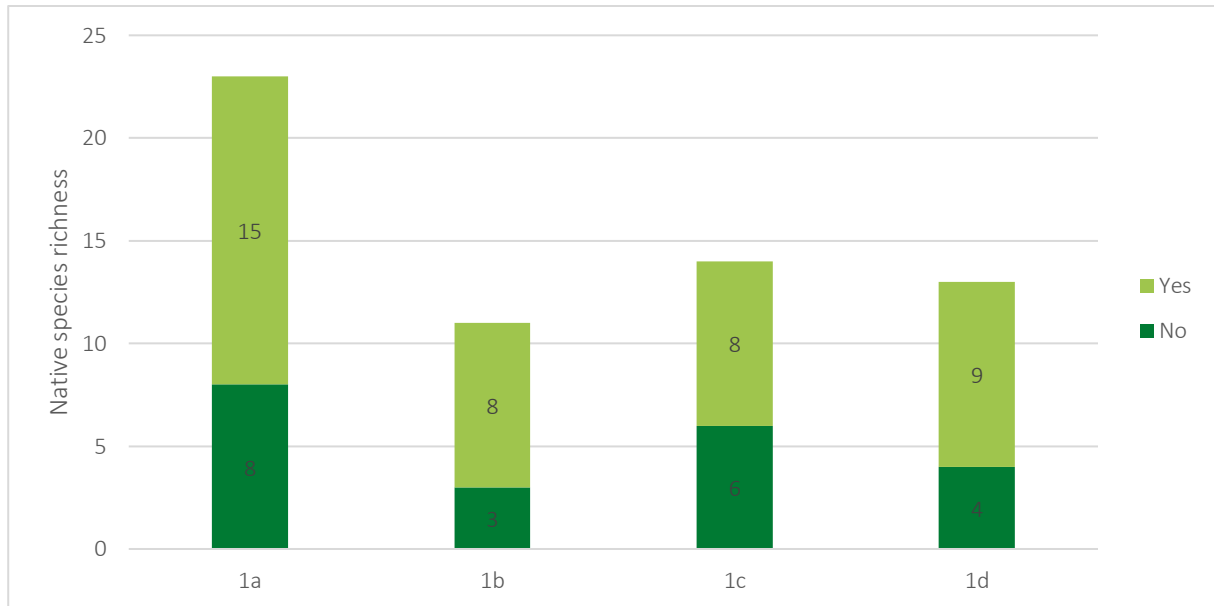


Figure 4: Species characteristic of White Box Woodland (Yes) and not characteristic (No) recorded within White Box Woodland monitoring sites

3.1.1.2. *Native woodland*

During 2025, at least 50% of the native species recorded within all Native Woodland sites, are characteristic of the target community (Figure 5 and Figure 6).

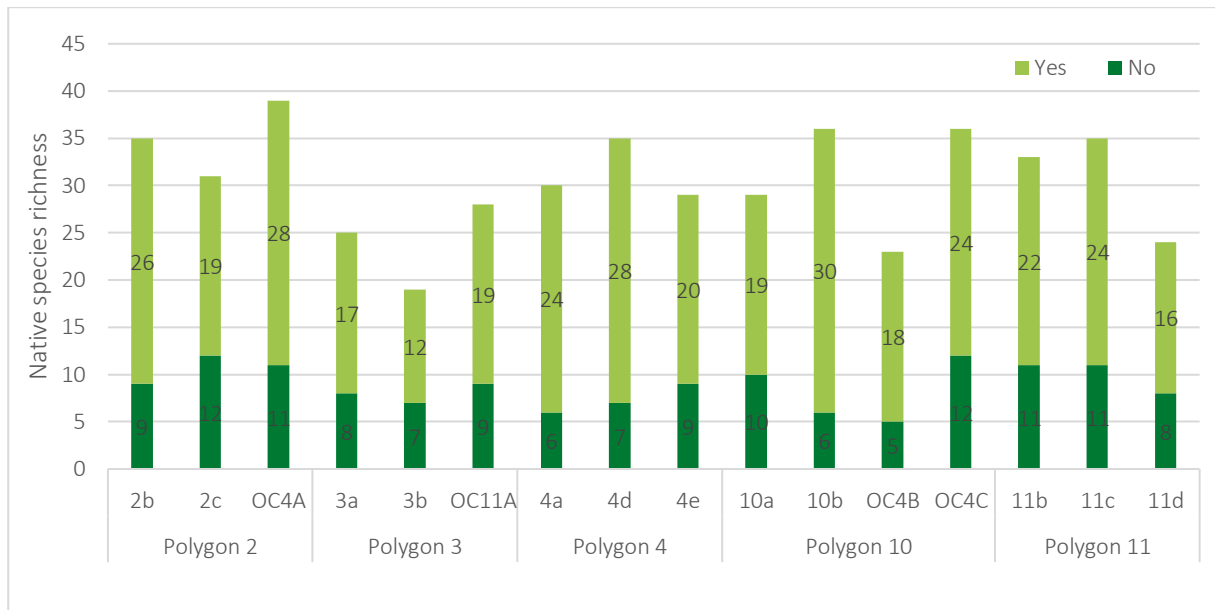


Figure 5: Species characteristic of Native Woodland (Yes) and not characteristic (No) recorded within Native Woodland monitoring sites, Polygons 2, 3, 4, 10 and 11

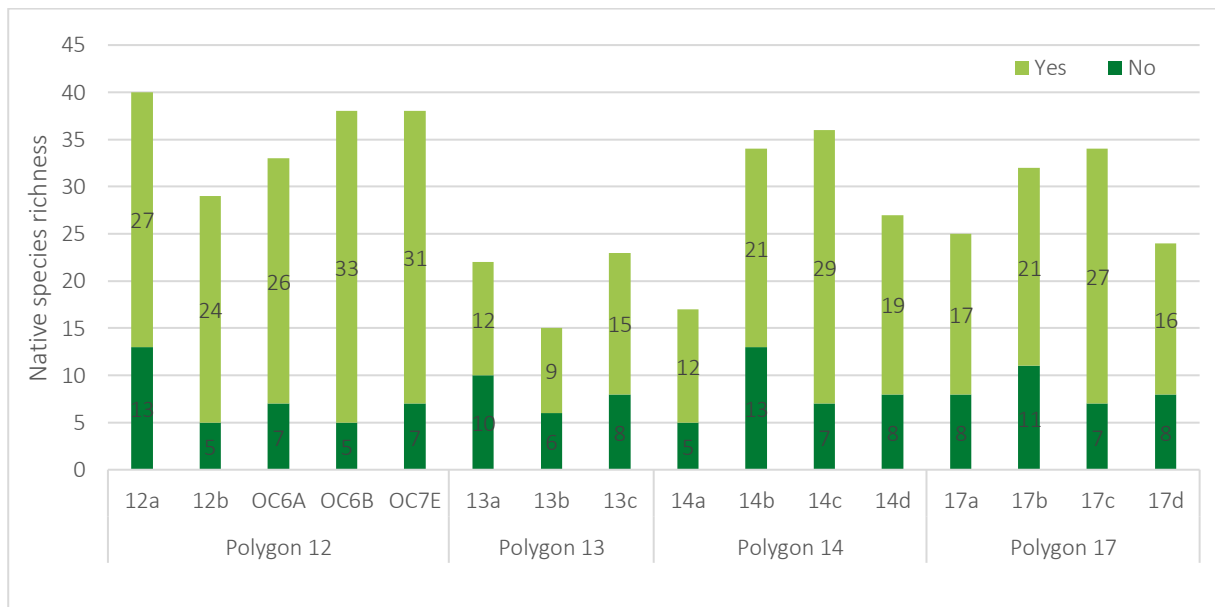


Figure 6: Species characteristic of Native Woodland (Yes) and not characteristic (No) recorded within Native Woodland monitoring sites, Polygons 12, 13, 14 and 17

During 2025, at least 50% of the native species recorded within all Ironbark Open Forest sites are characteristic of the target community (Figure 7).

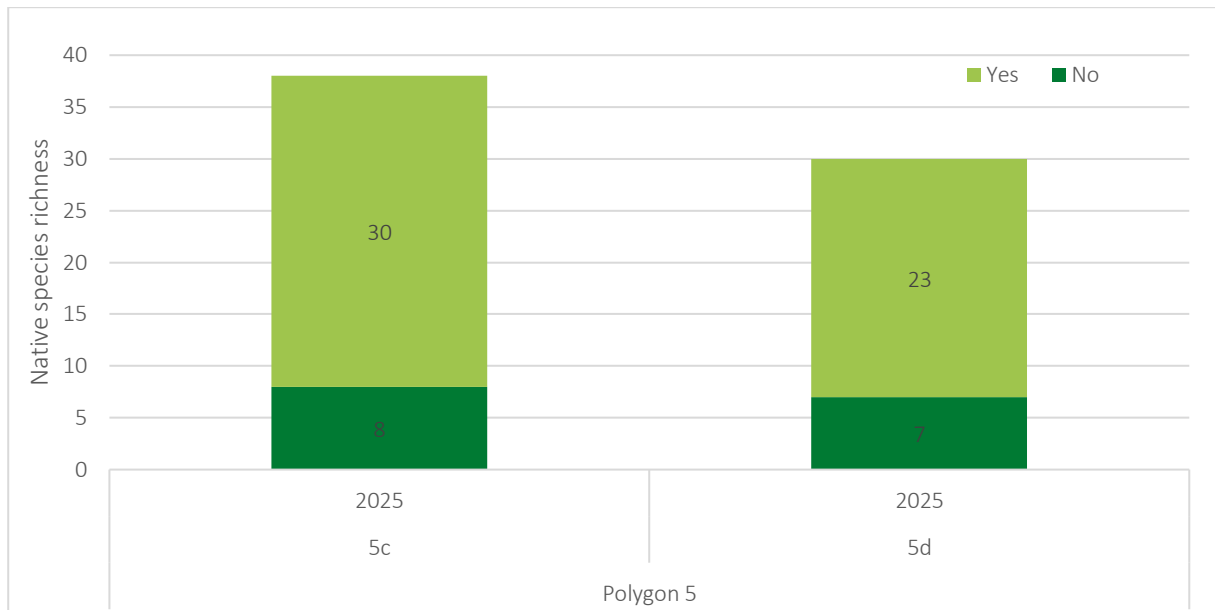


Figure 7: Species characteristic of Ironbark Open Forest (Yes) and not characteristic (No) recorded within Ironbark Open Forest monitoring sites

3.1.1.3. Grey Box Woodland

During 2025, at least 50% of the native species recorded within all Grey Box Woodland sites are characteristic of the target community, except 6c and 9a (Figure 8). These sites both recorded 48% characteristic species.

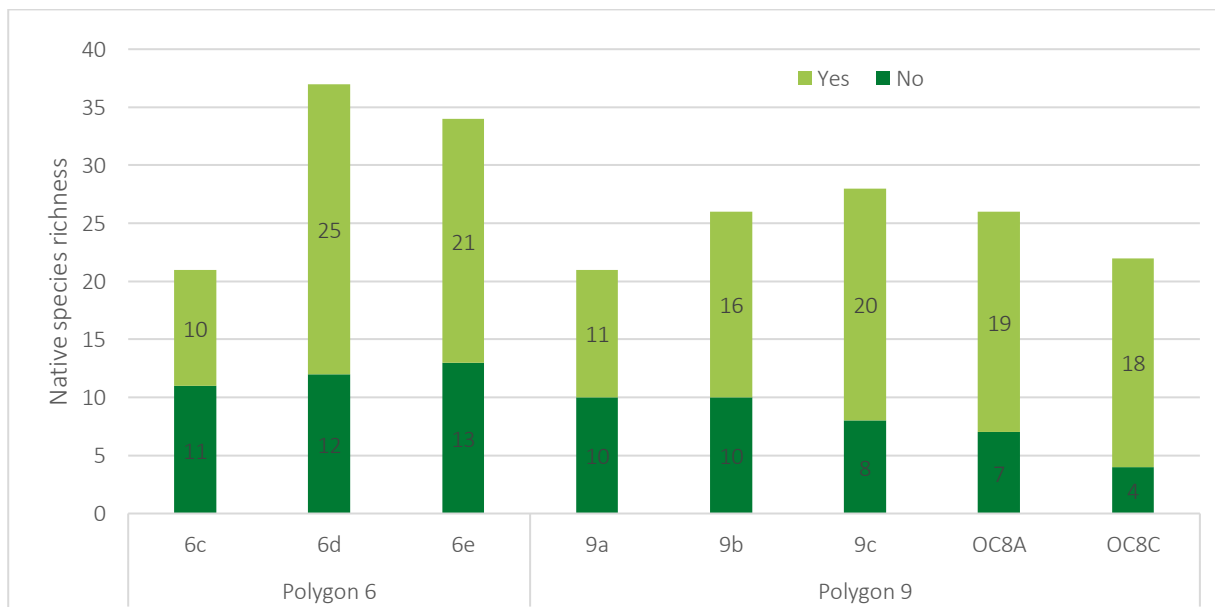


Figure 8: Species characteristic of Grey Box Woodland (Yes) and not characteristic (No) recorded within Grey Box Woodland monitoring sites

3.1.2. Vegetation structure

3.1.2.1. White Box Woodland

Average pfc of the tree and forb growth forms during 2025 was within the long-term range recorded at analogue sites (Figure 9 and Figure 15). Average abundance of the tree, forb and fern growth forms during 2025 was within the long-term range recorded at analogue sites (Figure 10, Figure 16 and Figure 18).

Average shrub pfc was slightly lower than the analogue minimum value (0.2% in 2025), however, has increased slightly compared to previous years (0.1%) indicating a trend towards analogue condition (Figure 11). Average shrub abundance was lower than the analogue minimum value and has fluctuated across monitoring years (Figure 12). Shrub abundance is expected to increase as rehabilitation matures.

Grass & grasslike pfc was slightly lower than the analogue minimum value in 2025 and was within the analogue long-term range in previous years (Figure 13). A decrease in grass & grasslike pfc in 2025 is attributed to drier climatic conditions. Grass & grasslike abundance was slightly lower than the analogue minimum value in 2025 and was within the analogue long-term range in previous years. A decrease in grass & grasslike abundance in 2025 is attributed to drier climatic conditions (Figure 14).

Fern and other pfc was lower than the analogue minimum in 2025, however, both growth forms have increased slightly since previous monitoring periods indicating a trend towards analogue condition (Figure 17 and Figure 19).

The other growth form was detected for the first time within Polygon 1 during 2025, indicating a trend towards analogue condition (Figure 20).

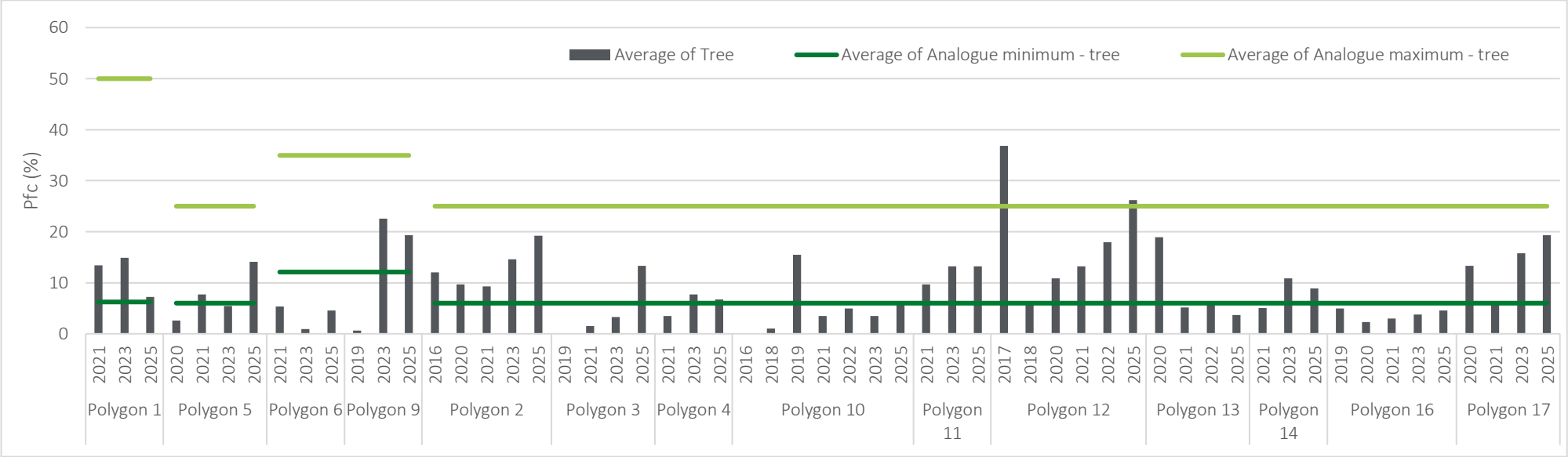


Figure 9: Average tree pfc compared to analogue range

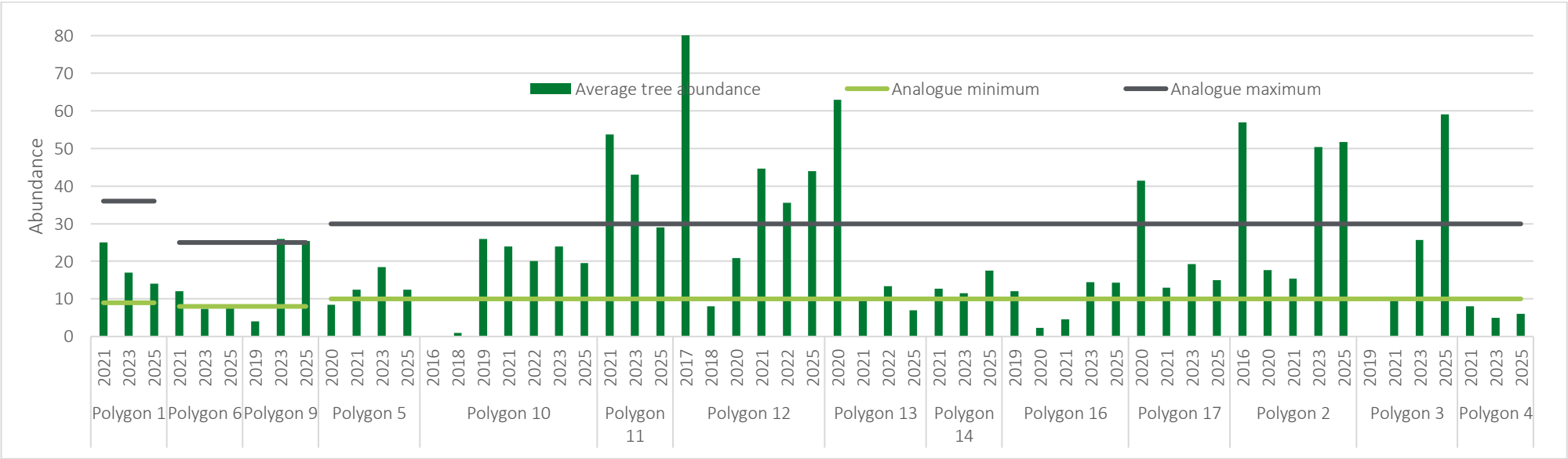


Figure 10: Average tree abundance compared to analogue range

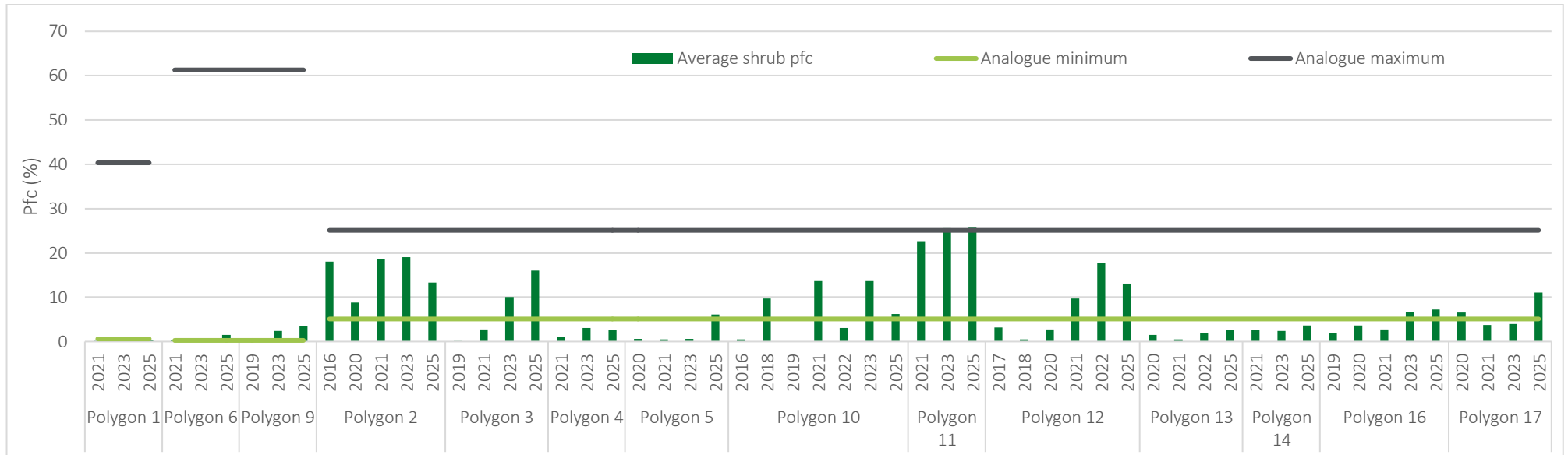


Figure 11: Average shrub pfc compared to analogue range

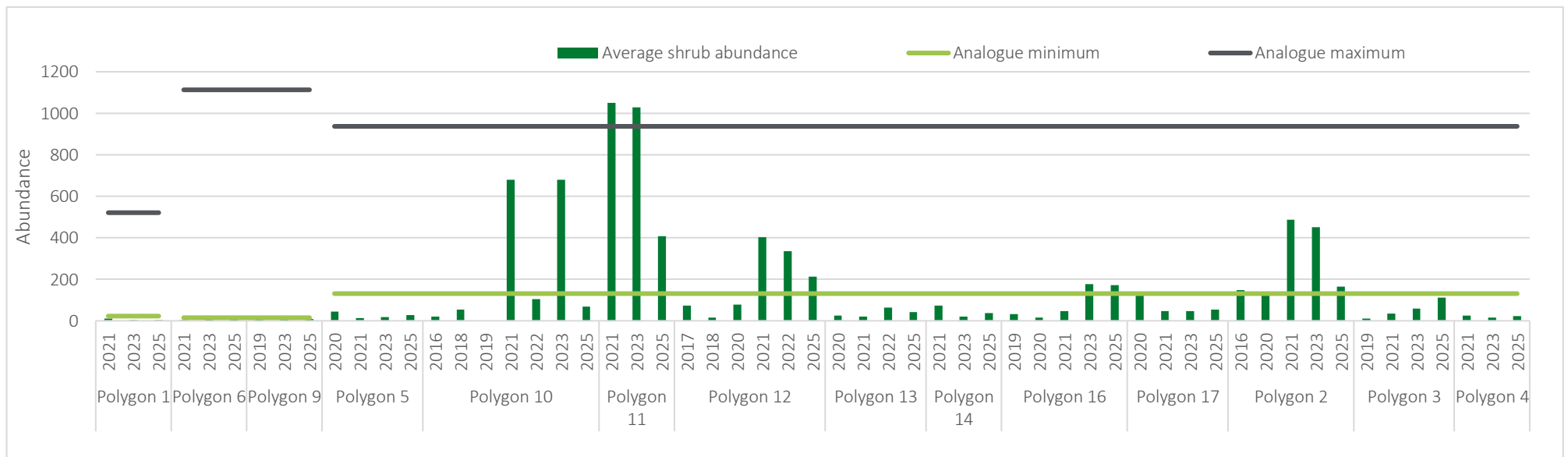


Figure 12: Average shrub abundance compared to analogue range

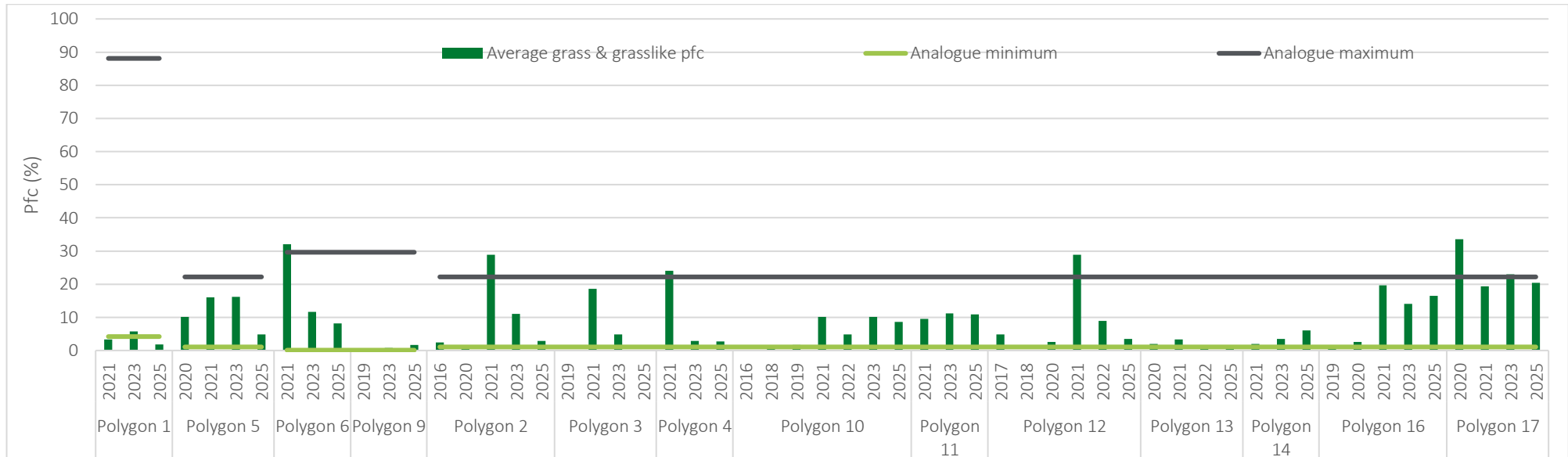


Figure 13: Average grass & grasslike pfc compared to analogue range

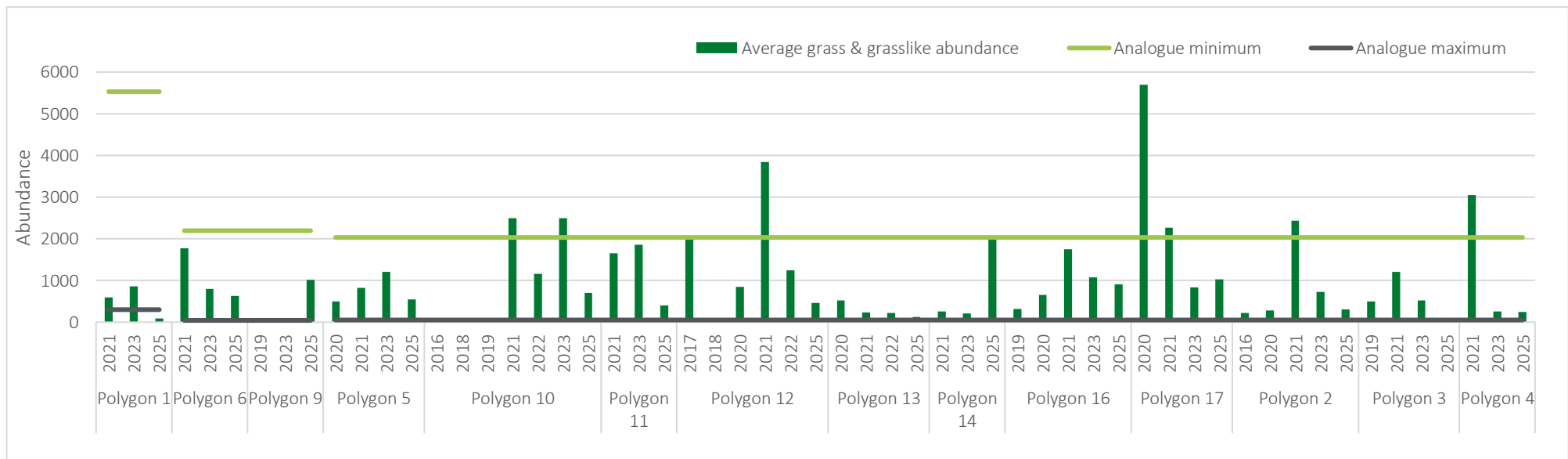


Figure 14: Average grass & grasslike abundance compared to analogue range

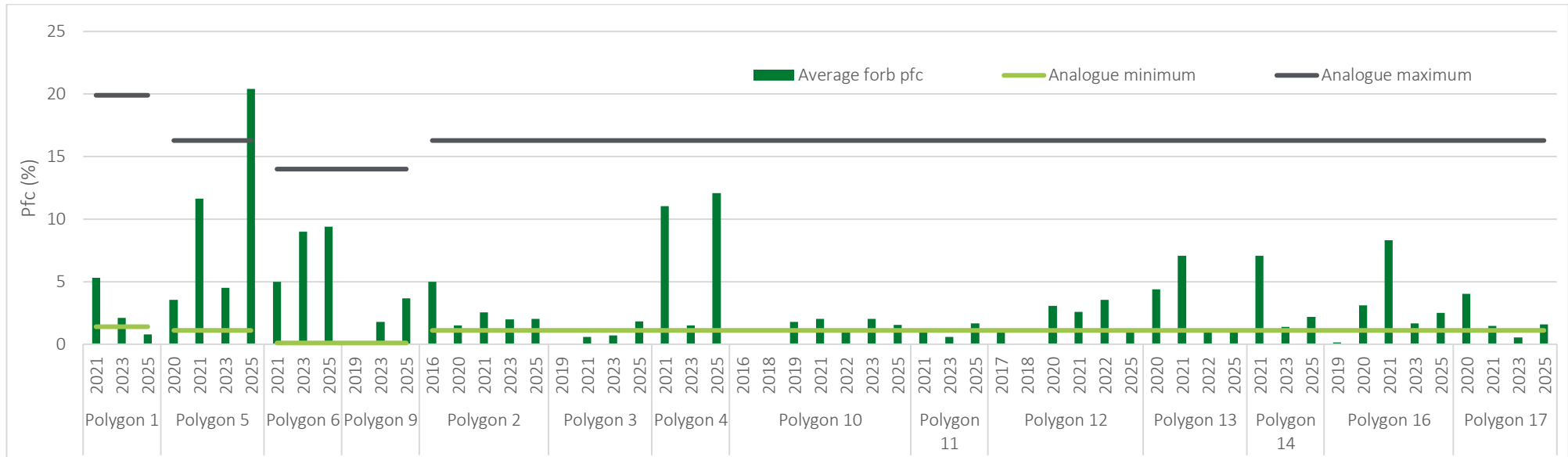


Figure 15: Average forb pfc compared to analogue range

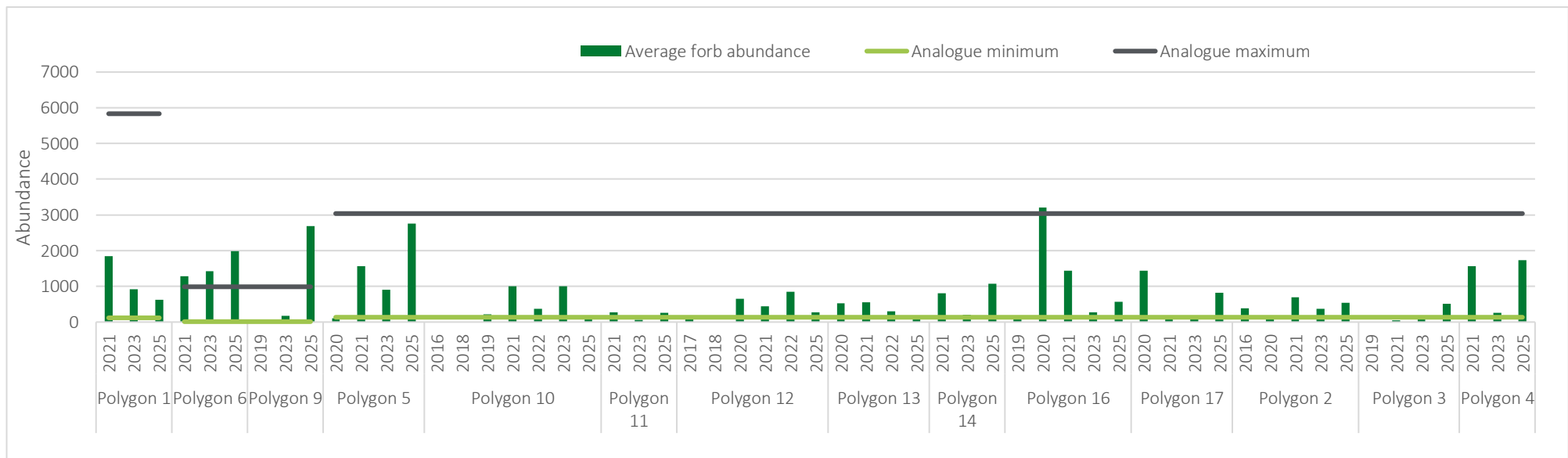


Figure 16: Average forb abundance compared to analogue range

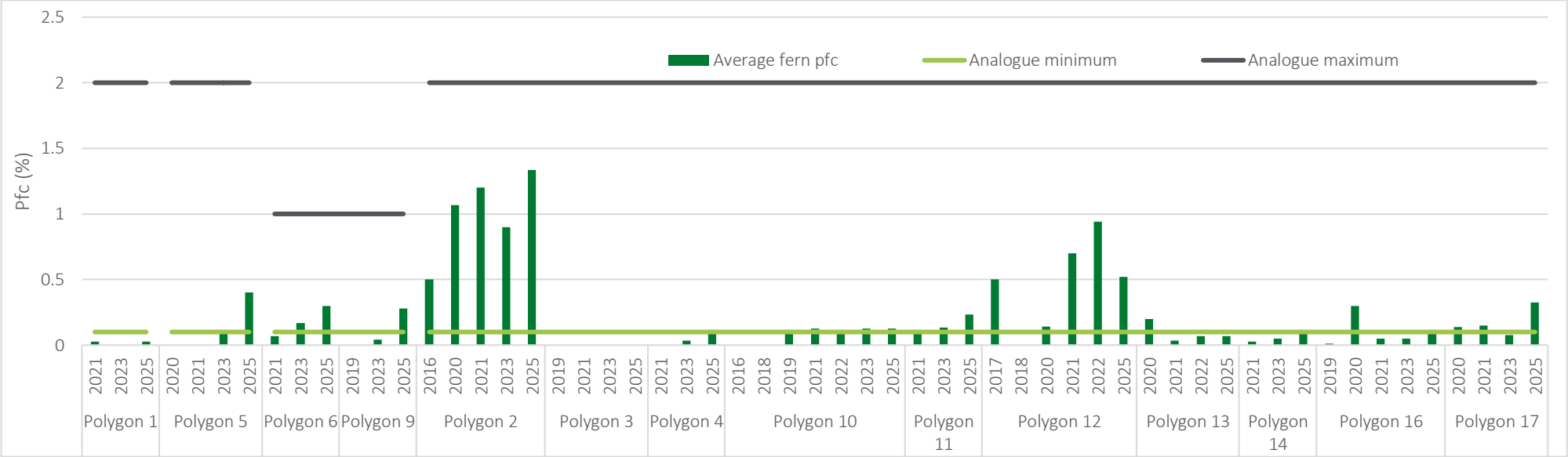


Figure 17: Average fern pfc compared to analogue range

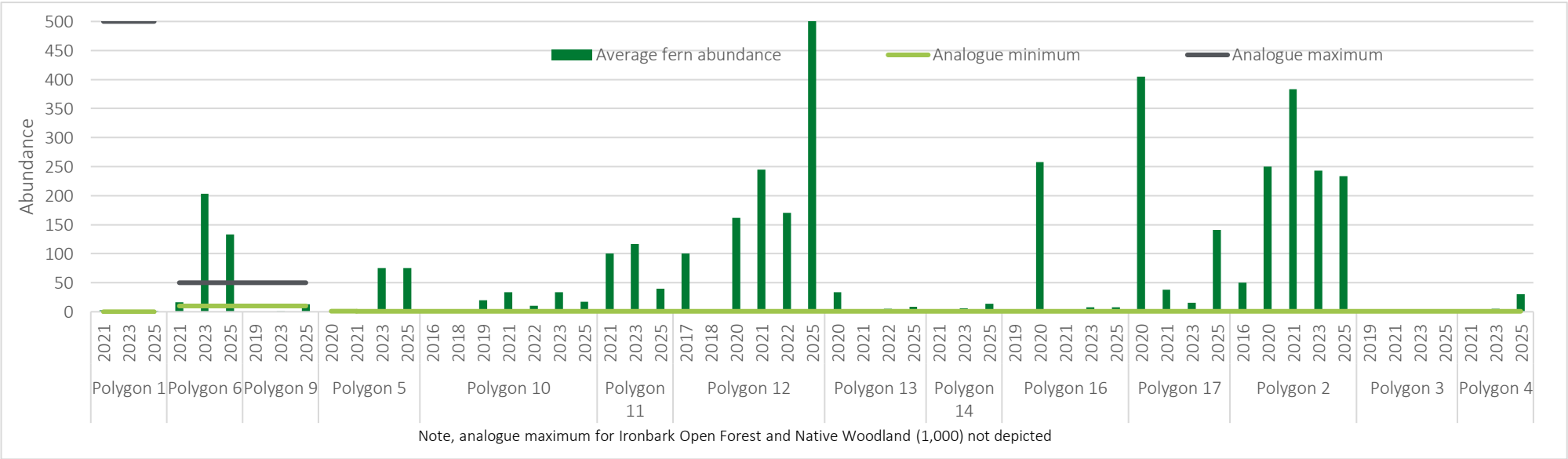


Figure 18: Average fern abundance compared to analogue range

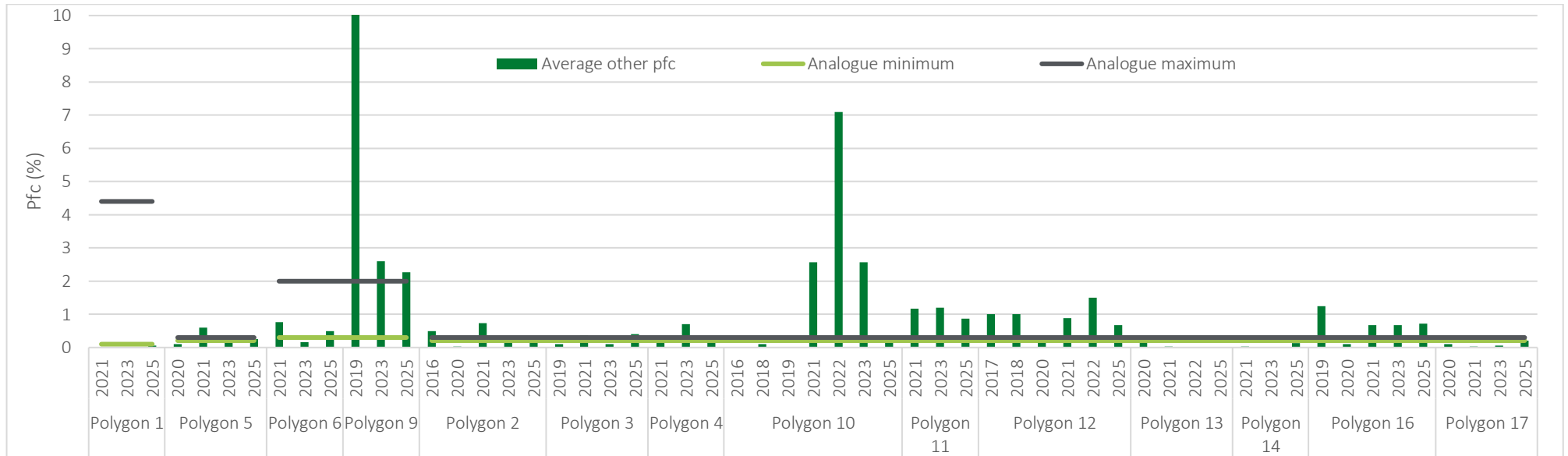


Figure 19: Average other pfc compared to analogue range

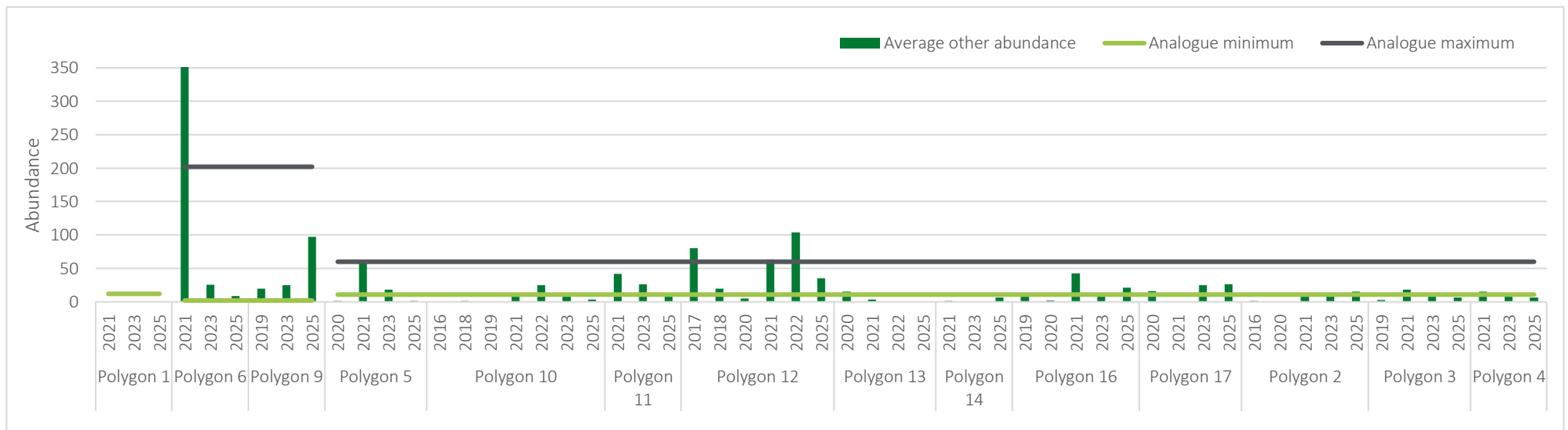


Figure 20: Average other abundance compared to analogue range

3.1.2.2. Native Woodland

Average tree pfc of all polygons except Polygon 13 and Polygon 16 was within the analogue long-term range for tree pfc during 2025 (Figure 9). Tree pfc at Polygon 16 has increased over the last monitoring periods and is trending towards analogue condition. Tree pfc at Polygon 13 has fluctuated over the years, with canopy dieback observed in monitoring sites in recent years.

Average tree abundance was within the long-term analogue range for all Polygons during 2025 except Polygon 13 and Polygon 4 (Figure 10). Average tree abundance at Polygon 4 and Polygon 13 has remained relatively stable across monitoring years and remains only slightly under the analogue minimum range.

Average shrub pfc of all polygons except Polygon 4, Polygon 13 and Polygon 14 was within the long-term analogue range during 2025 (Figure 11). Shrub pfc at Polygon 4, Polygon 13 and Polygon 14 has increased throughout monitoring periods, indicating a trend towards analogue condition.

Average shrub abundance was within the long-term analogue range for all Polygons during 2025 except Polygon 3, Polygon 4, Polygon 13 and Polygon 14 (Figure 12). Shrub abundance at these polygons has increased since previous monitoring periods indicating a trend towards analogue condition and likely due to shrub species regeneration.

Average grass & grasslike pfc of all polygons except Polygon 3 and Polygon 13 was within the long-term analogue range during 2025 (Figure 13). During 2025, grass & grasslike pfc at Polygon 3 and Polygon 13 was 0.9% and 0.2% respectively, which is only slightly lower than the analogue range. Grass & grasslike pfc at Polygon 3 and Polygon 13 has remained relatively stable throughout monitoring periods. Average grass & grasslike abundance was within the long-term analogue range at all polygons except Polygon 3 (Figure 14). Grass & grasslike abundance at Polygon 3 decreased in 2025 compared to previous monitoring years, when abundance was within the analogue range. This decrease is likely attributable to drier climatic conditions. Grass & grasslike abundance at Polygon 3 is likely to return to being within the long-term analogue range once climatic conditions improve.

Average forb pfc of all polygons was within the long-term analogue range during 2025 (Figure 15). Average forb abundance was within the long-term analogue range at all polygons except Polygon 13, which recorded an abundance of 131 compared to the analogue minimum value of 134 (Figure 16).

Average fern pfc of all polygons except Polygon 3 was within the long-term analogue range during 2025 (Figure 17). To date, no fern species have been recorded within Polygon 3. Recruitment of fern species into rehabilitation areas can take several years. Average fern abundance was within the long-term analogue range at all polygons except Polygon 3 (Figure 18).

Average other pfc of all polygons except Polygon 13 were within the long-term analogue range during 2025 (Figure 19). No species within the other growth form were recorded within 2025, however, have been recorded in previous years. Average other abundance was within the long-term analogue range at all polygons except Polygon 12, Polygon 16 and Polygon 17 (Figure 20).

3.1.2.3. Ironbark Open Forest

Average pfc of all growth forms at Polygon 5 during 2025 was within the long-term range recorded at analogue sites. Average abundance of all growth forms at Polygon 5 during 2025, except shrub and other abundance were within the long-term range recorded at analogue sites (Figure 9 to Figure 20).

Average shrub abundance at Polygon 5 has been increasing since 2021, indicating a trend towards analogue condition (Figure 12). Average other abundance at Polygon 5 was within the analogue range in previous years and recent decreases are likely due to drier climatic conditions experienced in 2025.

3.1.2.4. Grey Box Woodland

Average pfc of all growth forms in Polygon 6 and Polygon 9 during 2025 were within the long-term range recorded at analogue sites, except tree pfc at Polygon 6. Average tree pfc at Polygon 6 has fluctuated across years, with 2025 results showing an increase compared to previous monitoring periods (Figure 9 to Figure 20).

Average abundance of the tree, grass & grasslike, other and fern growth forms were within the long-term range recorded at analogue sites during 2025. Average forb abundance exceeded the analogue range at Polygon 6 and Polygon 9 during 2025. Average shrub abundance was within the long-term analogue range at Polygon 6 during 2025 and was slightly lower than the analogue range at Polygon 9. Shrub abundance has fluctuated at Polygon 9 across monitoring years.

3.1.3. Ecosystem function

3.1.3.1. Litter cover

White Box Woodland

Average litter cover at Polygon 1 during 2025 was within the analogue 10th-90th percentile range (Figure 21).

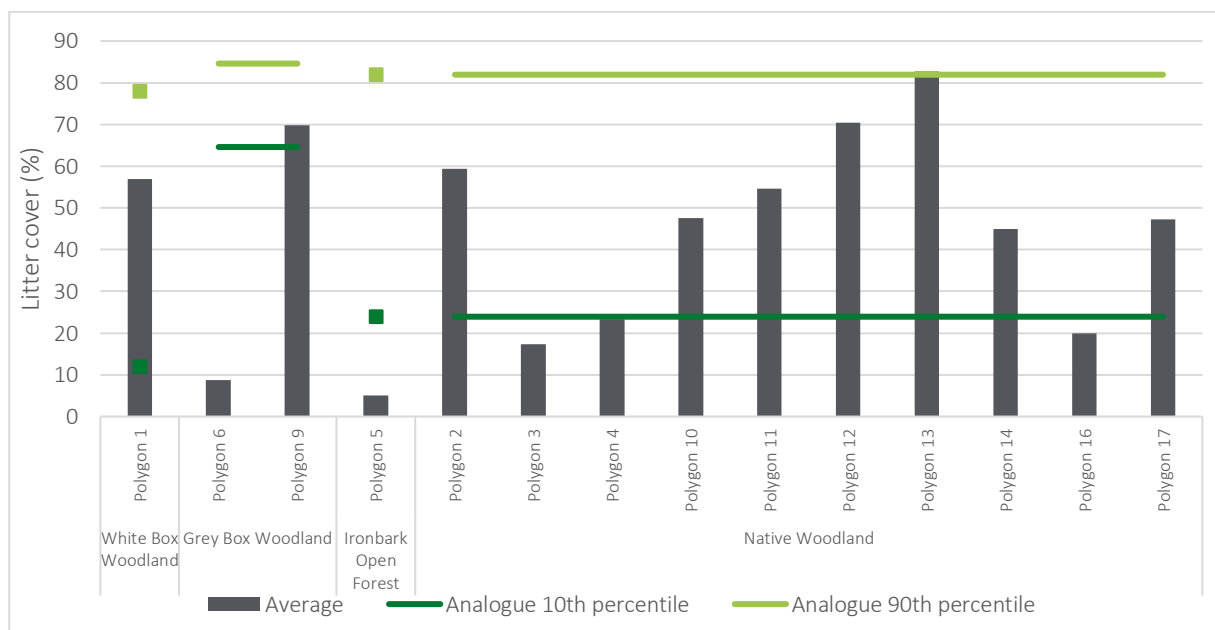


Figure 21: Average litter cover recorded during 2025 compared to analogue 10th and 90th percentile range

Native Woodland

Average litter cover at all Native Woodland polygons was within the analogue 10th-90th percentile range during 2025 except Polygon 3 and Polygon 16 (Figure 21).

Ironbark Open Forest

Average litter cover at Polygon 5 during 2025 was lower than the analogue 10th-90th percentile range (Figure 21).

Grey Box Woodland

Average litter cover at Polygon 6 during 2025 was lower than the analogue 10th-90th percentile range (Figure 21). Average litter cover at Polygon 9 during 2025 was within the analogue 10th-90th percentile range (Figure 26).

3.1.3.2. Regeneration

White Box Woodland

Second generation individuals of trees were detected at only one monitoring site within Polygon 1 (Figure 22). Trees within Polygon 1 are generally immature and have not reached reproductive age.

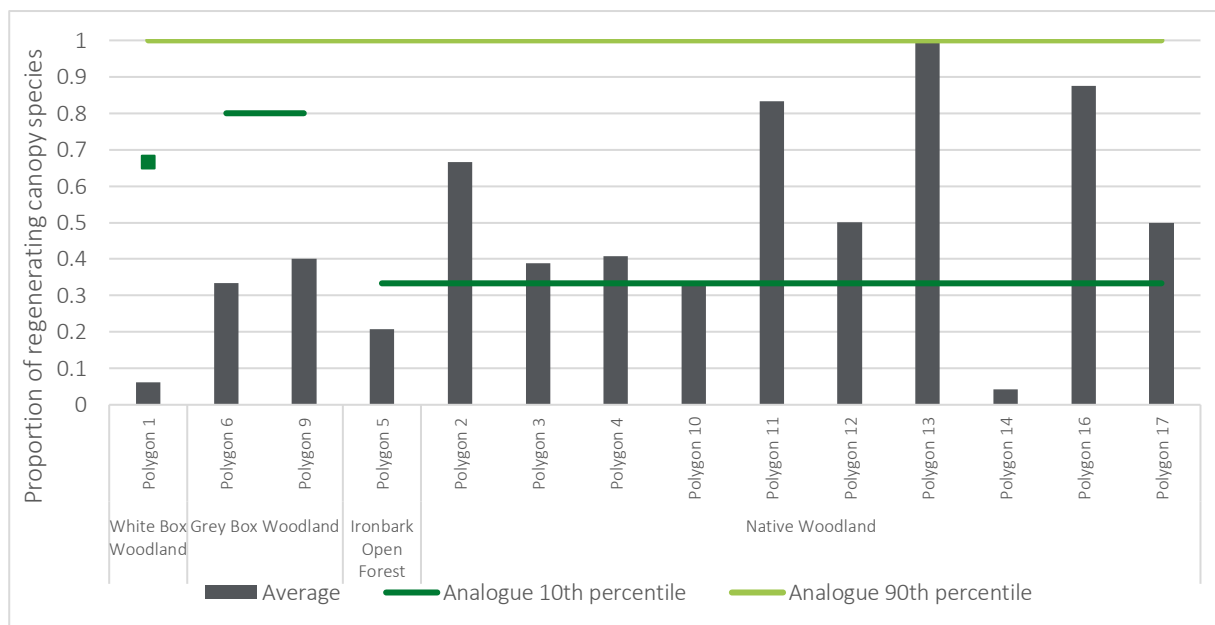


Figure 22: Average proportion of regenerating canopy species recorded in 2025 compared to long-term analogue 10th and 90th percentiles

Native Woodland

The average proportion of regenerating canopy species was within the analogue 10th-90th percentile range at all Native Woodland polygons except Polygon 14 (Figure 22). Second generation tree species individuals were detected at only one monitoring site within Polygon 14.

Ironbark Open Forest

The average proportion of regenerating canopy species was slightly lower than the analogue 10th-90th percentile range at Polygon 5 (Figure 22). Regenerating *Acacia linearifolia* was detected at two monitoring sites within Polygon 5. *Eucalyptus* spp. within Polygon 5 have not reached reproductive maturity.

Grey Box Woodland

The average proportion of regenerating canopy species was slightly lower than the analogue 10th-90th percentile range at Polygon 6 and Polygon 9 (Figure 22). Both polygons recorded >0.3 proportion of regenerating canopy species, which is typical of remnant vegetation in the Ulan region.

3.1.3.3. Foliage cover of High Threat Exotics

Foliage cover of High Threat Exotics (HTEs) within rehabilitation monitoring sites during 2025 ranged from 0% to 20.2% (1d) (Figure 23 and Figure 24). No HTE species have been recorded within analogue sites. HTE species recorded within the rehabilitation during 2025 include:

- *Rumex acetosella* (sheep sorrel)
- *Bidens subalternans* (cobblers peg)
- *Carthamus lanatus* (saffron thistle)
- *Chloris gayana* (Rhode's grass)
- *Eragrostis curvula* (African lovegrass)
- *Heliotropium amplexicaule* (blue Heliotrope)
- *Hypericum perforatum* (St. John's Wort)
- *Paspalum dilatatum* (paspalum)
- *Rubus fruticosus* spp. aggr. (blackberry)
- *Senecio madagascariensis* (fireweed)
- *Xanthium spinosum* (Bathurst burr)

Hypericum perforatum was recorded throughout all polygons, however, was most prolific within Polygon 1 and Polygon 14 which both recorded an average 7% pfc of this species. Polygon 4 also recorded considerable *Hypericum perforatum* cover with an average of 5% pfc. All other polygons recorded <5% cover of *Hypericum perforatum*.

Priority weeds, as defined by the CTRSWMP (LLS 2023) detected during 2025 include:

- *Opuntia stricta* (common prickly pear)
- *Eragrostis curvula*
- *Heliotropium amplexicaule*
- *Hypericum perforatum*
- *Rubus fruticosus* spp. aggr.
- *Senecio madagascariensis*
- *Xanthium spinosum*

Locations of priority weeds are provided in Figure 25 to Figure 27.

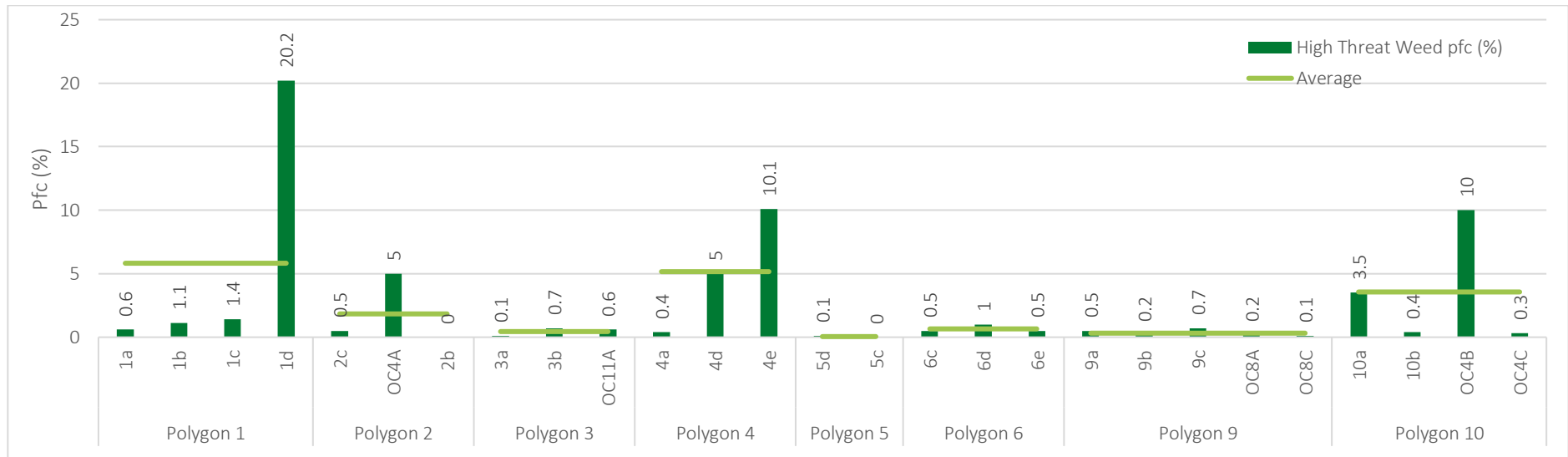


Figure 23: Foliage cover (pfc) of High Threat Exotics, Polygons 1-10

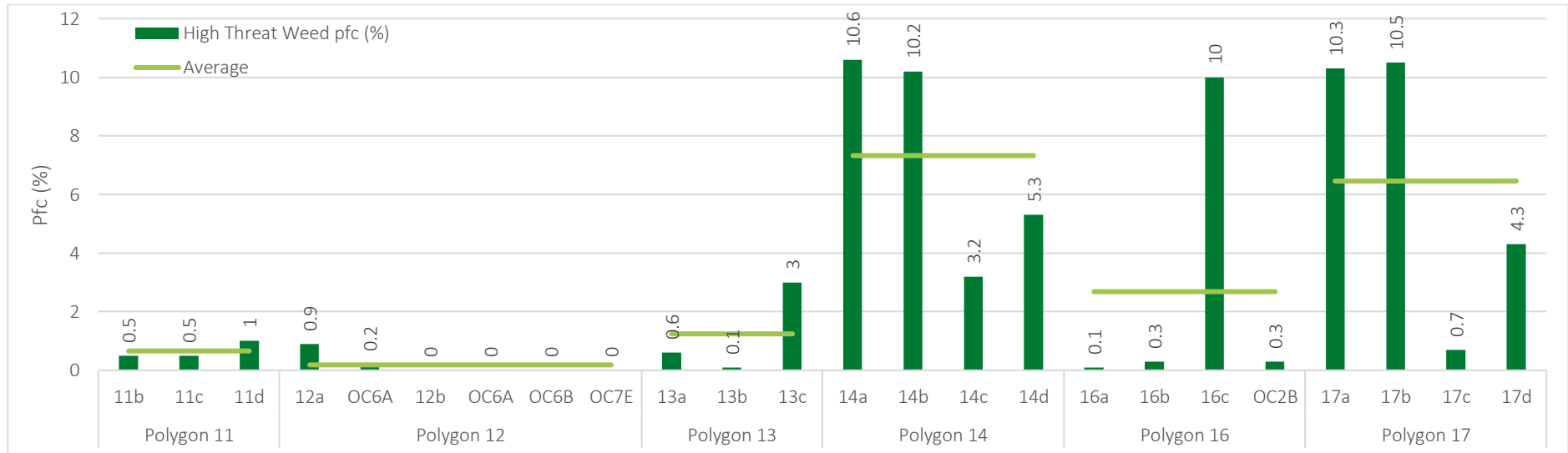


Figure 24: Foliage cover (pfc) of High Threat Exotics, Polygons 11-17

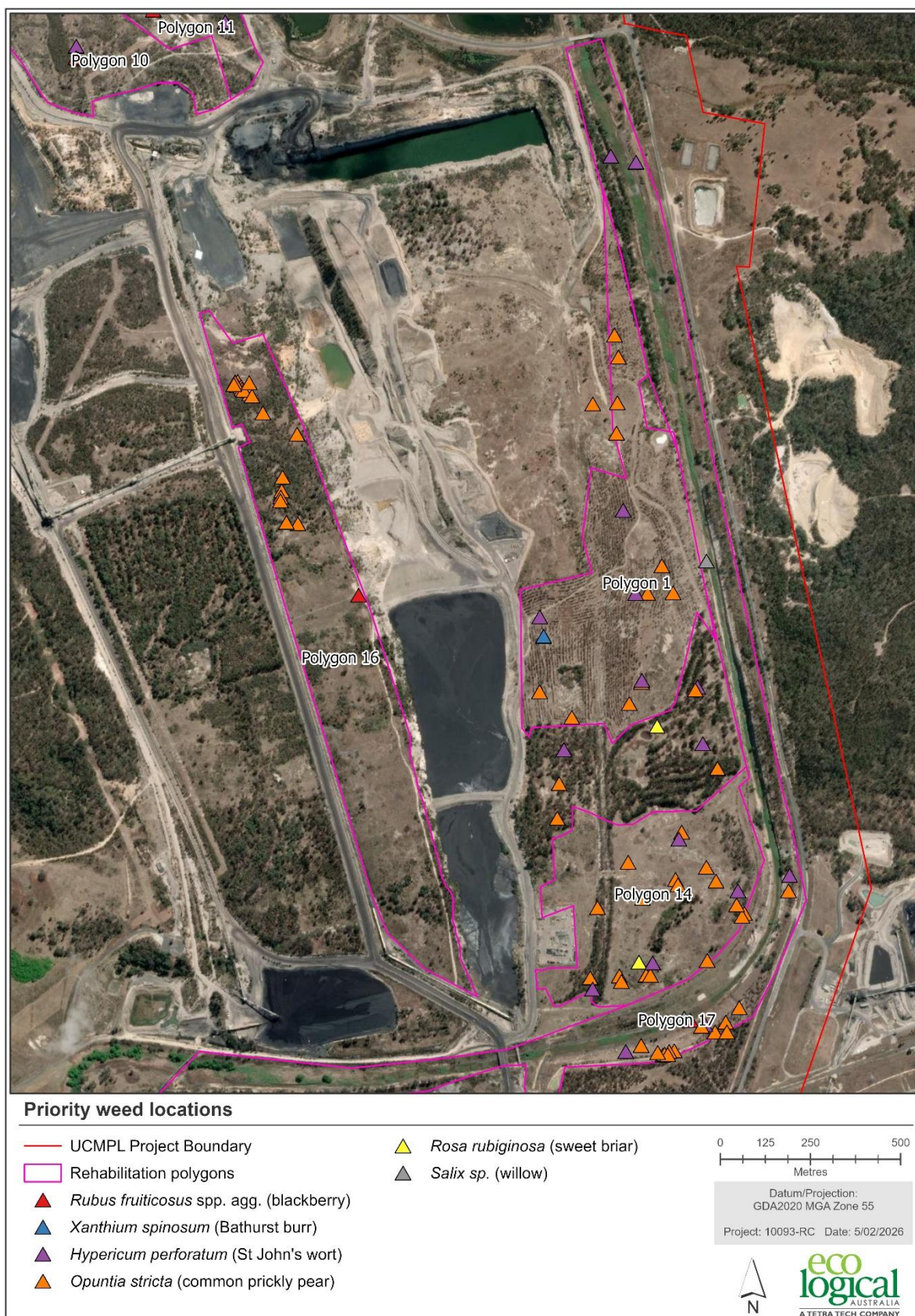


Figure 25: Priority weed locations – Polygon 1, Polygon 16, Polygon 17

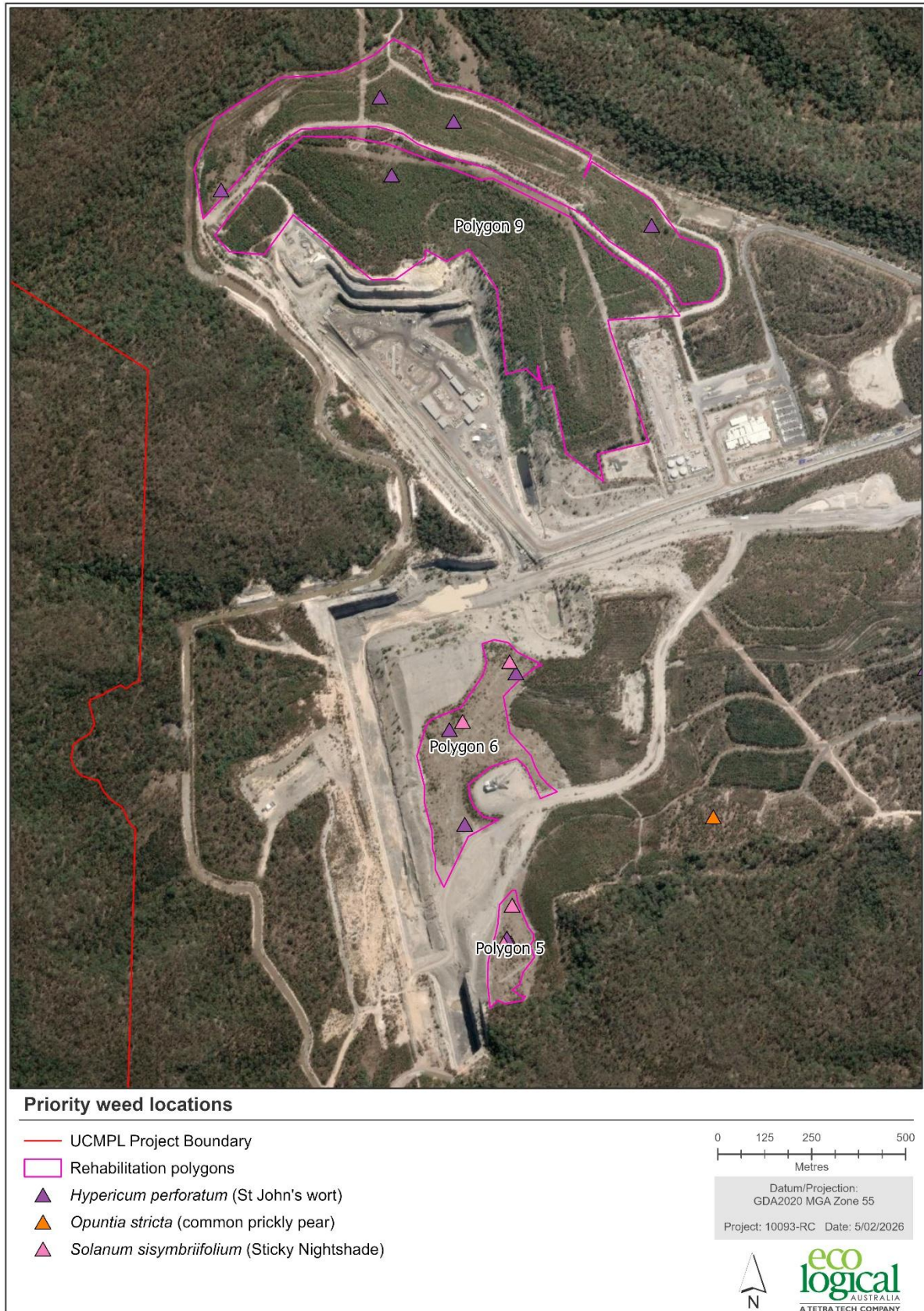


Figure 26: Priority weed locations – Polygon 5, Polygon 6 and Polygon 9



Figure 27: Priority weed locations – Polygon 2, Polygon 3, Polygon 4, Polygon 10, Polygon 11 and Polygon 12

3.1.3.4. Rehabilitation resilience

In NSW, the 'Combined Drought Indicator' (CDI) is a source of information that informs policy and Government responses to changing seasonal conditions, including droughts (DPI 2025). The CDI history of the Ulan parish is provided in Figure 28 to Figure 30.

The region was drought affected from September 2017 to September 2020, including several periods of intense drought. The second last intense drought experienced across the region ended in Autumn of 2020 (Figure 29). More recently, drought conditions began during September 2023 and eased into Recovery during August 2024 (Figure 30). Therefore, all rehabilitation polygons have experienced intense drought conditions at some point since seeding.

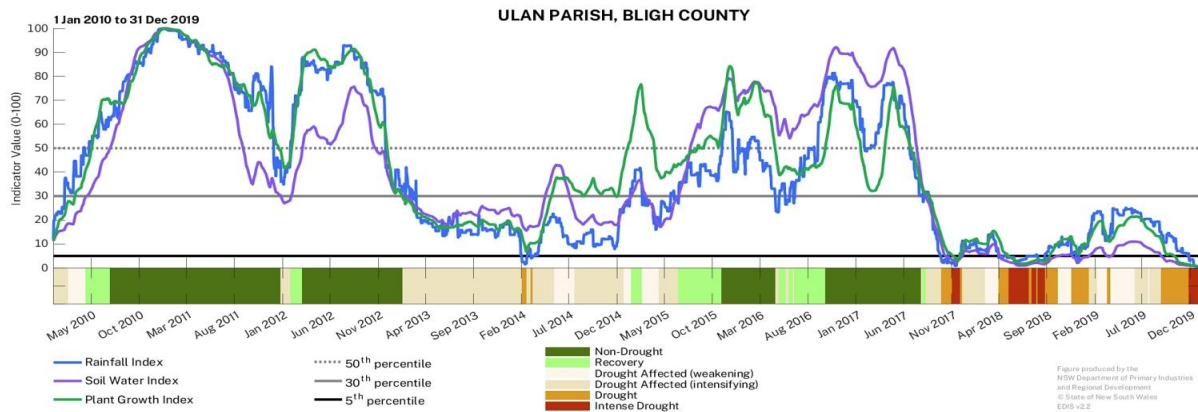


Figure 28: CDI Ulan Parish, 2010-2019 (DPI 2025)

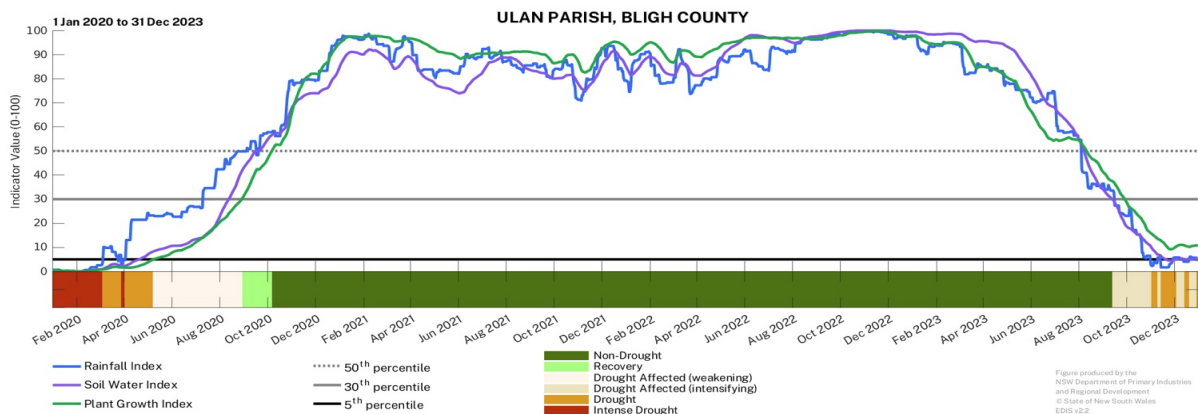


Figure 29: CDI Ulan Parish, 2020-2023 (DPI 2025)

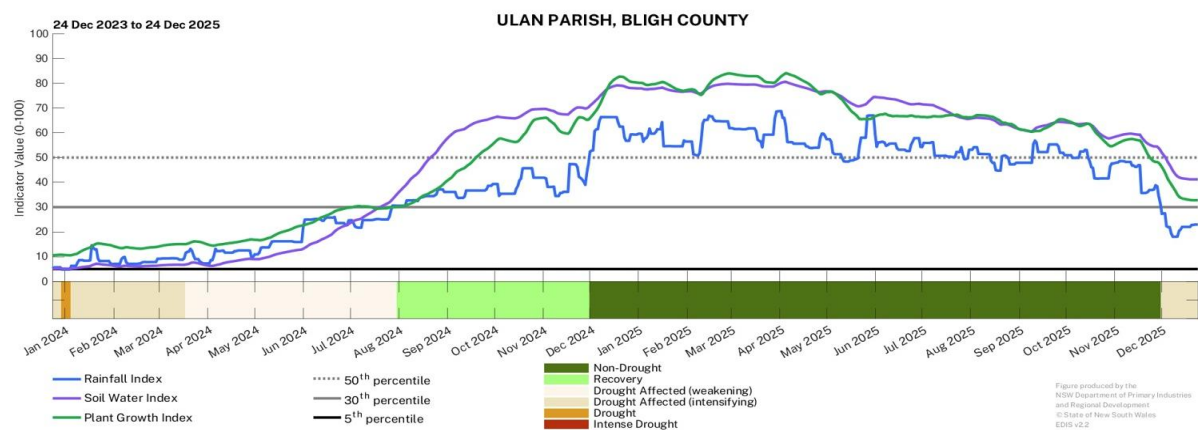


Figure 30: CDI Ulan Parish, 2024-2025 (DPI 2025)

3.1.4. Landform stability

Erosion was detected at several locations throughout Polygon 5, Polygon 2, Polygon 4, Polygon 12 and Polygon 17 (Figure 31).

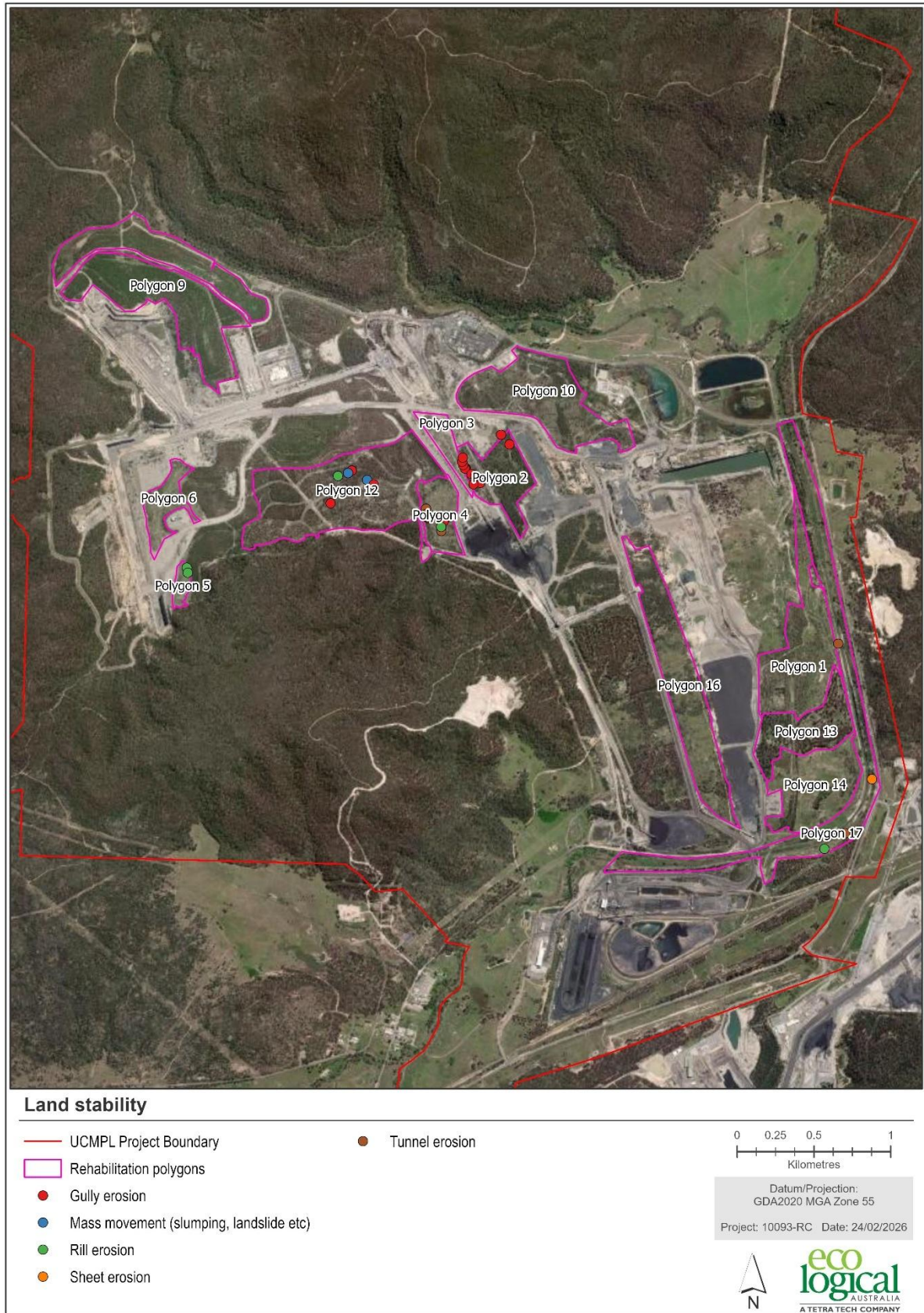


Figure 31: Land stability

3.1.5. Rehabilitation Report Card

Results from the RRC are provided in Figure 32. All polygons monitored during 2025 fall within the 'Maintenance' performance category. Weeds and tree stem density were the lowest performing attributes across all rehabilitation polygons. Function scores were also generally low in relevant polygons, however, these are expected to increase as rehabilitation matures.

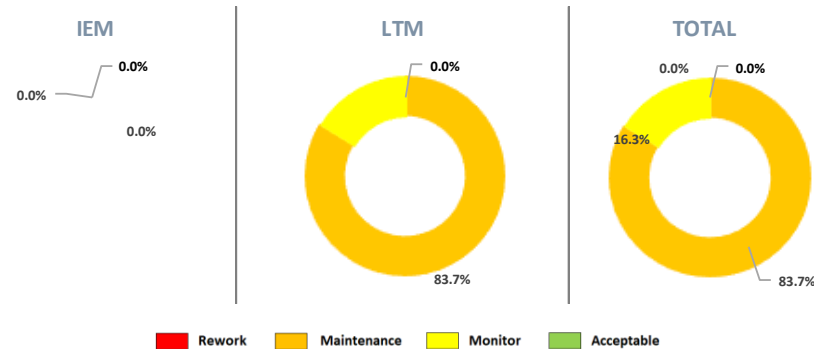
2025 Rehabilitation Report Card

UCMPL

COAL ASSETS
AUSTRALIA

GLENORE

Overall Performance Summary:



	IEM		LTM		Total	
	ha	%	ha	%	ha	%
Area monitored	0	0.0%	408.5	100.0%	408.5	100.0%
Rework	0	0.0%	0	0.0%	0	0.0%
Maintenance	0	0.0%	342	83.7%	342	83.7%
Monitor	0	0.0%	66.5	16.3%	66.5	16.3%
Acceptable	0	0.0%	0	0.0%	0	0.0%

Detailed Performance Summary:

Block Name	Area (ha)	Monitor Type	Slope	Erosion	Bare	Weed	Tree Stem	Nat Comp	Structure	Function	Canopy	Repro	Past Comp	Biomass	Perf. Categ
Polygon 10	36	NonSpecific_LTM	Acceptable	Acceptable	Acceptable	Maintenance	Maintenance	Monitor	N/A	N/A	Maintenance	Acceptable	N/A	N/A	Maintenance
Polygon 11	36	NonSpecific_LTM	Acceptable	Monitor	Monitor	Maintenance	Maintenance	Monitor	N/A	N/A	Maintenance	Acceptable	N/A	N/A	Maintenance
Polygon 12	58	NonSpecific_LTM	Acceptable	Maintenance	Acceptable	Acceptable	Monitor	Acceptable	N/A	N/A	Acceptable	Monitor	N/A	N/A	Maintenance
Polygon 13	20	NonSpecific_LTM	Acceptable	Acceptable	Acceptable	Maintenance	Maintenance	Monitor	N/A	N/A	Maintenance	Monitor	N/A	N/A	Maintenance
Polygon 14	26	NonSpecific_LTM	Acceptable	Acceptable	Acceptable	Maintenance	Maintenance	Maintenance	N/A	N/A	Maintenance	Maintenance	N/A	N/A	Maintenance
Polygon 16	37	NonSpecific_LTM	Acceptable	Acceptable	Acceptable	Maintenance	Maintenance	Monitor	N/A	N/A	Maintenance	Maintenance	N/A	N/A	Maintenance
Polygon 17	51	NonSpecific_LTM	Acceptable	Monitor	Monitor	Maintenance	Monitor	Monitor	N/A	N/A	Monitor	Acceptable	N/A	N/A	Maintenance
Polygon 1	34	Targeted_LTM	Acceptable	Monitor	N/A	Maintenance	Monitor	Maintenance	Monitor	Maintenance	N/A	Acceptable	N/A	N/A	Maintenance
Polygon 2	17	NonSpecific_LTM	Acceptable	Maintenance	Acceptable	Maintenance	Maintenance	Acceptable	N/A	N/A	Maintenance	Monitor	N/A	N/A	Maintenance
Polygon 3	6	NonSpecific_LTM	Acceptable	Monitor	Monitor	Monitor	Maintenance	Monitor	N/A	N/A	Monitor	Acceptable	N/A	N/A	Maintenance
Polygon 4	12	NonSpecific_LTM	Acceptable	Maintenance	Acceptable	Maintenance	Maintenance	Monitor	N/A	N/A	Maintenance	Monitor	N/A	N/A	Maintenance
Polygon 5	2.5	Targeted_LTM	Acceptable	Monitor	N/A	Monitor	Maintenance	Monitor	Monitor	Maintenance	N/A	Acceptable	N/A	N/A	Monitor
Polygon 6	9	Targeted_LTM	Acceptable	Maintenance	N/A	Monitor	Maintenance	Monitor	Monitor	Maintenance	N/A	Acceptable	N/A	N/A	Maintenance
Polygon 9	64	Targeted_LTM	Acceptable	Monitor	N/A	Monitor	Monitor	Monitor	Monitor	Maintenance	N/A	Acceptable	N/A	N/A	Monitor

Figure 32: Rehabilitation Report Card 2025

3.2. Biodiversity Offset Areas

3.2.1. Natural regeneration

3.2.1.1. Dry sclerophyll forest

Native species richness at dry sclerophyll forest sites within MZ2 have been within the range recorded at MZ1 sites (Figure 33). The linear trendline for MZ2 sites indicates that the MZ2 median is trending towards the MZ1 median, with both management zones displaying a continual increase in species diversity since 2011.

No MZ1 dry sclerophyll forest sites were monitored in the BOAs during 2018 and 2019.

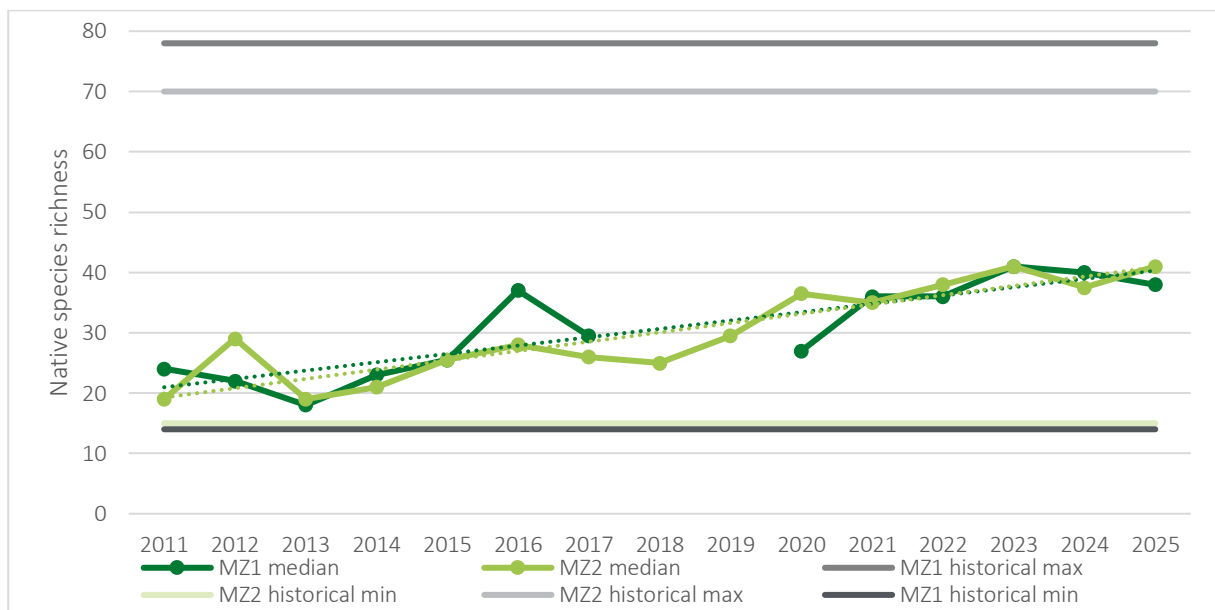


Figure 33: Dry sclerophyll forest native species richness trends – MZ1 compared to MZ2

Stem density (number of trees per hectare) within the majority of MZ2 sites has remained above the MZ1 historical minimum since 2016 (Figure 34). The median stem density within both management areas displayed a downward trend between 2017 and 2021, with recent years showing a slight increase in tree numbers.

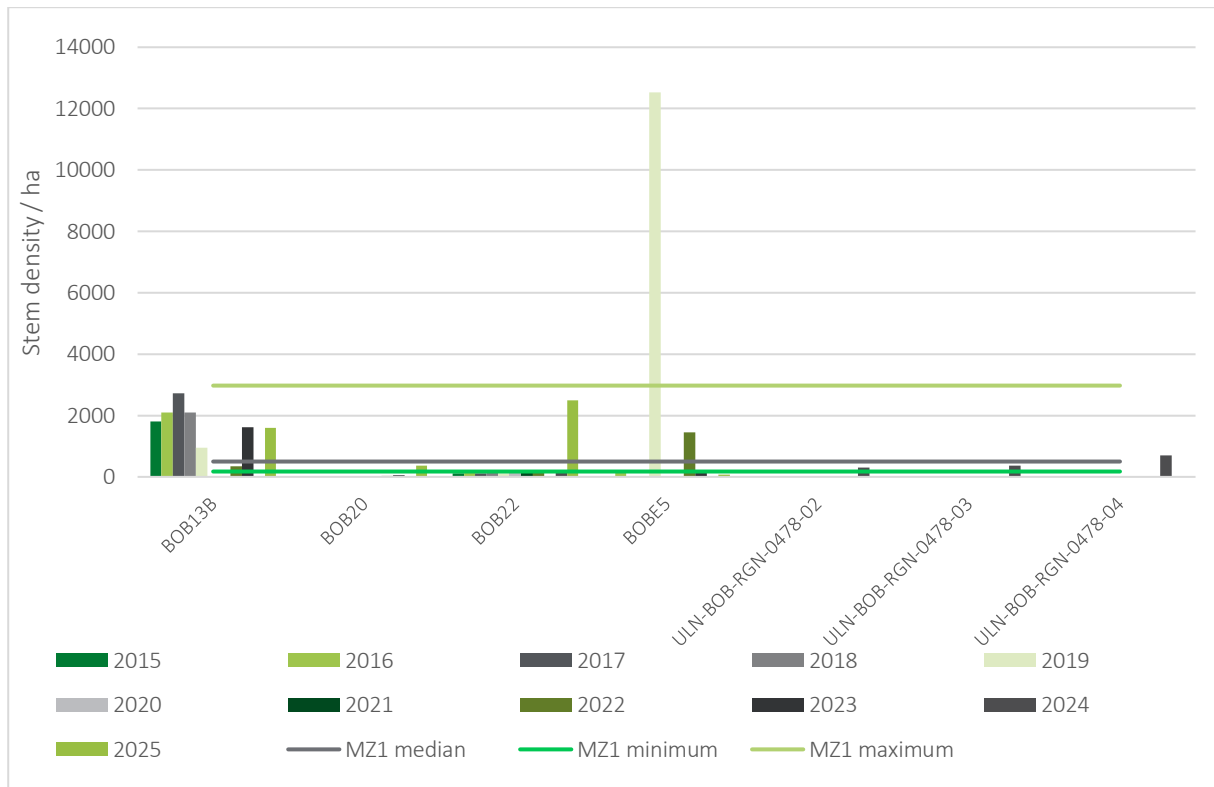


Figure 34: Dry sclerophyll forest stem density trends – MZ2 sites compared to MZ1 range

3.2.1.2. Grassy woodland

Native species richness at grassy woodland sites within MZ2 is within the range recorded at MZ1 sites (Figure 35). The linear trendline for MZ2 sites indicates that the MZ2 median is not trending towards the MZ1 median, however data indicates an upwards trend in species richness in MZ2.

No MZ2 grassy woodland sites were monitored in 2022 or 2023 and no MZ1 grassy woodland sites were monitored in 2018.

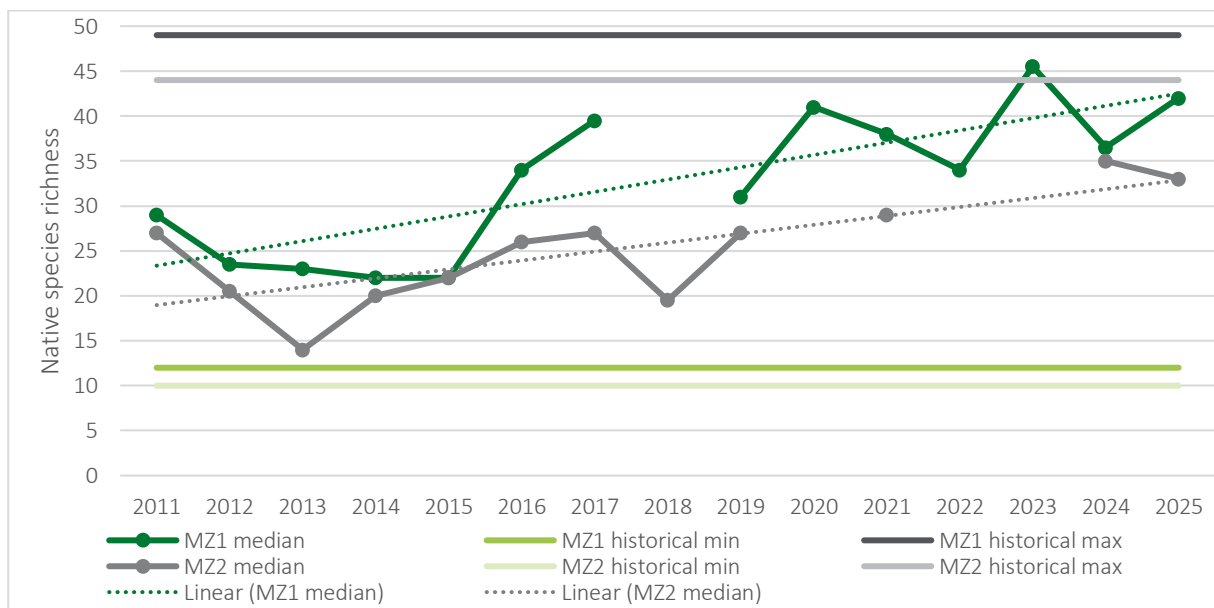


Figure 35: Grassy woodland native species richness trends – MZ1 compared to MZ2

Stem density has been gradually increasing since 2015 and the majority of MZ2 sites was above the MZ1 historical minimum in 2024 (Figure 36).

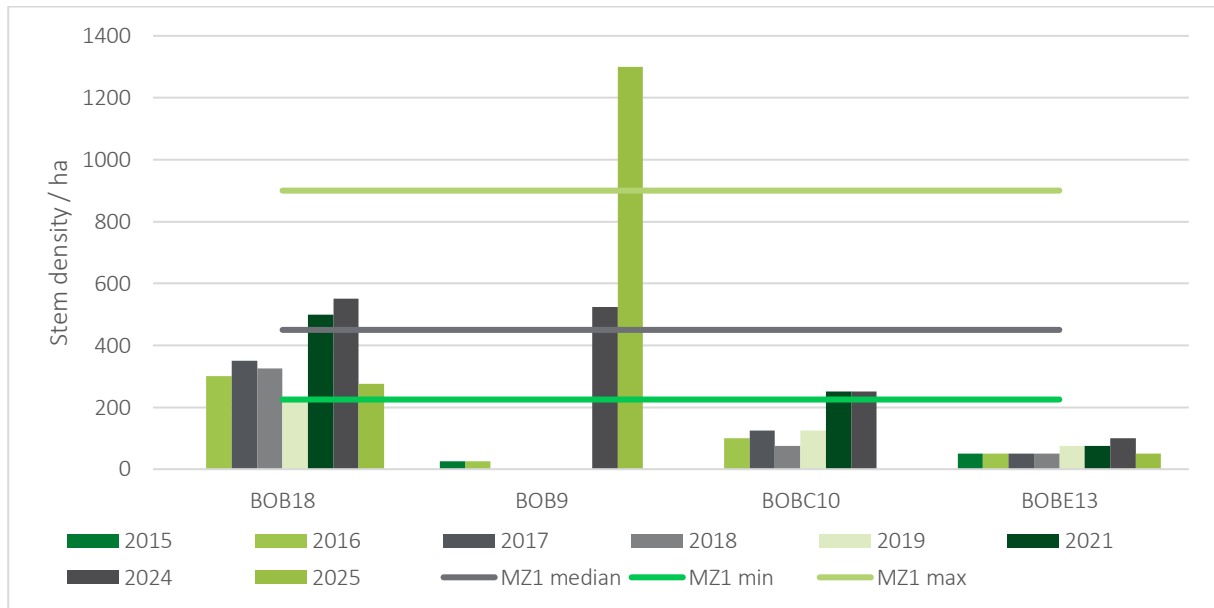


Figure 36: Grassy woodland stem density trends – MZ2 sites compared to MZ1 range

3.2.1.3. Transect monitoring and drive-over

Results of the natural regeneration drive over compared to the 2020 mapped natural regeneration extent are displayed in Figure 37. The drive-over verified that natural regeneration is occurring throughout Bobadeen VOA and the SOA, typically along the fringes of remnant vegetation.

Transects are generally established with one end close to remnant vegetation to track the progression of natural regeneration over time. The extent of natural regeneration at all transects monitored in 2025, except SOA1, SOA2 and SOA6, surpassed the end of the transect (Figure 37 to Figure 42). The extent of natural regeneration is approximately halfway along the transect line at SOA1, SOA2 and SOA6.

Table 15 shows the total number of tree stems <15 cm DBH across since 2017 (ELA 2021). All transects recorded a significant increase in stems <15 cm DBH in 2025 compared to 2020. Example photographs depicting the natural regeneration at some transects are provided in Plate 1 to Plate 4.

Table 15: Total number of tree stems <15 cm DBH, 2017-2025

Transect	2017	2018	2019	2020	2025
SOA1	-	164	-	107	151
SOA2	-	56	-	20	43
SOA3	-	66	-	29	>300*
SOA4	108	-	123	26	74
SOA5	102	-	70	47	205
SOA6	20	-	63	11	272
BOBET1	-	5	-	2	100
BOBET2	-	46	-	12	56
BOBET3	-	11	-	10	38
BOBET4	-	4	-	2	29
BOBCT1	-	186	-	98	289
BOBCT2	-	16	-	68	164
BOBCT3	-	83	-	32	219
BOBT1	-	3	-	33	123
BOBT2	-	63	-	19	663
* An estimate was undertaken for this site due to poor visibility due to extensive regeneration					

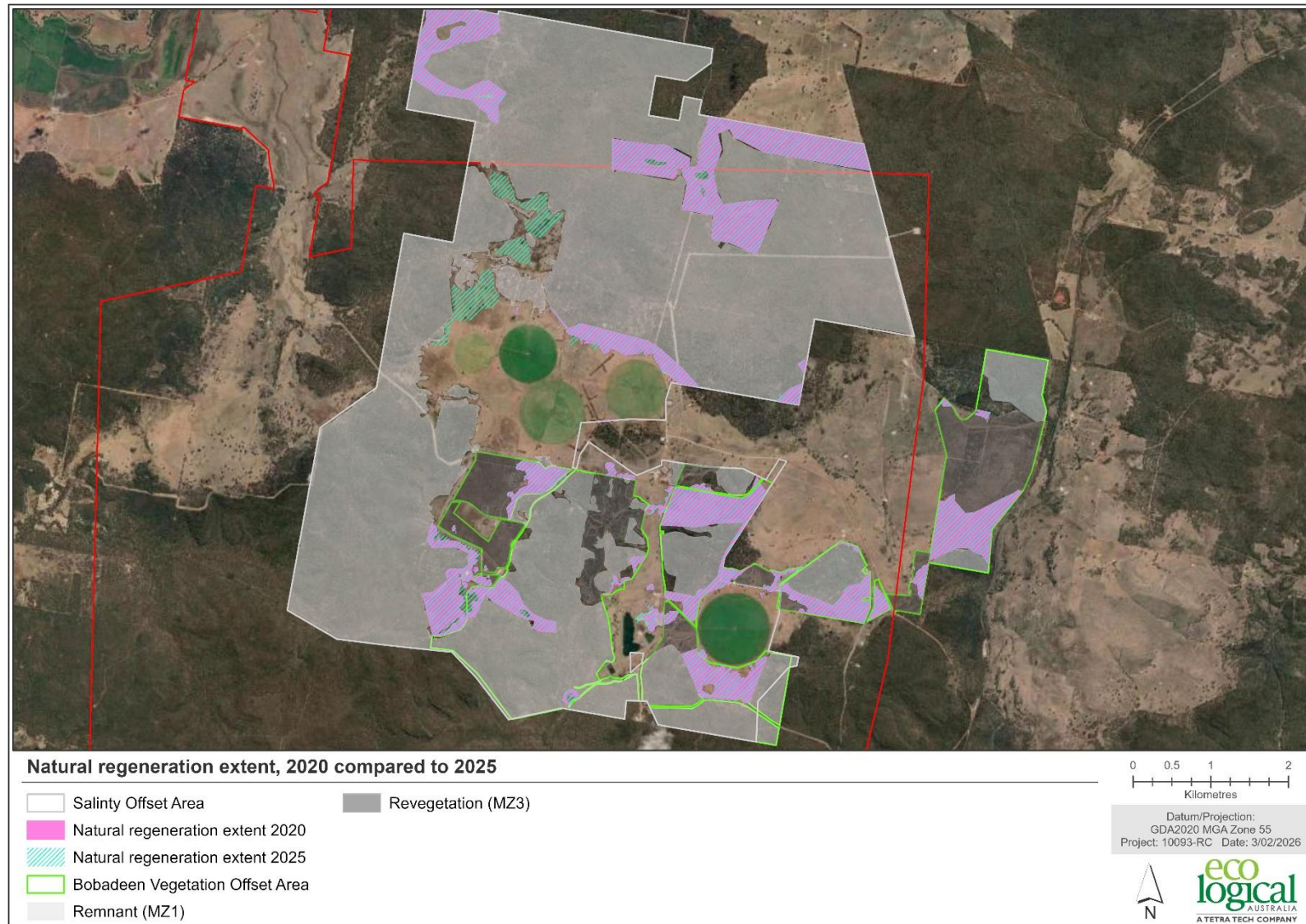


Figure 37: Natural regeneration extent, 2020 compared to 2025



Figure 38: Natural regeneration transect results, BOBT1, BOBT2, SOA4



Figure 39: Natural regeneration transect results BOBCT1, BOBCT2, BOBCT3

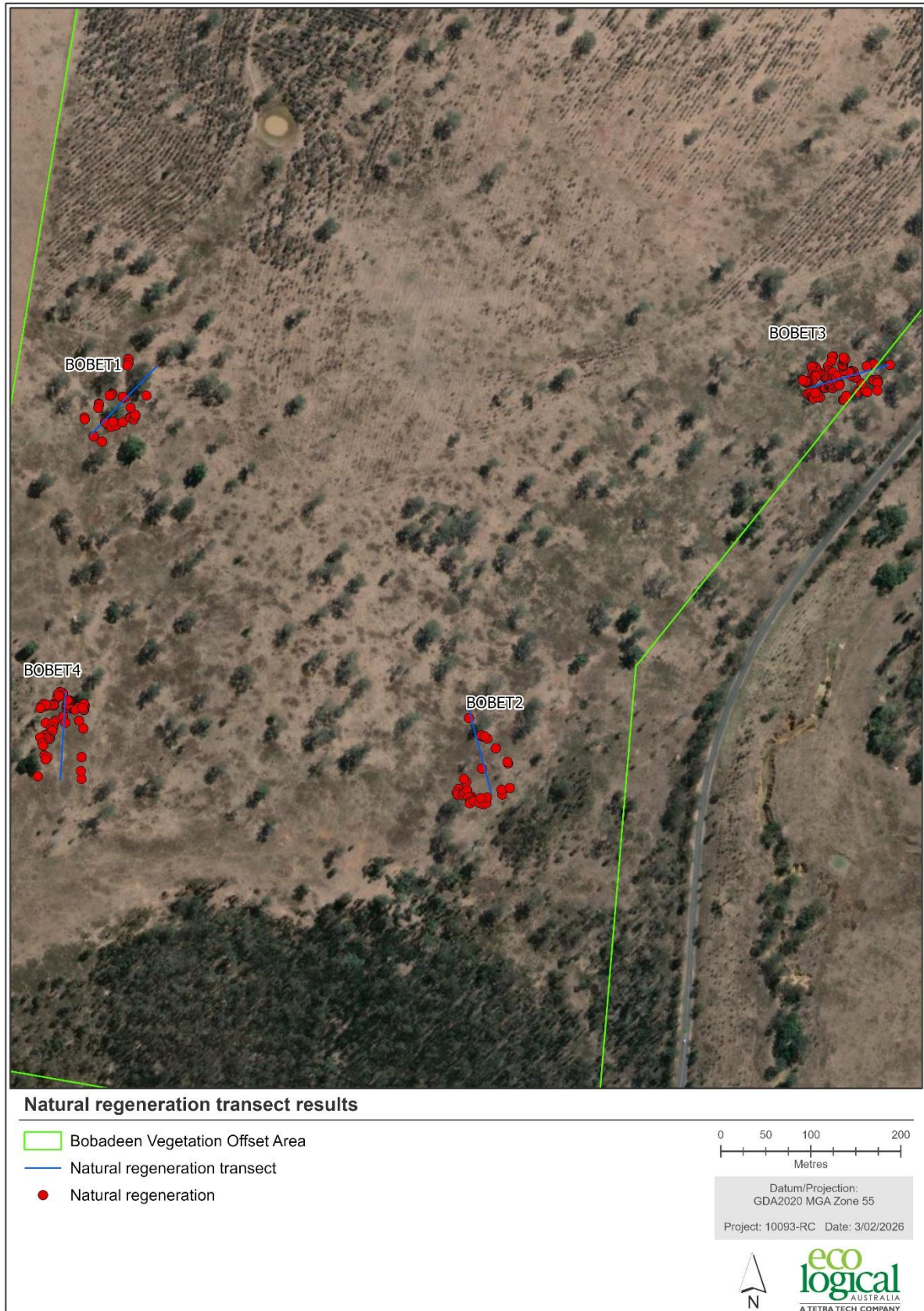


Figure 40: Natural regeneration transect results BOBET1, BOBET2, BOBET3, BOBET4



Figure 41: Natural regeneration transect results SOA2



Figure 42: Natural regeneration transect results SOA1, SOA5, SOA6



Plate 1: SOA3 during 2025



Plate 2: SOA2 during 2025



Plate 3: BOBCT1 during 2025



Plate 4: SOA1 during 2025

3.2.2. Revegetation

3.2.2.1. Dry sclerophyll forest

Native species richness at dry sclerophyll forest sites within MZ3 is within the range recorded at MZ1 sites (Figure 43). The linear trendline for MZ3 sites indicates that the MZ3 median is trending towards the MZ1 median, with both management zones displaying a continual increase in species diversity since 2011.

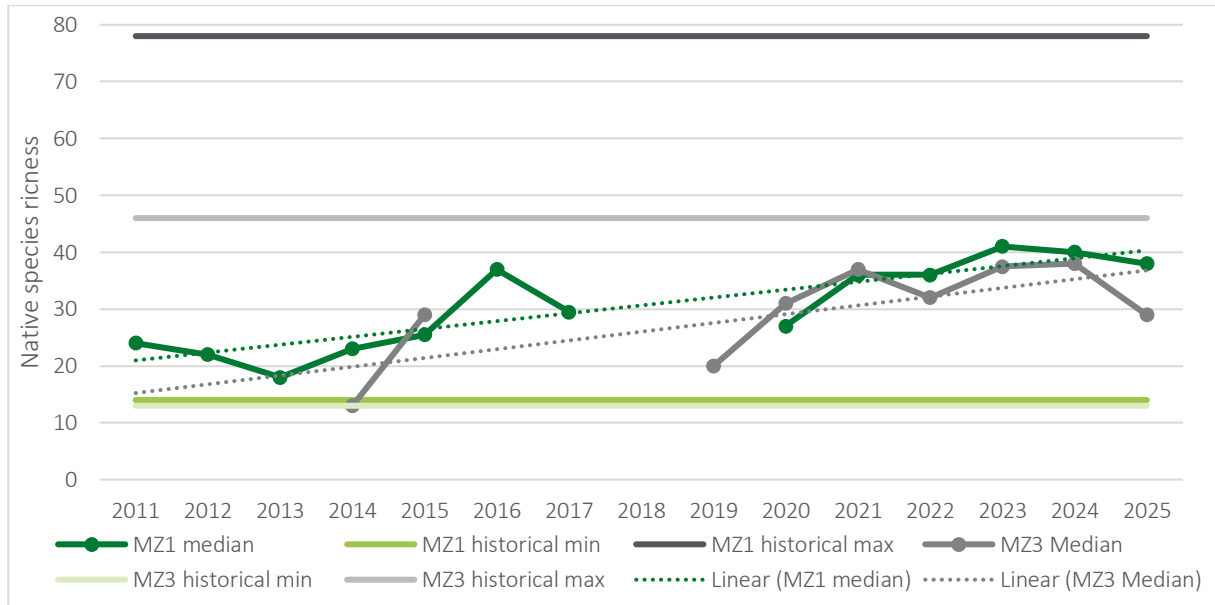


Figure 43: Dry sclerophyll forest native species richness trends – MZ1 compared to MZ3

Stem density at all MZ3 dry sclerophyll forest sites monitored during 2025 was within the MZ1 long-term stem density range. The historical trend shows that all MZ2 sites remained above the MZ1 historical minimum since 2016 (Figure 44).

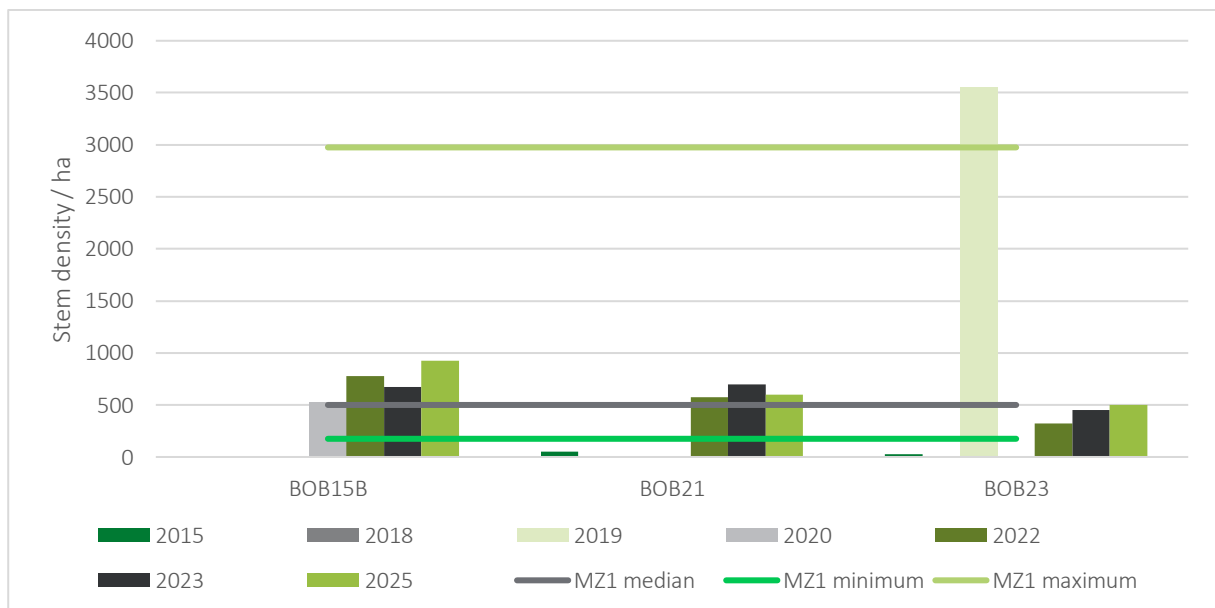


Figure 44: Dry sclerophyll forest stem density trends – MZ3 sites compared to MZ1 range

3.2.2.2. Grassy woodland

Native species richness at grassy woodland sites within MZ3 is within the range recorded at MZ1 sites (Figure 45). The linear trendline for MZ3 sites indicates that the MZ3 median is on a similar trajectory to the MZ1 trendline as both management zones are displaying a continual increase in species diversity since 2011. No MZ1 grassy woodland sites were monitored in 2018. MZ3 grassy woodland sites were not monitored in 2017.

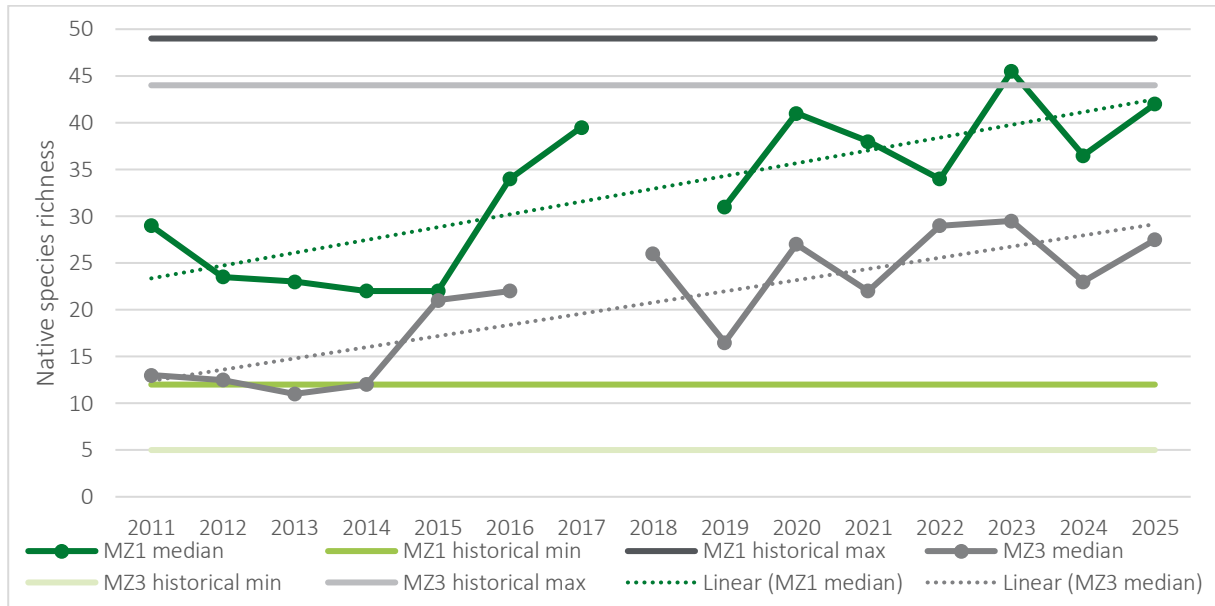


Figure 45: Grassy woodland native species richness trends – MZ1 compared to MZ3

Stem density within the majority of MZ3 sites has remained above the MZ1 historical minimum since 2016 (Figure 46).

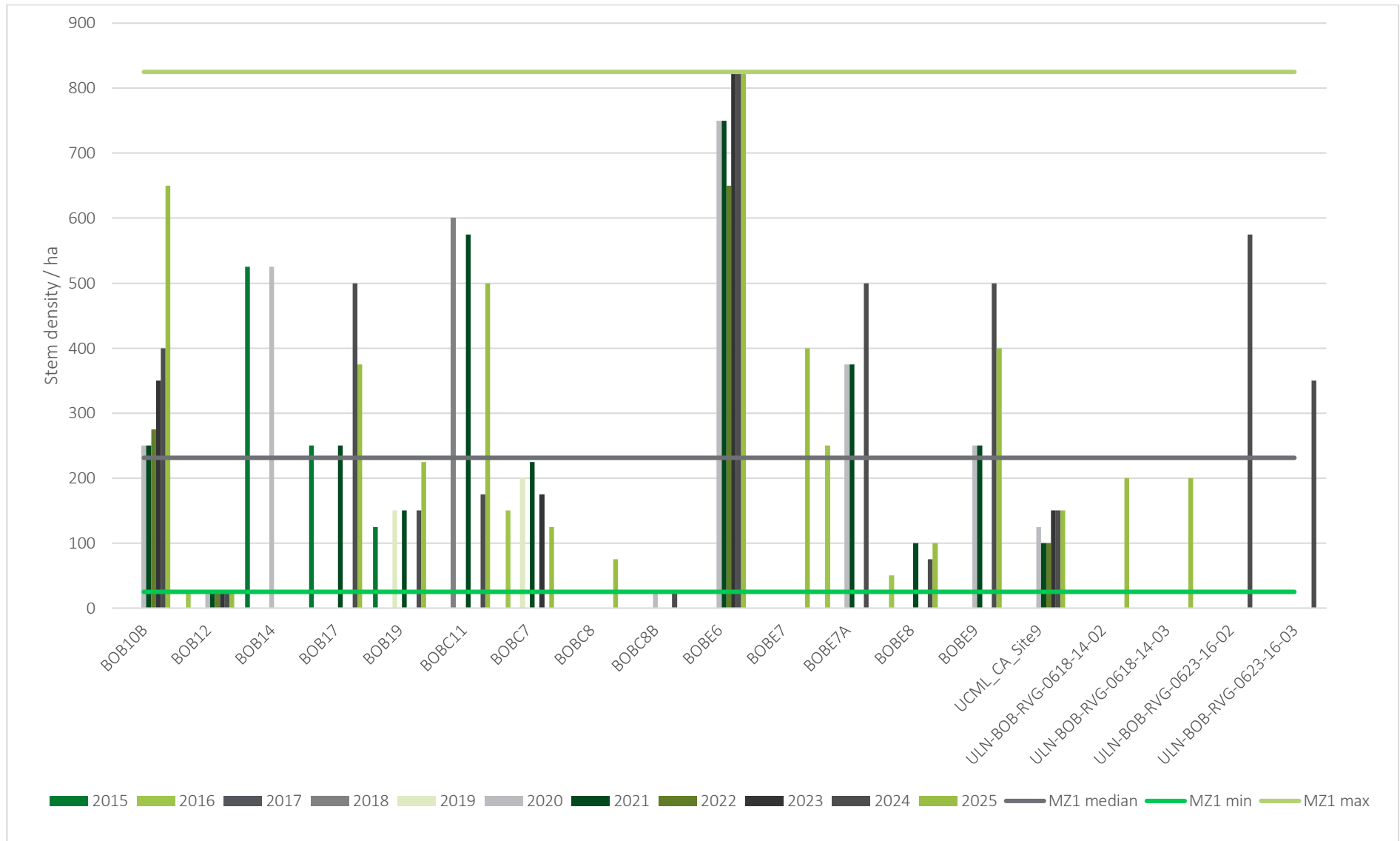


Figure 46: Grassy woodland stem density trends – MZ3 sites compared to MZ1 range

3.2.3. Weed presence

Six priority weed species and ten HTE species were identified throughout Bobadeen VOA during 2025 (Table 16). Total exotic species pfc, priority weed species pfc and HTE species pfc at each monitoring site is shown in Table 16. On average, weed species pfc is slightly lower than that recorded during 2024.

Hypericum perforatum (St John's Wort) is the dominant exotic species at sites which recorded high weed species pfc (BOBE1, BOBE11, BOBE13, BOB12, BOB17, BOB19 and BOBE8). Historically, cover of *H. perforatum* at these monitoring sites was generally low, with a large increase in pfc detected during 2024 (ELA 2025). Pfc of *H. perforatum* at these sites over time is shown in Figure 48. In 2025, these sites except BOBE1 and BOBE8 recorded significant decreases in *H. perforatum* pfc compared to 2024, which may be a result of drier conditions experienced during 2025. Wetter seasons favour growth of *H. perforatum* (DPI 2025). Substantial weed management activities were also undertaken during 2024-2025 and may also be associated with the significant decreases in *H. perforatum* pfc at some sites.

A summary of weed management activities undertaken within the VOA during 2025 is provided in Table 17.

Table 16: Priority weed and HTE species recorded during 2025 (Toolijooa Environmental Restoration 2025a)

Species	Common name	HTE status	CTRSWMP status
<i>Asparagus asparagoides</i>	Bridal Creeper	HTE	State priority weed category – Prevention, Regional priority weed category – Containment
<i>Cathamnus lanatus</i>	Saffron Thistle	HTE	Not listed
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	Boneseed	HTE	State priority weed category - Eradication
<i>Eragrostis curvula</i>	African Lovegrass	HTE	Not listed
<i>Hypericum perforatum</i>	St John's Wort	HTE	Regional priority weed category – Asset protection
<i>Olea europaea</i>	Olive	HTE	Regional priority weed category - Containment
<i>Opuntia stricta</i>	Common Prickly Pear	HTE	Regional priority weed category – Asset protection
<i>Paspalum dilatatum</i>	Paspalum	HTE	Not listed
<i>Senecio madagascariensis</i>	Fireweed	HTE	Regional priority weed category - Containment
<i>Xanthium spinosum</i>	Bathurst Burr	HTE	Not listed

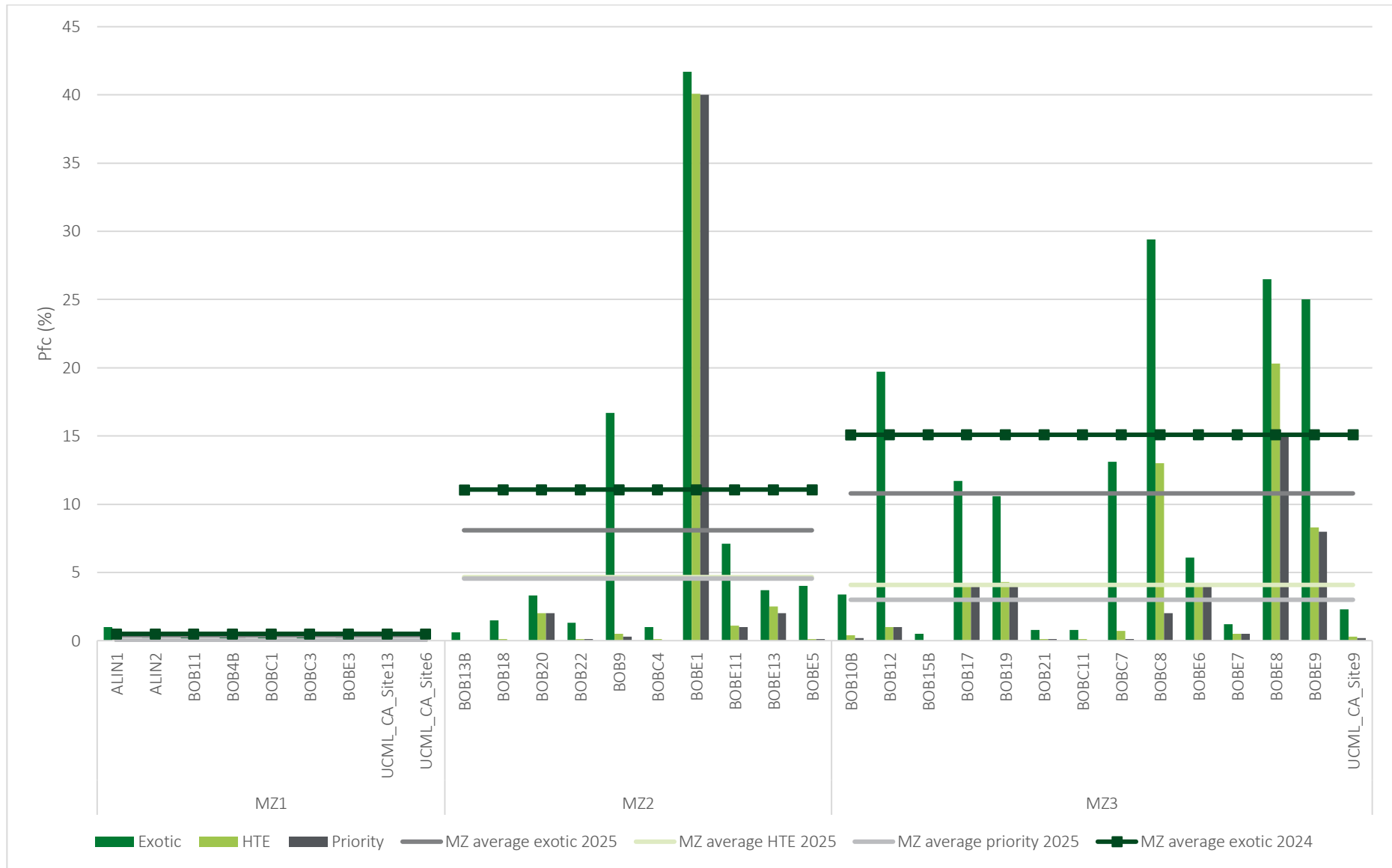


Figure 47: Exotic, priority weed and HTE pfc 2025

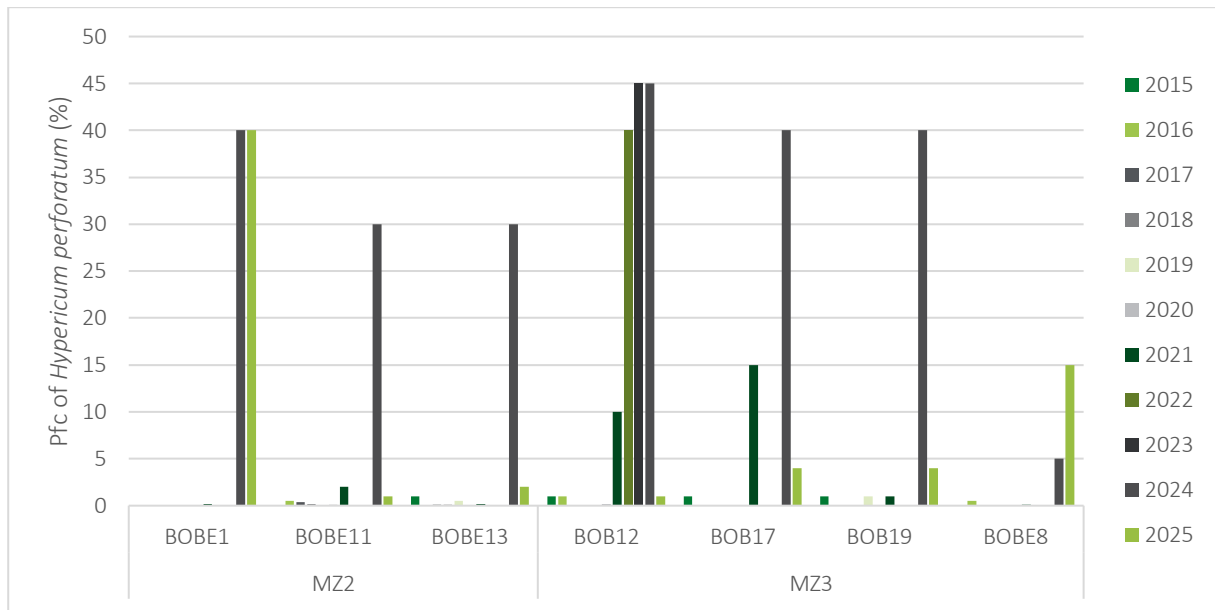


Figure 48: Pfc of *Hypericum perforatum* at sites which recorded high pfc of this species during 2022-2025

Table 17: Weed management activities undertaken within Bobadeen VOA during 2025

Month	Weed Type	Method	Target Species
January (Toolijooa Environmental Restoration 2025b)	Herbaceous	Inspection of previously sprayed areas	<i>Echium plantagineum</i> (Paterson's curse), <i>Heliotropium amplexicaule</i> (blue heliotrope) and <i>Hypericum perforatum</i> .
	Herbaceous	Low volume blanket and spot spraying	<i>Heliotropium amplexicaule</i> , with incidental control of <i>Hypericum perforatum</i> , <i>Opuntia stricta</i> , <i>Senecio madagascariensis</i> , <i>Marrubium vulgare</i> (white horehound) and <i>Solanum pseudocapsicum</i> (Jerusalem cherry).
February (Toolijooa Environmental Restoration 2025c)	Herbaceous	Follow up boom spraying throughout slashed planting area using a solution of 1.8L/ha of Starane Advanced with 5g/ha of Metsulfuron methyl.	<i>Hypericum perforatum</i> and <i>Cineraria lyratiformis</i> .
		High volume spraying between slashed and boom sprayed areas	<i>Hypericum perforatum</i> and <i>Cineraria lyratiformis</i> .
	Herbaceous	High volume spraying	<i>Hypericum perforatum</i> and <i>Cineraria lyratiformis</i> .
		Low volume spraying of Roundup Biactive® at a rate of 10%	<i>Eragrostis curvula</i> .
March (Toolijooa Environmental Restoration 2025d)	Herbaceous	Low volume foliar spraying	<i>Heliotropium amplexicaule</i> , <i>Senecio madagascariensis</i> and <i>Hypericum perforatum</i> .
		High volume foliar spraying	<i>Hypericum perforatum</i> .
		Low volume splattering using Roundup Biactive® at a rate of 5%.	<i>Eragrostis curvula</i> .
	Herbaceous	Follow up boom spraying using a solution of 1.8L/ha of Starane Advanced with 5g/ha of Metsulfuron methyl.	<i>Hypericum perforatum</i> and <i>Cineraria lyratiformis</i> .
		Inspections of previous control works to understand success rate of treatment	N/A.

Month	Weed Type	Method	Target Species
April (Toolijooa Environmental Restoration 2025e)	Herbaceous	Low volume splattering using a solution of 10% Roundup Biactive®	<i>Eragrostis curvula</i> , incidental <i>Senecio madagascariensis</i> and <i>Hypericum perforatum</i> .
		Low volume foliar spraying sweeps	<i>Opuntia stricta</i> , <i>Tagetes minuta</i> (stinking Roger) and <i>Hypericum perforatum</i> .
May (Toolijooa Environmental Restoration 2025f)	Herbaceous	Low volume splattering using Roundup Biactive® at a rate of 5%	<i>Eragrostis curvula</i>
	Woody	Low volume foliar spraying using a solution of 0.5% Roundup Biactive® with 2g/10L of Metsulfuron methyl.	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> seedlings.
	Herbaceous	Low volume foliar spraying using a solution of 0.5% Roundup Biactive® with 2g/10L of Metsulfuron methyl.	<i>Echium plantagineum</i> and <i>Senecio madagascariensis</i> .
		Low volume spraying using a solution of 0.5% Grazon Extra®.	<i>Solanum pseudocapsicum</i> , <i>Dolichandra unguis-cati</i> (cats claw creeper) and <i>Silybum marianum</i> .
		Inspections	<i>Senecio madagascariensis</i> .
	Woody	Inspections of previous sprays, low volume foliar spraying	Emergent <i>Ailanthus altissima</i> (tree of heaven) suckers and seedlings
June (Toolijooa Environmental Restoration 2025g)	Woody and herbaceous	Inspections	N/A
	Herbaceous	High volume foliar spraying	<i>Senecio madagascariensis</i> and <i>Opuntia stricta</i> , <i>Marrubium vulgare</i> infestations near the pivot, along roadsides and on top of hill, with incidental control of <i>Heliotropium amplexicaule</i> .
	Woody and herbaceous	Inspections	N/A
	Herbaceous	Low volume using a solution of 0.4% Starane Advanced, with 1g/10L Metsulfuron methyl and surfactant.	<i>Senecio madagascariensis</i> .
		Low volume foliar spraying sweeps using a solution of 0.5% Grazon Extra, with 1g/10L Metsulfuron methyl and surfactant.	<i>Opuntia stricta</i> .
		High volume foliar spraying	<i>Senecio madagascariensis</i> .
		High volume spot spraying	<i>Senecio madagascariensis</i> , <i>Heliotropium amplexicaule</i> and <i>Opuntia stricta</i> .
August (Toolijooa Environmental Restoration 2025h)	Woody	Low volume foliar spraying	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> .
		Low volume foliar spraying	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> .

3.2.4. Erosion and sediment control

No areas of erosion were identified within the offset areas during 2025. A Bobadeen Offset Erosion Remediation Plan has been prepared to address the previously identified active gully erosion at Gate 23 in the Bobadeen Offset Area (Plate 5). Erosion repairs were completed in 2025 (Plate 6). UCMPL will continue to monitor the area for further erosion and growth of vegetation.



Plate 5: Erosion near Gate 23 identified during 2024



Plate 6: Repaired area of erosion near Gate 23

3.2.5. Box Gum Woodland

Box Gum Woodland condition assessments for MZ1, MZ2 and MZ3 are provided in Table 18 to Table 20.

All attributes for MZ1 and MZ2 scored 'High Quality'. All attributes for MZ3 scored 'High Quality' except that relating to age structure. This score is expected to increase as the plantings continue to mature.

Table 18: Box Gum Woodland condition assessment – MZ1

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
Dominant tree species	Eucalyptus Dominated by <i>Eucalyptus albens</i> and <i>Eucalyptus blakelyi</i>		Eucalyptus		Eucalyptus	
Age-structure	Medium sized woodland trees and regeneration present Mature trees <5 cm, 5-9 cm, 10-19 cm, 20-29 cm, 30-49 cm, >50 cm DBH stem classes present		Trees reaching maturity		Immature trees	
Overstorey foliage cover	Open Canopy Range 13-30% pfc Average 21.5% pfc	Few trees in landscape	Open canopy	Few trees in landscape	Open canopy	Few trees in landscape
Shrub cover	Shrub layer scattered or patchy across offset area <30% across offset area Range 0.5-16% pfc Average 7% pfc	Shrub layer scattered or patchy across offset area <30% across offset area	Shrub layer scattered or patchy across offset area <30% across offset area			
Perennial exotic species	Very low (<10%) presence of perennial exotic species in groundcover Range 0-1% Average 0.2%					>50% presence of perennial exotic species in groundcover
Percentage of native species perennial cover	Native Perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Presence of native perennial groundcover	Presence of native perennial groundcover

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
	Range 4-36.5% Average 24.1%					
Understorey composition and cover	Native understorey of comprising tussock native grasses dominant 12 native, non-grass understorey species (such as shrubs, forbs, and ferns sedges) At least one of the understorey species should be an important species (e.g. grazing-sensitive, regionally significant or uncommon species; such as Kangaroo Grass or orchids) >12 native non-grass understorey species were recorded. 8 important species were recorded.	Native understorey comprising of native tussock grasses 12 native non-grass understorey species (such as forbs, shrubs, ferns and sedges) At least one of the understorey species should be an important species (e.g. grazing sensitive regionally significant or uncommon species; such as Kangaroo Grass)	Native understorey comprising of native tussock grasses dominant	Native understorey comprising of native tussock grasses dominate	Native understorey comprising of native tussock grasses	

Table 19: Box Gum Woodland condition assessment – MZ2

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
Dominant tree species	Eucalyptus Dominated by <i>Eucalyptus albens</i>		Eucalyptus		Eucalyptus	
Age-structure	Medium sized woodland trees and regeneration present Mature trees with regeneration present <5 cm, 5-9 cm, 10-19 cm, 20-29 cm, 30-49 cm, >50 cm DBH stem classes present		Trees reaching maturity		Immature	
Overstorey foliage cover	Open Canopy Range 0-20% Average 6%	Few trees in landscape	Open canopy	Few trees in landscape	Open canopy	Few trees in landscape
Shrub cover	Shrub layer scattered or patchy across offset area <30% across offset area Range 0-2.7% Average 0.6%	Shrub layer scattered or patchy across offset area <30% across offset area	Shrub layer scattered or patchy across offset area <30% across offset area			
Perennial exotic species	Very low (<10%) presence of perennial exotic species in groundcover Range 0.3-40% Average 9%					>50% presence of perennial exotic species in groundcover
Percentage of native species perennial cover	Native Perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Presence of native perennial groundcover	Presence of native perennial groundcover

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
	Range 33-77% Average 51%					
Understorey composition and cover	Native understorey of comprising tussock native grasses dominant 12 native, non-grass understorey species (such as shrubs, forbs, and ferns sedges) At least one of the understorey species should be an important species (e.g. grazing-sensitive, regionally significant or uncommon species; such as Kangaroo Grass or orchids) >12 native non-grass understorey species were recorded. 5 important species were recorded.	Native understorey comprising of native tussock grasses 12 native non-grass understorey species (such as forbs, shrubs, ferns and sedges) At least one of the understorey species should be an important species (e.g. grazing sensitive regionally significant or uncommon species; such as Kangaroo Grass)	Native understorey comprising of native tussock grasses dominant	Native understorey comprising of native tussock grasses dominate	Native understorey comprising of native tussock grasses	

Table 20: Box Gum Woodland condition assessment – MZ3

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
Dominant tree species	Eucalyptus Dominated by <i>Eucalyptus albens</i>		Eucalyptus		Eucalyptus	
Age-structure	Medium sized woodland trees and regeneration present		Trees reaching maturity		Immature trees Trees to 6 m tall	
Overstorey foliage cover	Open Canopy Range 1-28% Average 12%	Few trees in landscape	Open canopy	Few trees in landscape	Open canopy	Few trees in landscape
Shrub cover	Shrub layer scattered or patchy across offset area <30% across offset area Range 0-20% Average 3.3%	Shrub layer scattered or patchy across offset area <30% across offset area	Shrub layer scattered or patchy across offset area <30% across offset area			
Perennial exotic species	Very low (<10%) presence of perennial exotic species in groundcover Range 0.1-15% Average 4%					>50% presence of perennial exotic species in groundcover
Percentage of native species perennial cover	Native Perennial groundcover dominant Range 18-67% Average 36%	Native perennial groundcover dominant	Native perennial groundcover dominant	Native perennial groundcover dominant	Presence of native perennial groundcover	Presence of native perennial groundcover
Understorey composition and cover	Native understorey of comprising tussock native grasses dominant	Native understorey comprising of native tussock grasses	Native understorey comprising of native	Native understorey comprising of native	Native understorey comprising of native tussock grasses	

Variable	A High quality	B Moderate quality (groundcover present)	C Moderate quality (trees present)	D Low quality (groundcover present)	E Low quality (trees present)	F Requires planting/seeding/manag ement intervention
	12 native, non-grass understorey species (such as shrubs, forbs, and ferns sedges) At least one of the understorey species should be an important species (e.g. grazing-sensitive, regionally significant or uncommon species; such as Kangaroo Grass or orchids) >12 native non-grass understorey species were recorded 7 important species were recorded.	12 native non-grass understorey species (such as forbs, shrubs, ferns and sedges) At least one of the understorey species should be an important species (e.g. grazing sensitive regionally significant or uncommon species; such as Kangaroo Grass)	tussock grasses dominant	tussock grasses dominate		

3.3. Floristic based subsidence

Trends over time between the longwall zone (maximum subsidence zone) and the transition zone have been compared for sites with three or more years of data (UG LW30, UG LW31, UW LW7 and UW LW8). The absolute change in pfc since the beginning of monitoring for these sites is shown in Figure 49.

Fluctuations in pfc were recorded at each longwall for the duration of monitoring, with maximum subsidence and transition sites following similar trajectories as shown in Figure 50 and Figure 51 below.

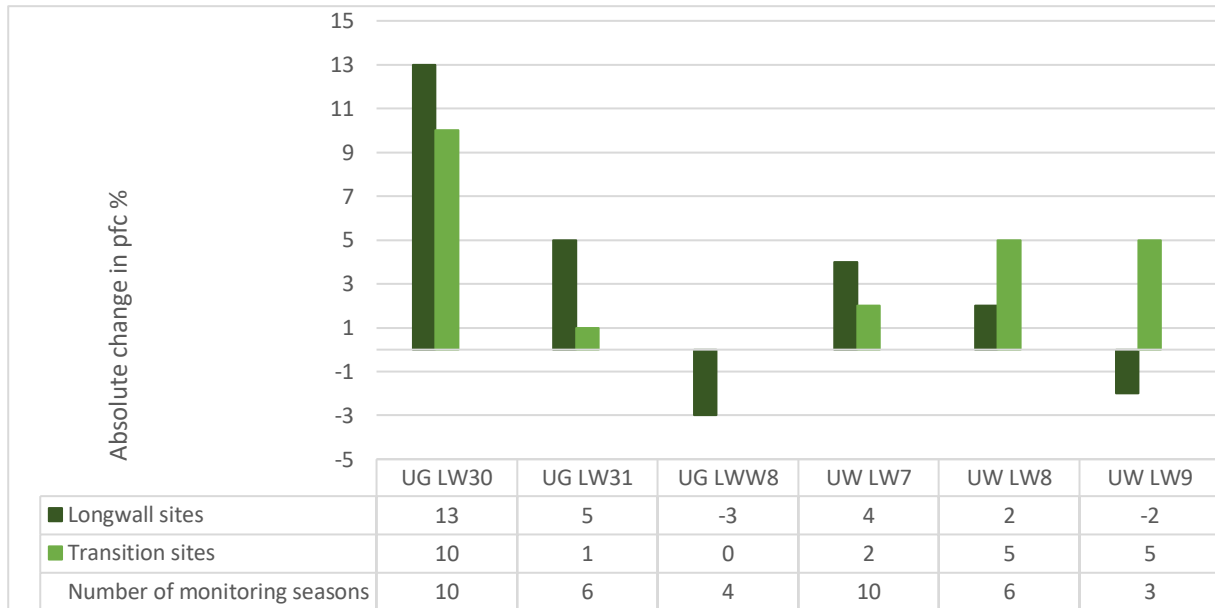


Figure 49: Absolute change in pfc since the beginning of monitoring

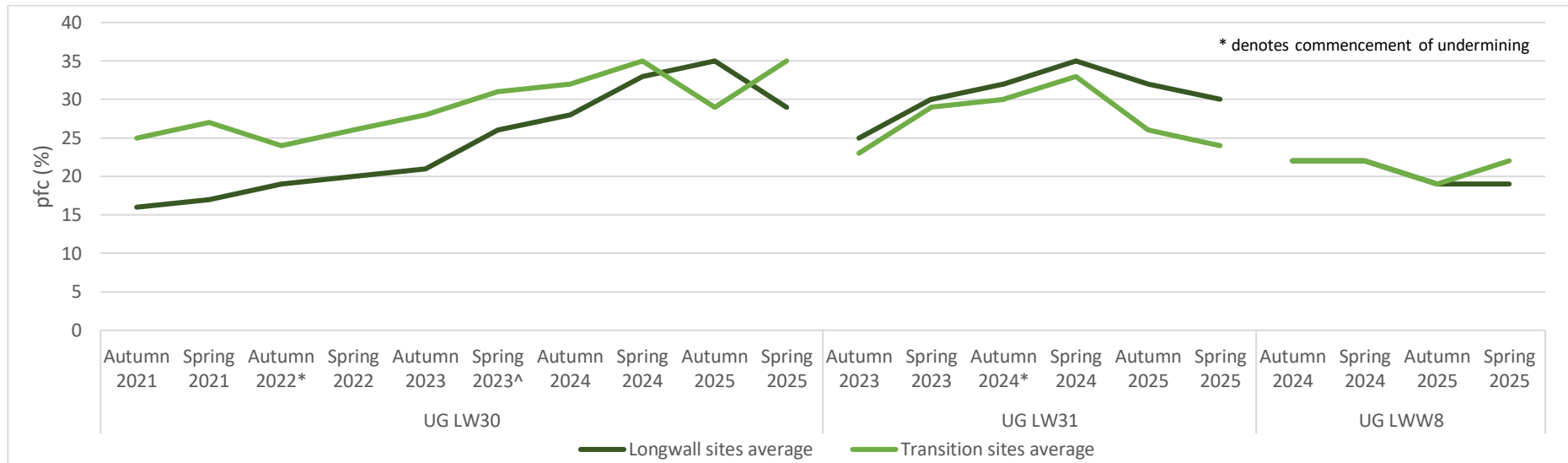


Figure 50: Average pfc of transition sites and longwall sites – Ulan Underground longwalls

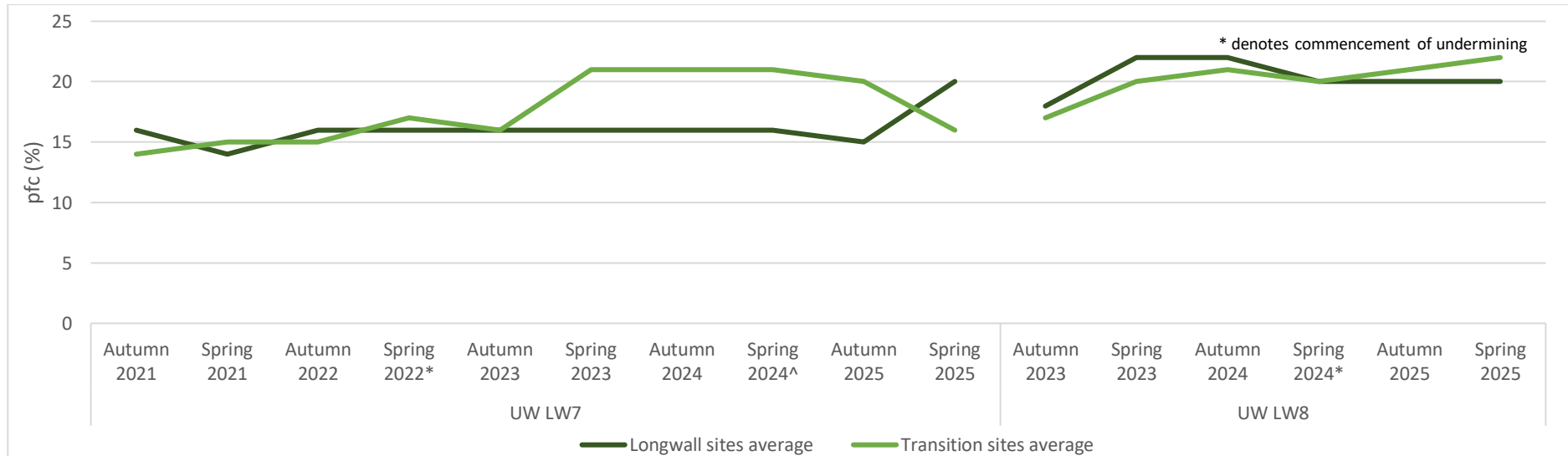


Figure 51: Average pfc of transition sites and longwall sites – Ulan West longwalls

The greatest decrease in average pfc for both maximum subsidence and transition sites occurred at UG LWW8 (3% decrease). Slight fluctuations in pfc are expected for remnant vegetation. UG LW30 has recorded a 10% increase for transition sites, and a 13% increase for longwall sites. Pre-mining baseline monitoring at UG LW30 was undertaken during 2021. This monitoring occurred only two years after a widespread drought event. Rainfall for the 34 months from January 2017 to October 2019 was the lowest on record for the Murray-Darling Basin, and for the State of NSW (Australian Government Bureau of Meteorology 2019). In a study on the recovery of trees in the Central West, Greater Sydney, Northern Tablelands and Southern Tablelands following this drought event, it was found that canopy recovery occurred within months to about one year after cessation of drought conditions, with full hydraulic and structural recovery taking multiple years (Losso et al 2022).

Subsidence cracks were recorded across UW LW7 and UW LW8. It has been observed over the last few years that most subsidence cracks fill in naturally due to the sandy soil texture across most longwalls. Subsidence cracks are not typically observed in subsequent monitoring periods; however, a persistent subsidence crack was recorded on UW LW8 in spring 2024, autumn 2025 (Plate 7) (55H 753900 6432778) and spring 2025 (Plate 8), indicating that management intervention may be required to remediate the crack. The crack is in basalt derived soil with a much higher clay content than the surrounding sandstone derived soils.



Plate 7: Subsidence crack recorded during Autumn 2025



Plate 8: The same crack recorded during Spring 2025

3.4. Ulan West EPBC 2015/7511 Area

3.4.1. Floristic based subsidence

Canopy pfc for UW LW7, UW LW8 and UW LW9 transition and longwall sites located within the Ulan West EPBC 2015/7511 Area is shown in Figure 52 to Figure 54. Mining has been completed on UW LW7 (during 2022) and UW LW8 (during 2024). Mining has not been completed on UW LW9 and is scheduled for completion from May-July 2027.

No sites within the EPBC 2015/7511 Area on UW LW7 or UW LW8 recorded a >10% decrease in canopy cover when compared to baseline (pre-mining) data (Figure 52 and Figure 53).

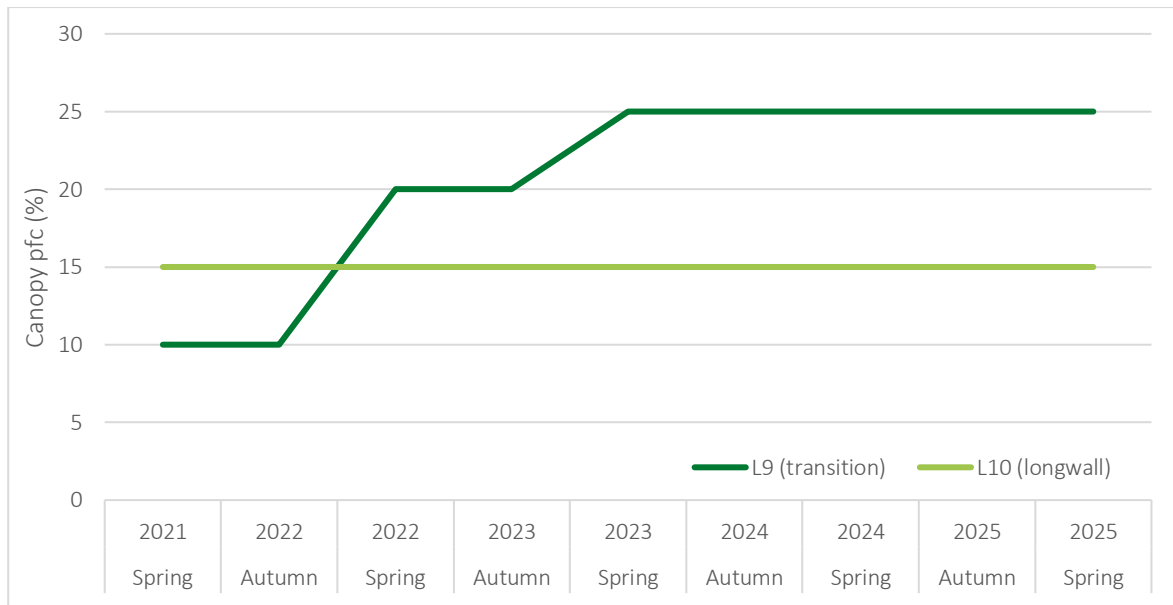


Figure 52: Canopy pfc across years for UW LW7 sites located within the EPBC 2015/7511 Area

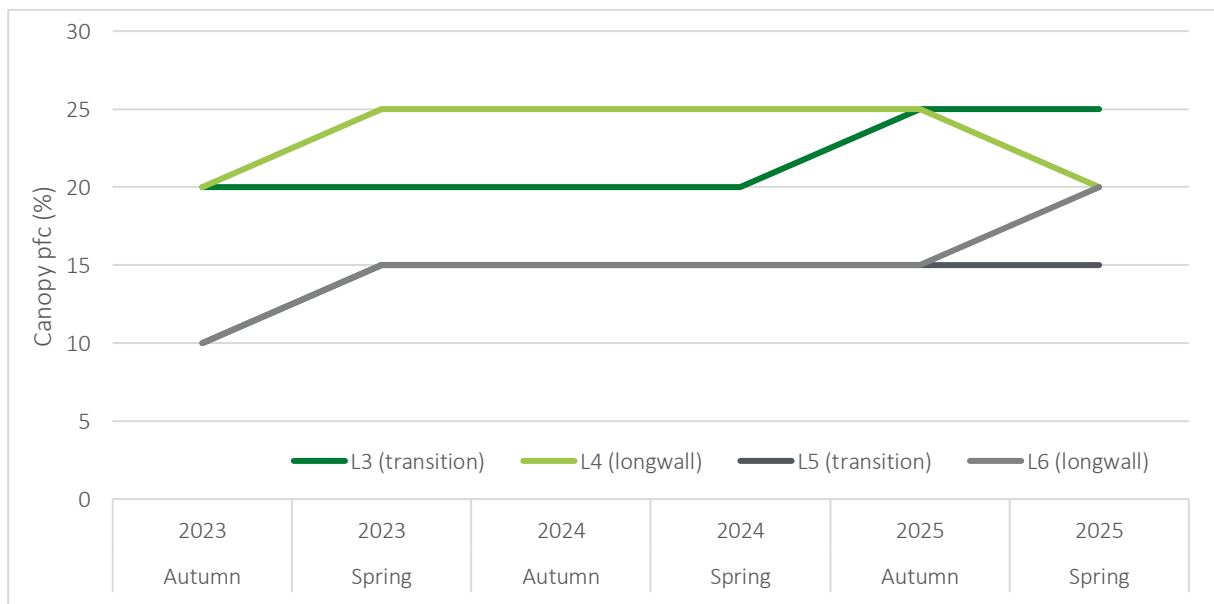


Figure 53: Canopy pfc across years for UW LW8 sites located within the EPBC 2015/7511 Area

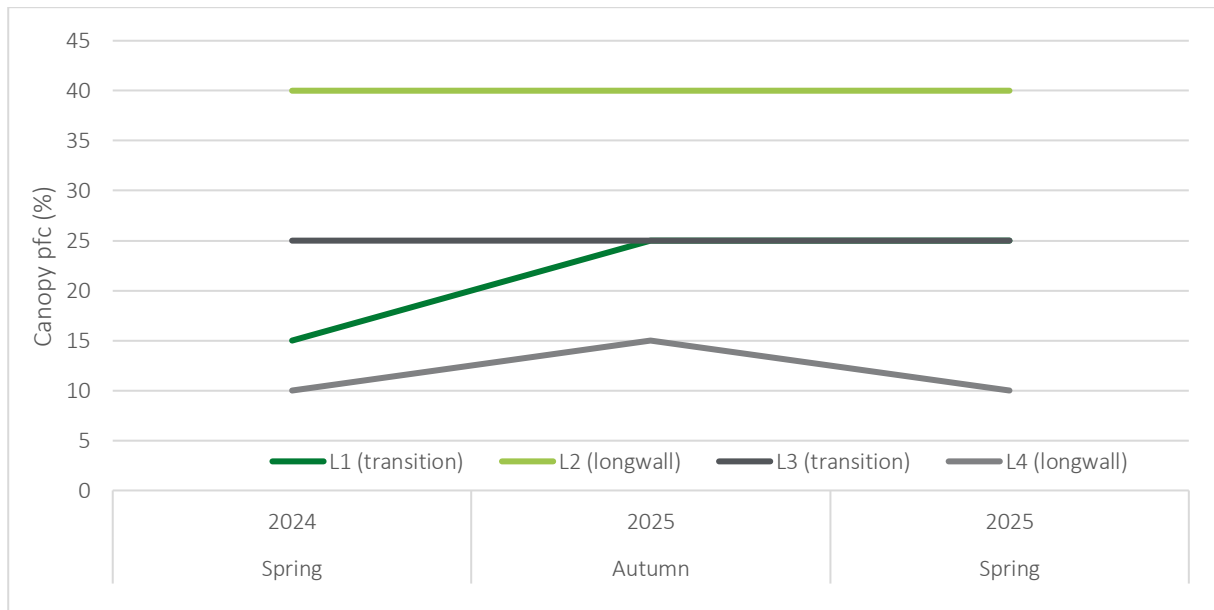


Figure 54: Canopy pfc across years for UW LW9 sites located within the EPBC 2015/7511 Area

3.4.2. Box Gum Woodland

The post-mining Box Gum Woodland assessment determined that Patch A conforms to the EPBC Act listing criteria (Table 21).

Table 21: Pre-mining and post-mining Box Gum Woodland assessment

Criteria	Patch A (pre-mining, 2022)	Patch A (post-mining, 2025)
Policy Statement (DEH 2006)		
Is, or was previously, at least one of the most common overstorey species White Box, Yellow Box or Blakely's Red Gum?	The most common overstorey species was <i>Eucalyptus albens</i> (White Box). <i>Eucalyptus moluccana</i> (Grey Box) is also present in the very northern extent of the patch.	The most common overstorey species was <i>Eucalyptus albens</i> . <i>Eucalyptus moluccana</i> (Grey Box) is also present in the very northern extent of the patch.
Does the patch have a predominately ¹ native understorey? A predominately native ground layer is one where at least 50% of the perennial vegetation cover in the ground layer is made up of native species (DEH 2006).	Overall, this patch exhibited a predominately native perennial understorey. The dominant groundcover includes the native perennial grasses <i>Sporobolus creber</i> (Rat's Tail Fescue) <i>Austrostipa scabra</i> (Speargrass), <i>Rytidosperma</i> spp. (wallaby grasses), and <i>Themeda triandra</i> (Kangaroo Grass). Generally, areas with lower canopy cover exhibited higher exotic annual species groundcover, including <i>Verbena bonariensis</i> (Purpletop), <i>Carthamus lanatus</i> (Saffron Thistle) and <i>Trifolium</i> spp. (clovers). The perennial exotic species, <i>Hypericum perforatum</i> (St. John's Wort) was also present throughout these areas, though had an overall low PFC. The presence of a predominately native ground layer indicates that these areas remain a contiguous patch (forming Patch A), consistent with the Policy Statement (DEH 2006).	Patch A recorded a predominately native groundcover during 2025 (total groundcover=60%, perennial native groundcover=40%). Groundcover was dominated by native perennial grass species including <i>Austrostipa scabra</i> , <i>Bothriochloa macra</i> (red grass) and <i>Microlaena stipoides</i> (weeping grass). Areas of high annual exotic species cover remain present, typically in areas with lower canopy cover. Exotic annual species recorded include <i>Trifolium</i> spp. (clovers), <i>Cineraria lyratiformis</i> (Cineraria) and <i>Cathamnus lanatus</i> . The exotic perennial species, <i>Hypericum perforatum</i> remains present throughout the Patch, with a recorded pfc of up to 15% in some areas.
Is the patch 0.1 ha or greater?	The size of the patch is approximately 30 ha.	The size of the patch is approximately 30 ha.
There are 12 or more native understorey species present (excluding grasses). There must be at least one 'important species' as per the Species List for the Policy Statement (DEH 2006) If, not, is the patch 2 ha or greater in size? And, does the patch have an average of 20 or more mature trees per hectare, or is there natural regeneration of the dominant overstorey eucalypts?	At time of survey there was more than 12 non-grass native groundcover species within the ground layer, including <i>Glycine tabacina</i> ., <i>Calotis lappulacea</i> (Yellow Burr Daisy), <i>Calotis cuneifolia</i> (Purple Burr Daisy), <i>Dichondra repens</i> (Kidney Weed), <i>Carex inversa</i> , <i>Oxalis perennans</i> , <i>Geranium solanderi</i> (Native Geranium), <i>Haloragis heterophylla</i> (Rough Rasp wort), <i>Grona varians</i> (Slender Tick-trefoil), <i>Asperula conferta</i> (Common Woodruff), <i>Solenogyne dominii</i> and <i>Einadia nutans</i> (Climbing Saltbush). Several important species were recorded including <i>Solenogyne dominii</i> , <i>Themeda triandra</i> , <i>Glycine clandestina</i> and <i>Asperula conferta</i> .	At the time of survey there was more than 12 non-grass native groundcover species within the ground layer, including <i>Ajuga australis</i> (austral bugle), <i>Mentha saturoides</i> (creeping mint), <i>Hydrocotyle laxiflora</i> (stinkweed), <i>Geranium solanderi</i> , <i>Carex inversa</i> , <i>Asperula conferta</i> , <i>Rumex brownii</i> (dock), <i>Dichondra repens</i> , <i>Calotis lappulacea</i> , <i>Swainsona galegifolia</i> , <i>Erodium crinitum</i> , <i>Glycine tabacina</i> and <i>Glycine clandestina</i> . Several important species were recorded including <i>Ajuga australis</i> , <i>Asperula conferta</i> , <i>Calotis lappulacae</i> and <i>Glycine clandestina</i> .
Listing Advice (TSSC 2006)		
'A remnant with a significant ground layer of tussock grasses, and where the distribution of shrubs is scattered or patchy, is part of the ecological community. In shrubby woodlands, the dominance of native tussock grasses in the ground layer	Shrub cover is sparse to absent (<1% pfc) throughout the patch, but where present, comprised of <i>Cassinia sifton</i> (Sifton Bush) and <i>Acacia implexa</i> (Hickory Wattle).	Shrub cover is sparse to absent (<1% pfc) throughout the patch, but where present, comprised of <i>Cassinia sifton</i> (Sifton Bush) and <i>Acacia implexa</i> (Hickory Wattle).

Criteria	Patch A (pre-mining, 2022)	Patch A (post-mining, 2025)
of vegetation is lost. Therefore, a remnant with a continuous shrub layer, in which the shrub cover is greater than 30%, is considered to be a shrubby woodland and so is not part of the listed ecological community.'		
Tree cover is generally discontinuous and consists of widely spaced trees of medium height in which the canopies are clearly separated'	Tree cover is discontinuous, with the canopy rarely touching.	Tree cover is discontinuous, with the canopy rarely touching.
'This ecological community occurs in areas where rainfall is between 400 and 1200 mm per annum, on moderate to highly fertile soils at altitudes of 170 metres to 1200 metres'	Rainfall for the Ulan region is 655 mm per year (BoM 2022). Patch A contains moderately fertile basalt derived clay loam soils. Altitude within Patch A ranges from 560 to 570 m above sea level.	Rainfall for the Ulan region is 655 mm per year (BoM 2022). Patch A contains moderately fertile basalt derived clay loam soils. Altitude within Patch A ranges from 560 to 570 m above sea level.
Outcome	Patch A conforms to the EPBC Act listing criteria for Box Gum Woodland.	Patch A conforms to the EPBC Act listing criteria for Box Gum Woodland.

4. Completion criteria and performance indicator summary

4.1. RMP

Assessment against the RMP Completion Criteria is provided in Table 22 below. Assessment against Completion Criteria was not undertaken for Polygon 12 and Polygon 13 as these areas have achieved regulatory sign-off. Polygon 2 has achieved all Completion Criteria relevant to this report, except for landform stability criteria.

Table 22: Assessment against RMP Completion Criteria

ROBJ	Completion Criteria	Polygon	Assessment
Species composition of the rehabilitation contains flora species characteristic of the target community	Native plant species are characteristic of the target vegetation community(s) when compared to analogue sites.	Polygon 1	Achieved
		Polygon 2	Achieved
		Polygon 3	Achieved
		Polygon 4	Achieved
		Polygon 5	Achieved
		Polygon 6	Achieved
		Polygon 9	Achieved
		Polygon 10	Achieved
		Polygon 11	Achieved
		Polygon 14	Achieved
The vegetation structure of the rehabilitation is recognisable as, or is trending towards the target community	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the target vegetation community type(s).	Polygon 16	Achieved
		Polygon 17	Achieved
		Polygon 1	Tree - Achieved Shrub - Ongoing Grass & grasslike - Ongoing Forb - Achieved Fern – Achieved (trending towards) Other – Achieved (trending towards)
		Polygon 2	Tree - Achieved Shrub - Achieved Grass & grasslike - Achieved Forb - Achieved Fern - Achieved Other - Achieved
		Polygon 3	Tree - Achieved Shrub – Achieved (trending towards) Grass & grasslike – Not yet achieving Forb - Achieved Fern - Not yet achieving

ROBJ	Completion Criteria	Polygon	Assessment
		Polygon 4	Other - Not yet achieving
			Tree - Achieved
			Shrub – Achieved (trending towards)
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved
		Polygon 5	Other - Not yet achieving
			Tree - - Achieved
			Shrub – Achieved (trending towards)
			Grass & grasslike - Achieved
			Forb - Not yet achieved (exceeded analogue range)
			Fern - Achieved
		Polygon 6	Other – Not yet achieved
			Tree - - Achieved (trending towards)
			Shrub - Not yet achieved (lower than analogue range and not trending towards analogue range)
			Grass & grasslike - Achieved
			Forb – Not yet achieved (exceeded analogue range)
			Fern – Not yet achieved
		Polygon 9	Other – Achieved
			Tree - Achieved
			Shrub – Achieved
			Grass & grasslike - Achieved
			Forb - Not yet achieved (exceeded analogue range)
			Fern - Achieved
		Polygon 10	Other - Achieved
			Tree – Achieved
			Shrub – Not yet achieved (lower than analogue range and not trending towards analogue range)
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved

ROBJ	Completion Criteria	Polygon	Assessment
		Polygon 11	Other – Achieved
			Tree - Achieved
			Shrub - Not yet achieved (lower than analogue range and not trending towards analogue range)
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved
		Polygon 14	Other – Not yet achieved (exceeded analogue range)
			Tree - Achieved
			Shrub – Achieved (trending towards)
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved
		Polygon 16	Other – Achieved (trending towards)
			Tree – Achieved (trending towards)
			Shrub – Achieved
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved
		Polygon 17	Other - Not yet achieved (exceeded analogue range)
			Tree - Achieved
			Shrub - Achieved (trending towards)
			Grass & grasslike - Achieved
			Forb - Achieved
			Fern - Achieved
Restore ecosystem function of the rehabilitation within the target community, including maintaining or establishing self-sustaining eco-systems.	Litter cover is within 10th-90th percentile variation range of reference sites/data	Polygon 1	Achieved
		Polygon 2	Achieved
		Polygon 3	Not yet achieved
		Polygon 4	Achieved
		Polygon 5	Not yet achieved

ROBJ	Completion Criteria	Polygon	Assessment
		Polygon 6	Not yet achieved
		Polygon 9	Achieved
		Polygon 10	Achieved
		Polygon 11	Achieved
		Polygon 14	Achieved
		Polygon 16	Not yet achieved
		Polygon 17	Achieved
		Polygon 1	Not yet achieved
		Polygon 2	Achieved
		Polygon 3	Achieved
		Polygon 4	Achieved
	Second generation individuals of trees are within the 10th-90th percentile variation range of reference sites/data approved by the consent authority	Polygon 5	Not yet achieved
		Polygon 6	Not yet achieved
		Polygon 9	Not yet achieved
		Polygon 10	Achieved
		Polygon 11	Achieved
		Polygon 14	Not yet achieved
		Polygon 16	Achieved
		Polygon 17	Achieved
	Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	Polygon 1	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
		Polygon 2	Achieved
		Polygon 3	Achieved
		Polygon 4	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
		Polygon 5	Achieved
		Polygon 6	Achieved
		Polygon 9	Achieved

ROBJ	Completion Criteria	Polygon	Assessment
		Polygon 10	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
		Polygon 11	Achieved
		Polygon 14	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
		Polygon 16	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
		Polygon 17	Not yet achieved – infestations of <i>Hypericum perforatum</i> currently causing risk to rehabilitation
	Resilience to drought and fire	All	Achieved - all rehabilitation polygons have experienced intense drought conditions at some point since seeding.
	Vertebrate pest species – presence and damage is recorded at a level that does not cause significant risk to rehabilitation.	All	Not yet achieved – review of feral animal monitoring indicates that areas of <i>Sus scrofa</i> (feral pig) diggings and scats, along with direct observations of feral pig were identified throughout the rehabilitation. Highest concentration of signs of feral pig was recorded throughout Polygon 1 and Polygon 4, which has the potential to impact rehabilitation success.
	Domesticated stock - presence and damage is recorded at a level that does not cause significant risk to rehabilitation.		No domesticated stock was recorded within the rehabilitation.
	Landform Stability The final landform is stable and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.	Polygon 1	Currently achieving
		Polygon 2	Not yet achieved – gully erosion present
		Polygon 3	Currently achieving
		Polygon 4	Not yet achieved – tunnel and rill erosion present
		Polygon 5	Not yet achieved – rill erosion present
		Polygon 6	Currently achieving
		Polygon 9	Currently achieving
		Polygon 10	Currently achieving
		Polygon 11	Currently achieving
		Polygon 14	Currently achieving
		Polygon 16	Currently achieving
		Polygon 17	Not yet achieved – tunnel, rill and sheet erosion present

4.2. BMP

A summary of assessment against the BMP Completion Criteria relevant to this report is provided in Table 23 and Table 24.

Table 23: BMP Completion Criteria

Domain Objective	Completion criteria	Assessment
Facilitate the natural regeneration of MZ2 areas	Monitoring to indicate upward trend in species diversity and density towards analogue sites within the targeted vegetation community	<u>Dry sclerophyll forest</u> Achieved (diversity): Native species richness is within the range recorded at MZ1 sites and the MZ2 median is trending towards the MZ1 median. Achieved (density): Stem density within the majority MZ2 sites has remained above the MZ1 historical minimum since 2016. <u>Grassy woodland</u> Achieved (diversity): Native species richness is within the range recorded at MZ1 sites. Not yet achieved (density): Stem density has been gradually increasing since 2015 and the majority of MZ2 sites were above the MZ1 historical minimum in 2025.
Re-establish native woodlands / open forest within MZ3 areas	Monitoring to indicate upward trend in species diversity and density towards analogue sites within the targeted vegetation community	<u>Dry sclerophyll forest</u> Achieved (diversity): Native species richness is within the range recorded at MZ1 sites and the MZ3 median is trending towards the MZ1 median. Achieved (density): Stem density for all MZ3 sites has remained above the MZ1 historical minimum since 2016. Median stem density for MZ3 sites remains lower than the median stem density for MZ1 sites. Median stem density for MZ3 has been increasing since 2016 and is only slightly lower than the MZ1 median stem density. <u>Grassy woodland</u> Achieved (diversity): Native species richness is within the range recorded at MZ1 sites and the MZ3 median is on a similar trajectory to the MZ1 trendline as both management zones are displaying a continual increase in species diversity since 2011. Not yet achieved (density): Stem density within half of the MZ3 sites has remained above the MZ1 historical minimum since 2016. Median stem density for MZ3 sites remains lower than the median stem density for MZ1 sites.
Weeds and feral animal species do not present a risk to rehabilitation	Weed presence does not pose a risk to the establishment of rehabilitation areas	Not yet achieved: Presence of <i>Hypericum perforatum</i> may be hindering restoration success throughout some MZ2 and MZ3 areas within Bobadeen VOA. The recorded pfc of this species in 2025 was slightly lower than 2024, indicating implemented weed management may be reducing the extent.
Erosion does not present a safety hazard or compromise the post mining land capability	Visual monitoring indicates that there is no erosion present that compromises land capability or the intended final land use	Achieved An area of partially stabilised gully erosion was recorded in previous monitoring years was repaired in 2025 (ELA 2025). No other areas of erosion have been identified within Bobadeen VOA.

Table 24: BMP Completion Criteria relating to subsidence

PA_08_0184 Performance measures	Performance indicators	Assessment of performance indicator	Assessment of performance measure	Assessment
Threatened species, populations, habitat or ecological communities – Negligible impact	The vegetation communities located above longwall panels in the subsidence zone are not expected to experience changes in condition different to changes in the corresponding sites located in the transition zone.	An indicator will be considered to have been triggered if: Analysis of subsidence-based flora data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and Analysis of subsidence-based flora data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined areas of the vegetation community. If data analysis indicates the performance indicators have been exceeded, an assessment will be made against the performance measure to determine if the impact is a result of mining and whether any Box Gum Woodland CEEC present above the longwall has exceeded performance measure.	The performance measure is exceeded if investigation shows subsidence has resulted in greater than negligible impacts to the Box Gum Woodland CEEC within mined areas.	Ongoing: No longwalls have recorded a >10% decrease in canopy cover when compared to baseline (pre-mining) data.

4.3. Ulan West EPBC 2015/7511 Area

A summary of assessment against the EPBC 2015/7511 Area performance indicators is provided in Table 25.

Table 25: Assessment against EPBC 2015/7511 Area performance indicators

Performance Measure	Performance Indicator	Assessment of performance indicator/measure	Assessment
Negligible impact on Box Gum Woodland.	Box Gum Woodland located above longwall panels in the subsidence zone are not expected to experience changes in condition different to changes in the corresponding sites located in the transition zone.	An indicator will be considered to have been triggered if: Analysis of FBS data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and Analysis of FBS data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined reference sites. The performance measure is exceeded if investigation shows subsidence has resulted in greater than negligible impacts to the Box Gum Woodland within mined areas.	Ongoing (UW LW 9)
	At the completion of undermining,	An indicator will be considered to have been triggered if assessment against the	Achieved (UW LW8 and UW LW7): No sites recorded a >10% decrease in canopy cover when compared to baseline (pre-mining) data.

Performance Measure	Performance Indicator	Assessment of performance indicator/measure	Assessment
	Box Gum Woodland patches continue to meet the condition thresholds described in the Policy Statement (DEH 2006).	condition thresholds within the Policy Statement (DEH 2006) are no longer met, with no negative impacts and/or decline in condition also recorded in Box Gum Woodland reference.	Gum Woodland assessment determined that Patch A conforms to the EPBC Act listing criteria. This performance indicator is not relevant to UW LW9 as there is no Box Gum Woodland present.

5. Recommendations

5.1. Biodiversity Offset Areas

5.1.1. Natural regeneration

Whilst not a requirement monitoring methodology outlined in the BMP, it is recommended that landscape orientation photographs are captured at the start and end of natural regeneration transects during each monitoring period (every 5 years) to enable visual comparison to previous monitoring periods.

The extent of natural regeneration surpassed the end of the transect at all transects monitored in 2025, except SOA1, SOA2 and SOA6. ELA recommends that monitoring is ceased at transects SOA3, SOA4, SOA5, BOBET1, BOBET2, BOBET3, BOBET4, BOBCT1, BOBCT2, BOBCT3, BOBT1 and BOBT2. Monitoring should continue at SOA1, SOA2 and SOA6 until natural regeneration has reached the end of the transect. Additional transects should be established within MZ2 areas of Bobadeen VOA near to the edge of the extent of natural regeneration as identified during the 2025 drive-over.

5.1.2. Pest animal and weed management

Ongoing pest animal and weed management is recommended throughout the Bobadeen VOA to reduce *Hypericum perforatum* infestation and feral pig impacts.

5.2. Rehabilitation

5.2.1. Pest animal and weed management

Ongoing pest animal and weed management is recommended throughout the rehabilitation areas to reduce *Hypericum perforatum* infestation and feral pig impacts.

5.2.2. Grey Box Woodland analogue sites

Data ranges related to pfc and abundance of growth forms, and proportion of regenerating canopy species at Grey Box Woodland analogue sites are narrow and may not reflect the true variation in these attributes within remnant Grey Box Woodland communities. Additional analogue sites for this target vegetation community are recommended.

5.3. Reporting structure

ELA recommends that reporting for the Rehabilitation and the Biodiversity Offset Areas is split into two separate reports for ease of reading and review.

6. References

Australian Government Bureau of Meteorology 2019. Special Climate Statement 70 update – drought conditions in Australia and impact of water resources in the Murray-Darling Basin.

Losso, A., Challis, A., Gauthey, A., Nolan, R. H., Hislop, S., Roff, A., Boer, M. M., Jiang, M., Medlyn, B. E., & Choat, B. (2022). *Canopy dieback and recovery in Australian native forests following extreme drought*. Nature – Scientific Reports, 12, Article 21608. <https://doi.org/10.1038/s41598-022-24833-y>

Bureau of Meteorology (BoM) 2022. *Climate Data Online – 062036 Ulan Water*. Accessed from [Climate Data Online - Map search \(bom.gov.au\)](https://climate.bom.gov.au/) on 5 July 2022.

Threatened Species Scientific Committee (TSSC) 2006. *Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Ecological Communities under the EPBC Act*.

Department of the Environment and Heritage (DEH) (2006). *EPBC Act Policy Statement White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands*.

Department of Primary Industries (DPI) 2025. NSW Weedwise. [NSW WeedWise](https://weedwise.dpi.nsw.gov.au/)

Eco Logical Australia (ELA) 2021. UCMPL Annual Flora Monitoring Report 2020. Prepared for Ulan Coal Mines Pty Ltd.

Eco Logical Australia (ELA) 2023. EPBC 2015/7511 Box Gum Woodland monitoring program. Prepared for Ulan Coal Mines Pty Ltd.

Eco Logical Australia (ELA) 2025. Bobadeen VOA Monitoring Report 2025. Prepared for Ulan Coal Mines Pty Ltd.

Eco Logical Australia (ELA) 2026. UCMPL Annual Fauna Monitoring Report 2025. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025a. *Fireweed Survey and Assessment*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025b. *Progress Report – Ulan Offset Areas January 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025c. *Progress Report – Ulan Offset Areas February 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025d. *Progress Report – Ulan Offset Areas March 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025e. *Progress Report – Ulan Offset Areas April 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025f. *Progress Report – Ulan Offset Areas May 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025g. *Progress Report – Ulan Offset Areas June 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025h. *Progress Report – Ulan Offset Areas August 2025*. Prepared for Ulan Coal Mines Pty Ltd.

Toolijooa Environmental Restoration 2025i. *2025 UCML Weed Survey and Assessment Update*.
Prepared for Ulan Coal Mines Pty Ltd.

