# Wilpinjong Coal
# ECA and Regeneration Areas
# Weed Control Report 2025

Rehabilitation

Environmental

Land Management

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Cover Photo: ECA B – Blackberries mulched along Wilpinjong Creek

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# Contents


1.0 Introduction ..... 3
1.1 Background ..... 3
1.2 Objectives ..... 3
1.3 Scope ..... 4
2.0 Control Methods Method ..... 5
2.1 Spot Spraying ..... 5
2.2 Boom Spraying ..... 5
2.3 Mulching ..... 5
3.0 Results ..... 6
3.1 ECA_A ..... 6
3.2 ECA_B ..... 8
3.3 ECA_D ..... 10
3.4 Regeneration Area 1 ..... 10
3.5 Regeneration Area 2 ..... 11
3.6 Regeneration Area 4, 5, 9 ..... 12
4.0 Control Maps ..... 14
5.0 Fauna Observations ..... 16
6.0 Recommendations ..... 16
7.0 References ..... 18

# 1.0 Introduction

Wilpinjong Coal Pty Ltd (WCPL) engaged The Regenerative Pty Ltd in November 2025 to undertake a broadscale weed control program across designated Environmental Conservation Areas (ECAs), including ECA A, ECA B and ECA D**.**

In addition to the ECA areas, works were also implemented within adjacent Regeneration Areas 1, 2, 4, 5 and 9**,** forming part of a coordinated, landscape-scale approach to weed management across the WCPL project area.

The program targeted a range of priority weed species known to impact native vegetation condition and regeneration outcomes. Key species treated during the works included St John's Wort, Cineraria, Blackberry, Thistles, Sweet Briar, Blue Heliotrope and Fleabane**.**

## 1.1 Background

The ECAs associated with the Wilpinjong Coal Mine were established as part of a Biodiversity Offset Strategy to compensate for the approved clearing of native woodland vegetation and to support long-term ecological outcomes across the project area. These areas are secured under a formal Conservation Agreement (VCA0308) with the NSW Government and contain a range of significant vegetation communities, including threatened ecological communities of regional importance.

The ECAs play a key role in maintaining habitat connectivity and ecological function, forming linkages between on-site regeneration and rehabilitation areas and surrounding conservation reserves, including Munghorn Gap Nature Reserve and Goulburn River National Park.

Weed invasion presents a significant risk to the ecological integrity of these areas, with invasive species capable of outcompeting native vegetation, limiting natural regeneration, and altering vegetation structure and composition. As such, ongoing weed control is a critical management requirement to support the establishment, persistence, and resilience of native plant communities, and to ensure compliance with obligations under Conservation Agreement VCA0308.

## 1.2 Objectives

The primary objectives of the 2025 weed control program within the Environmental Conservation Areas (ECA A, B and D) are as follows:

- **Environmental Protection and Biodiversity Enhancement**
    - Reduce the extent and density of invasive weed species to support the protection and recovery of native vegetation communities within the ECAs.
    - Protect and enhance threatened and endangered ecological communities (EECs) and improve overall vegetation condition.
    - Support natural regeneration processes and the persistence of previously established tubestock plantings.
- **Ecosystem Function and Resilience**
    - Improve vegetation structure and groundcover composition by reducing competition from invasive species.
    - Promote long-term ecosystem resilience through targeted weed suppression and regenerative land management practices.
- **Biosecurity and Weed Containment**
    - Prevent the spread of priority weed species within and beyond the ECA boundaries.

- Ensure all works are undertaken in accordance with relevant NSW biosecurity legislation and best-practice hygiene protocols, minimising the risk of further infestations.

- **Targeted and Low-Impact Weed Control**
    - Implement species-specific chemical control methods to maximise treatment effectiveness while minimising impacts to non-target native species and surrounding habitats.
    - Apply control measures in accordance with best-practice bush regeneration principles and environmental guidelines.

- **Monitoring, Assessment and Adaptive Management**
    - Undertake ongoing monitoring of weed distribution, density and treatment effectiveness across the ECAs.
    - Use field observations and monitoring data to inform adaptive management, ensuring future works are targeted and responsive to site conditions.

- **Support for Offset Obligations and Landscape Connectivity**
    - Contribute to the successful delivery of WCPL's Biodiversity Offset Strategy and Conservation Agreement outcomes.
    - Enhance ecological connectivity between ECAs, regeneration areas, and surrounding conservation reserves.

- **Reporting and Continuous Improvement**
    - Maintain clear and accurate records of works undertaken, including target species, treatment areas and outcomes achieved.
    - Evaluate program effectiveness over time to guide continuous improvement and future weed management strategies.

## 1.3 Scope

The scope of works undertaken by The Regenerative Pty Ltd as part of the 2025 weed control program involved a combination of broadscale and targeted control measures across designated Environmental Conservation Areas and adjacent regeneration zones.

Works included the boom spraying of open and accessible areas, with a primary focus on Regeneration Area 1, where large expanses of weed infestation were present and suitable for broadscale application. Within this area, St John's Wort, Saffron Thistle and Cineraria were specifically targeted as part of the boom spraying program to reduce widespread weed dominance and improve pasture and native groundcover competitiveness.

In addition to boom spraying, targeted spot spraying was undertaken across all treatment areas to address scattered and emerging infestations, particularly within sensitive or less accessible environments where precision application was required to minimise off-target impacts.

Mechanical control methods were also implemented, with mulching of dense blackberry thickets carried out within ECA B and Regeneration Area 1 to reduce woody weed biomass and improve access for follow-up treatment and regeneration.

The program targeted a range of priority weed species known to impact vegetation condition and regeneration outcomes, including Blackberry, Cineraria, St John's Wort, Saffron Thistle, Sweet Briar, Noogoora Burr (particularly within riparian zones), and Blue Heliotrope.

# 2.0 Control Methods Method

## 2.1 Spot Spraying

Spot spraying formed a core component of the 2025 weed control program across the Environmental Conservation Areas (ECA A, B and D), enabling the targeted treatment of priority weed species within both accessible and sensitive environments. This method was applied extensively across the ECAs to address scattered infestations, regrowth, and emerging weed populations, while minimising disturbance to native vegetation and surrounding habitats.

The approach focused on selective, high-accuracy application, particularly within areas of higher ecological value, where maintaining native species and supporting natural regeneration is critical. Spot spraying was effective in reducing weed density, limiting further spread, and protecting regenerating vegetation, including areas of established tubestock and natural recruitment.

Application was undertaken using specialised spray equipment, including RapidSpray units mounted on 4WD vehicles and UTVs, allowing operators to access varied terrain and apply herbicide directly to target species with precision.

Following site inspections, treatment areas were prioritised based on weed density, species type, and proximity to native vegetation, ensuring control efforts were directed toward areas of greatest ecological benefit.

## 2.2 Boom Spraying

Boom spraying was implemented as a broadscale weed control method within suitable open areas, with a primary focus on Regeneration Area 2. This approach enabled efficient treatment of large, accessible zones with widespread weed presence, where uniform application was required to reduce overall weed density.

Application was undertaken using a 6-metre boom spray unit mounted to a 4WD Toyota LandCruiser, allowing for consistent coverage across open terrain while maintaining operational efficiency. The method was particularly effective in treating extensive infestations of target species, including St John's Wort, Saffron Thistle and Cineraria, which were prevalent throughout the regeneration area.

Spraying operations were conducted under suitable weather conditions to optimise herbicide uptake and minimise off-target impacts such as spray drift. Equipment was calibrated prior to application to ensure accurate delivery rates and even distribution across the treatment area.

Boom spraying was applied in areas where vegetation structure and access permitted, complementing targeted spot spraying methods used in more sensitive or less accessible environments.

## 2.3 Mulching

Mechanical mulching was undertaken as part of the weed control program to manage dense woody infestations, particularly blackberry thickets, within ECA B and Regeneration Area 1. This method was selected to reduce biomass in heavily infested areas and improve access for follow-up chemical treatment and ongoing maintenance.

Mulching works were carried out using a Himac slasher attachment fitted to a high-flow 5-tonne skid steer loader, allowing for effective processing of thick vegetation in both open and semi-constrained environments. The high-flow capability enabled efficient operation of the slasher attachment, improving cutting performance and productivity when treating dense woody weeds.

This method was particularly effective in areas where herbicide application alone would be less efficient due to plant density or structure. By reducing above-ground biomass, mulching supports improved herbicide uptake during subsequent treatments and promotes conditions more favourable for native vegetation recovery and groundcover establishment.

# 3.0 Results

## 3.1 ECA_A

**Works Completed:**

Spot spraying within ECA A targeted key invasive species including Cineraria (*Senecio elegans*), Saffron Thistle (*Carthamus lanatus*), and Blue Heliotrope (*Heliotropium amplexicaule*). Spraying was undertaken using a selective herbicide (Grazon Extra), chosen for its effectiveness in controlling broadleaf weed species while minimising impacts to desirable pasture grasses and native groundcover.

High densities of Cineraria (*Senecio elegans*) and St John's Wort (*Hypericum perforatum*) were recorded across sections of the ECA, requiring targeted treatment to reduce widespread infestation and improve vegetation condition. Noogoora Burr (*Xanthium strumarium*) was specifically observed at higher densities along the edges of Cumbo Creek, highlighting the influence of riparian environments in supporting weed establishment and spread.

Targeted treatment was undertaken along Cumbo Creek, where three discrete blackberry infestations (*Rubus fruticosus* aggregate) were identified and sprayed, in addition to Noogoora Burr (*Xanthium strumarium*) within riparian zones. These works are critical in protecting riparian vegetation and reducing the risk of downstream weed dispersal.

Blue Heliotrope (*Heliotropium amplexicaule*) was primarily observed along main access tracks and in areas of recent or ongoing soil disturbance, indicating its preference for disturbed environments and the importance of ongoing monitoring and control in these zones.

Saffron Thistle (*Carthamus lanatus*) was observed throughout open pasture areas, with variable growth stages across infestations. Some plants had already senesced at the time of inspection, while others remained actively growing. The presence of multiple generations indicates a high seed load and established soil seed bank, highlighting the ongoing persistence of this species within the site.

Works were undertaken as an initial treatment phase, with treated areas revisited in December to conduct follow-up applications and ensure effective control of target species, including treatment of regrowth and any missed infestations.

Application resulted in effective initial knockdown across treated areas, with visible signs of plant stress and dieback observed post-treatment. The targeted control approach has contributed to a reduction in weed density and will support improved competition from native vegetation and groundcover over time.

*Figure 1: Noogoora Burr*

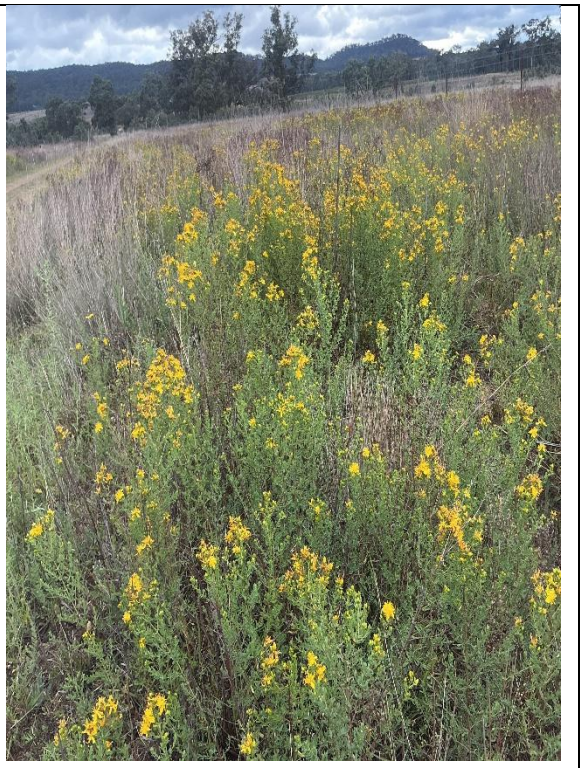


*Figure 2: St John's Wort throughout ECA A*

*Figure 3: Blackberry thicket in ECA A along Cumbo Creek (sprayed)*

## 3.2 ECA_B

**Works Completed:**

Weed control activities within ECA B were undertaken through a combination of targeted spot spraying and mechanical mulching to address both broadleaf and woody weed infestations across the site.

Target species treated included Cineraria (Senecio elegans), Saffron Thistle (Carthamus lanatus), Golden Rod (Solidago canadensis), Sweet Briar (Rosa rubiginosa), Blackberry (Rubus fruticosus), St John's Wort (Hypericum perforatum), Fleabane (Conyza spp.), and Paterson's Curse (Echium plantagineum). A selective herbicide (Grazon Extra) was utilised throughout the program to achieve effective control of broadleaf species while retaining desirable pasture and native groundcover.

Weed distribution across ECA B was variable, with moderate to high densities of Cineraria (Senecio elegans), St John's Wort (Hypericum perforatum) and Saffron Thistle (Carthamus lanatus) observed across multiple areas. Additional species, including Fleabane (Conyza spp.) and Paterson's Curse (Echium plantagineum), were present at lower densities, while Sweet Briar (Rosa rubiginosa) and Golden Rod (Solidago canadensis) occurred in more isolated patches requiring targeted treatment.

Mechanical mulching formed a key component of works in areas of dense woody weed infestation. Extensive blackberry thickets (Rubus fruticosus) located along the western extent of ECA B, adjoining Regeneration Area 4 and the powerline easement, were mulched to reduce canopy dominance and enable access for ongoing management. Additional isolated blackberry infestations (Rubus fruticosus aggregate) along Wilpinjong Creek were also mechanically treated to reduce biomass and limit spread within riparian corridors.

A total of three days were allocated to mulching works across ECA B. Follow-up control was undertaken in December, with foliar spraying applied to regrowth and any remaining infestations to ensure improved treatment efficacy.

*Figure 4: Mullien (Golden Rod) in rip lines*

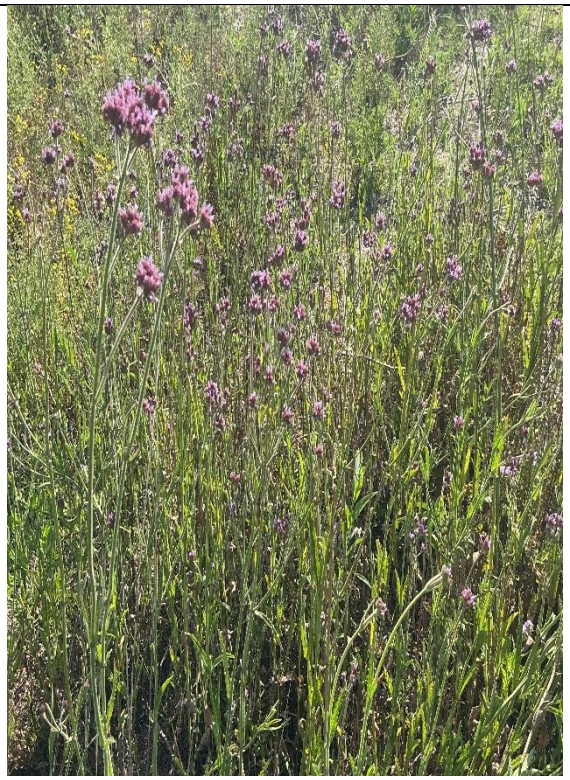


*Figure 5: Purple Top and St Johns Wort throughout ECA B*

*Figure 6: Blackberry along Wilpinjong Creek (pre control)*

*Figure 7: Blackberry after mulching*

## 3.3 ECA_D

**Works Completed:**

Spot spraying within ECA D targeted key invasive species including Noogoora Burr (*Xanthium strumarium*), St John's Wort (*Hypericum perforatum*), Saffron Thistle (*Carthamus lanatus*), and Cineraria (*Senecio elegans*). Spraying was undertaken using a selective herbicide (Grazon Extra), selected for its effectiveness in controlling broadleaf weed species while minimising impacts to desirable pasture and native groundcover.

Weed distribution across ECA D was generally characterised by **scattered to moderate infestations**, with higher concentrations of Noogoora Burr (*Xanthium strumarium*) observed within lower-lying and moisture-retentive areas. St John's Wort (*Hypericum perforatum*), Saffron Thistle (*Carthamus lanatus*) and Cineraria (*Senecio elegans*) were present more broadly across the site, particularly within open pasture zones and areas of historical disturbance.

The targeted application approach enabled effective treatment of these infestations while maintaining surrounding vegetation integrity. No woody weed infestations requiring mechanical control were identified within ECA D, and therefore all works were completed via selective spot spraying methods.

Works were undertaken as an initial treatment phase, with follow-up applications conducted in December to address regrowth and ensure improved overall control of target species.

*Figure 8: St John's Wort, multiple generations*

*Figure 9: Cineraria throughout pasture areas.*

## 3.4 Regeneration Area 1

**Works Completed:**

Weed control activities within Regeneration Area 1 were undertaken using a combination of targeted spot spraying and mechanical mulching to address both widespread and localised infestations across the site.

Primary species targeted included St John's Wort (*Hypericum perforatum*), thistles (predominantly Saffron Thistle – *Carthamus lanatus*), Cineraria (*Senecio elegans*), Blackberry (*Rubus fruticosus*), and Blue Heliotrope (*Heliotropium amplexicaule*). A selective herbicide (Grazon Extra) was utilised to control broadleaf species while retaining desirable pasture and native groundcover.

Broad infestations of St John's Wort (*Hypericum perforatum*), Saffron Thistle (*Carthamus lanatus*) and Cineraria (*Senecio elegans*) were treated through targeted spot spraying across accessible areas, allowing for effective coverage while minimising impacts to surrounding vegetation.

Blackberry (*Rubus fruticosus*) was primarily associated with linear features, including the rail corridor and Wilpinjong Creek. These infestations were managed through a combination of spot spraying and mechanical mulching, with mulching undertaken to reduce dense woody biomass and improve access for follow-up treatment.

Blue Heliotrope (*Heliotropium amplexicaule*) was predominantly observed along roadsides and areas of disturbance, where targeted spot spraying was undertaken to prevent further establishment and spread along access tracks.
Works were undertaken as an initial treatment phase, with follow-up control completed in December to address regrowth and improve overall treatment effectiveness across the regeneration area.

*Figure 10: Blackberry on Regeneration Area 1 North boundary*

*Figure 11: Blackberry and St John's Wort on Wilpinjong Creek (Regeneration Area 1)*

## 3.5 Regeneration Area 2

**Works Completed:**
Regeneration Area 2 has been previously prepared for planting, with rip lining and slashing undertaken prior to tubestock establishment in 2024. These preparatory works have influenced current vegetation structure, with defined rip lines and open areas supporting both regeneration and weed establishment.

Weed control activities within the area were undertaken using a combination of boom spraying and targeted spot spraying to address both broadscale infestations and priority zones requiring more selective treatment.

High densities of Cineraria (*Senecio elegans*) and Saffron Thistle (*Carthamus lanatus*) were observed throughout the site, particularly within open areas. St John's Wort (*Hypericum perforatum*) was also prevalent, with multiple generations present, indicating a well-established seed bank and ongoing recruitment across the area.

Boom spraying was implemented across open and accessible areas using a selective herbicide (Grazon Extra), providing efficient and consistent coverage of widespread infestations. Targeted spot spraying was undertaken along fence lines and rip lines to establish treatment buffers and minimise weed competition in areas supporting regeneration and planted tubestock.

Additional targeted control was undertaken along Cumbo Creek, where Sweet Briar (*Rosa rubiginosa*) was identified and treated to reduce woody weed presence within the riparian corridor and limit further spread.

*Figure 12: Boom Spraying Regeneration Area 2*

## 3.6 Regeneration Area 4, 5, 9

**Works Completed:**

Weed control activities within Regeneration Areas 4, 5 and 9 were undertaken using a combination of targeted spot spraying and mechanical mulching to address both woody and broadleaf weed infestations across the sites.

Primary species targeted included Saffron Thistle (Carthamus lanatus), Mullien (Verbascum thapsus), St John's Wort (Hypericum perforatum), Cineraria (Senecio elegans), and isolated occurrences of Sweet Briar (Rosa rubiginosa). These species were present at varying densities across the regeneration areas, generally associated with open pasture zones, disturbed areas, and beneath established tree canopies.

Within Regeneration Area 4, blackberry infestations (Rubus fruticosus) located along Wilpinjong Creek were treated through a combination of mechanical mulching and targeted spot spraying. These works were undertaken to reduce woody biomass, improve access, and limit further spread within the riparian corridor.

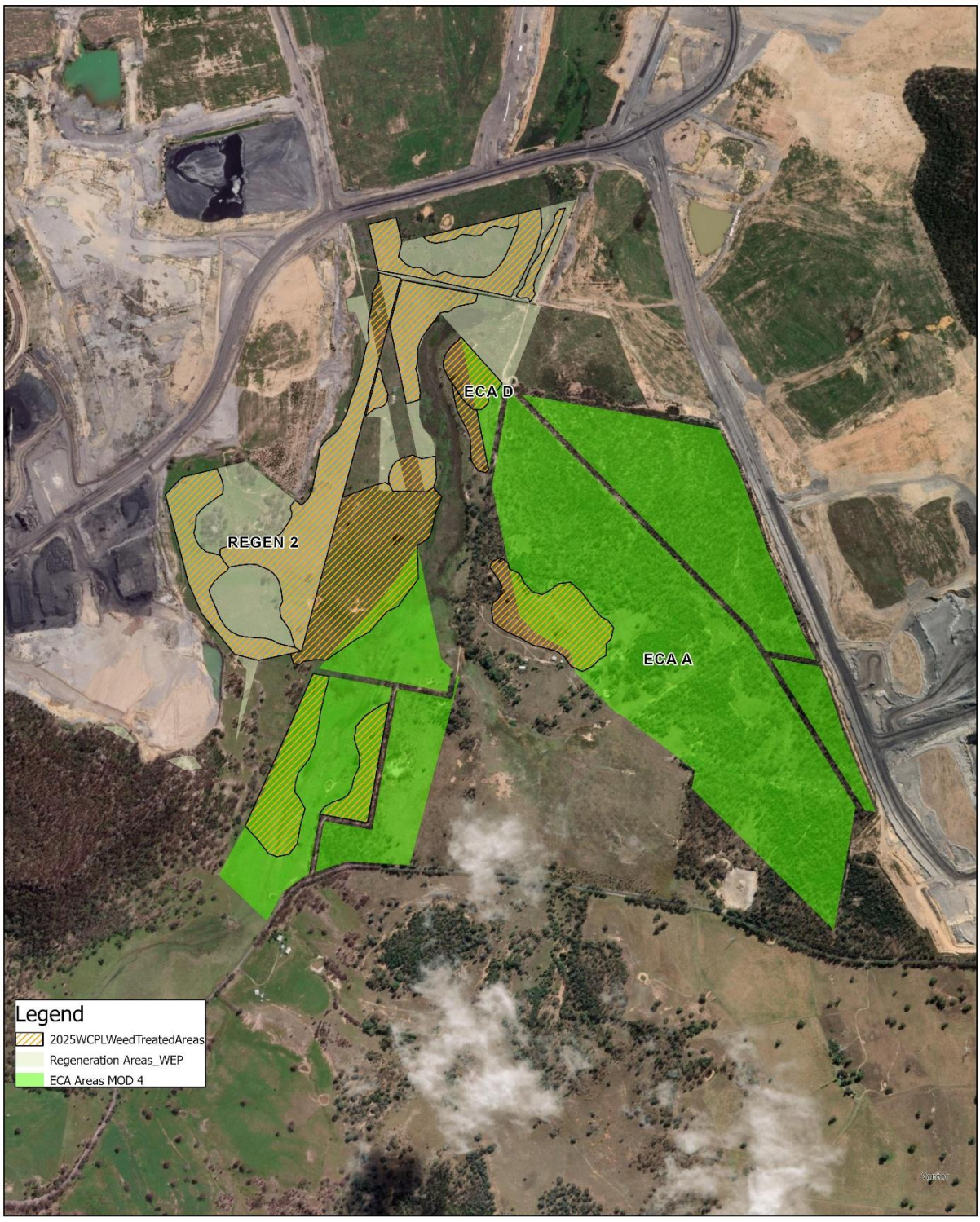
Across all three regeneration areas, spot spraying was applied to control scattered and moderate-density infestations of target species. Particular attention was given to isolated Sweet Briar (Rosa rubiginosa) plants occurring beneath established trees, where selective application was required to minimise impacts to surrounding vegetation.

Works were undertaken as an initial treatment phase, with follow-up control completed in December to address regrowth and ensure improved treatment outcomes across the sites.

*Figure 13: Cineraria throughout Regeneration 9*

*Figure 14: St John's Wort in Regeneration 5/9*

# 4.0 Control Maps

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| THE REGENERATIVE Environmental & Agriculture Consulting<br>N<br>0 0.07.15 0.3 0.45 0.6<br>Kilometers | Schematic: ECA A, D and Regen 2<br>Project: 2025 Weed Control | | | | Peabody<br>TR makes every effort to ensure the quality of the information available on this map. Before relying on the information on this map, users should carefully evaluate it accuracy, currency, completeness and relevance for their purposes, and should obtain any appropriate professional advice relevant to their circumstances.<br>TR cannot guarantee and assumes no responsibility for the accuracy, currency or completeness of the information and by using this map you accept that TR has no liability for any loss or damage in any form whatsoever caused directly or indirectly from the use of this map. |
| | Spatial Reference Name: GDA 1994 MGA Zone | Review ID: 1 | Date Exported: 20/03/2026 3:37 PM | Drawn: JF | Drawing No. ECAA |

*Plate 1: ECA A, D and Regeneration Area 2 – Treatment Areas*

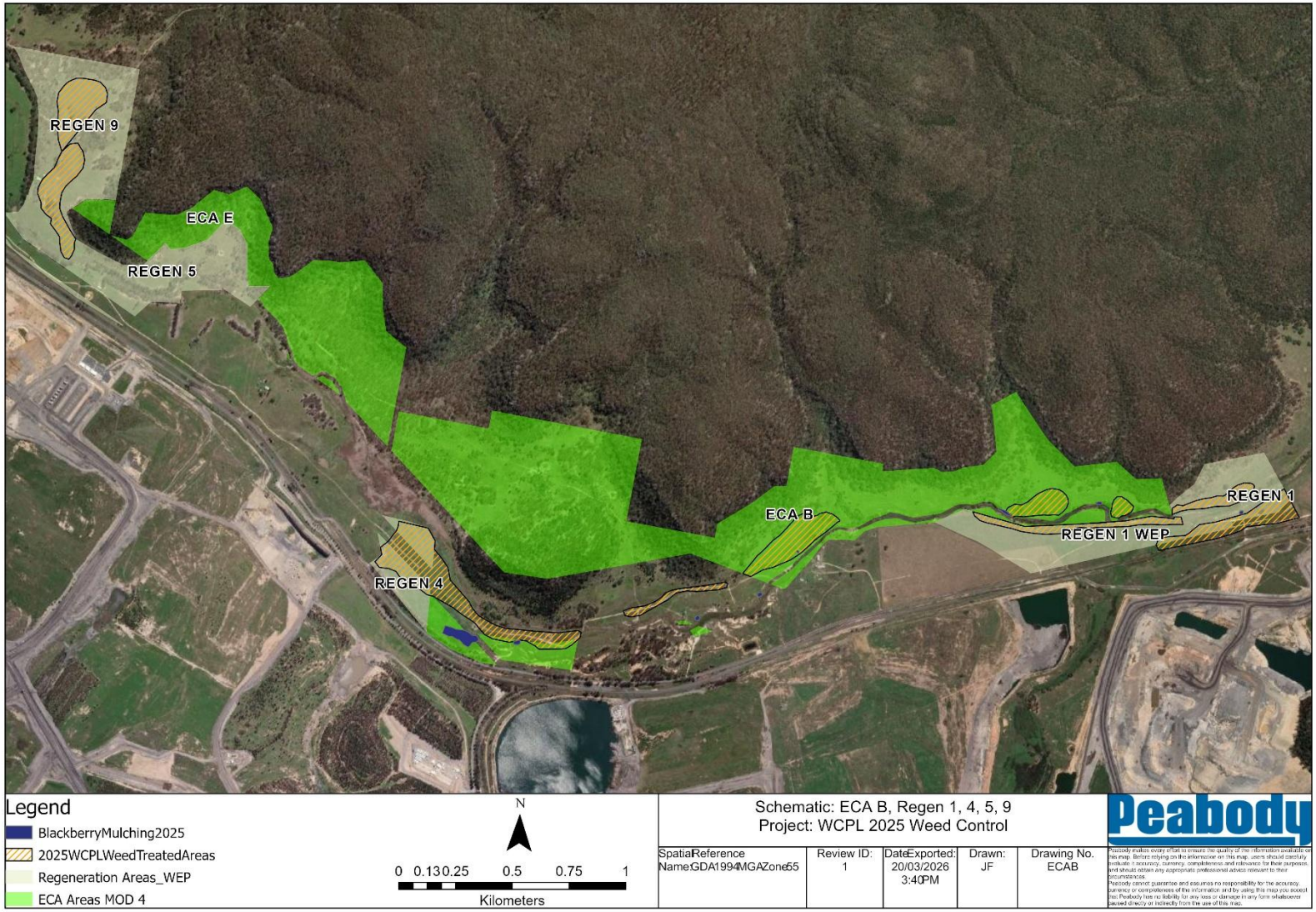


*Plate 2: ECA B, Regeneration Areas 1, 4, 5, 9*

# 5.0 Fauna Observations

Numerous fauna species were observed throughout the control works including;

- Grey Shrike-thrush (*Colluricincla harmonica*)
- Rufous Whistler (*Pachycephala rufiventris*)
- Willie Wagtail (*Rhipidura leucophrys*)
- Eastern Yellow Robin (*Eopsaltria australis*)
- Brown Treecreeper (*Climacteris picumnus*)
- White-throated Treecreeper (*Cormobates leucophaea*)
- Varied Sittella (*Daphoenositta chrysoptera*)
- Australian Magpie (*Gymnorhina tibicen*)
- Australian Raven (*Corvus coronoides*)
- Crested Pigeon (*Ocyphaps lophotes*)
- Galah (*Eolophus roseicapilla*)
- Sulphur-crested Cockatoo (*Cacatua galerita*)
- Red-rumped Parrot (*Psephotus haematonotus*)
- Eastern Rosella (*Platycercus eximius*)
- Superb Fairy-wren (*Malurus cyaneus*)
- Australian Wood Duck (*Chenonetta jubata*)
- White-faced Heron (*Egretta novaehollandiae*)
- Welcome Swallow (*Hirundo neoxena*)
- Wedge-tailed Eagle (*Aquila audax*)
- Brown Falcon (*Falco berigora*)
- Nankeen Kestrel (*Falco cenchroides*)
- Black-shouldered Kite (*Elanus axillaris*)
- Diamond Firetail (*Stagonopleura guttata*)
- Hooded Robin (*Melanodryas cucullata*)
- Speckled Warbler (*Chthonicola sagittata*)
- Brown Quail (*Synoicus ypsilophorus*)

# 6.0 Recommendations

Based on the outcomes of the 2025 weed control program and site observations across the Environmental Conservation Areas and associated regeneration zones, the following recommendations are provided:

- Implementation of a Weed Action Control Plan

It is recommended that a structured Weed Action Control Plan be developed to guide ongoing management across the ECAs and regeneration areas. This plan should define priority species, treatment thresholds, spatial targeting, and monitoring requirements to support a coordinated and adaptive weed management approach.

- Early Spring Intervention (2026)

Given the presence of high soil seed banks, particularly for species such as St John's Wort (*Hypericum perforatum*), Saffron Thistle (*Carthamus lanatus*), and Cineraria (*Senecio elegans*), early intervention in spring 2026 is critical. Timely control prior to flowering and seed set will significantly reduce reinfestation and improve long-term outcomes.

- Ongoing Follow-Up Control

Continued follow-up treatments are required to manage regrowth and emerging infestations across all treated areas. This is particularly important in riparian zones, disturbed areas, and previously high-density infestation zones where weed persistence remains elevated.

- Targeted Management of High-Risk Areas

Focus should be maintained on high-risk environments including riparian corridors (e.g. Cumbo Creek and Wilpinjong Creek), road/rail corridors, and areas of soil disturbance, where weed establishment and spread are most prevalent.

- Integrated Control Approach

The continued use of a combination of spot spraying, broadscale application (where appropriate), and mechanical control is recommended to effectively manage varying infestation types and densities across the sites.

- Monitoring and Adaptive Management

Ongoing monitoring should be undertaken to assess treatment effectiveness and inform adaptive management. Data collected should be used to refine future works, ensuring resources are directed toward priority areas and emerging threats.

# 7.0 References


- Biodiversity Management Plan (2025), Wilpinjong Coal Pty Ltd
- 2024 ECA Annual Photo Point Monitoring Report, Environmental Instrument Solutions
- 2025 BCT VCA0308 (DOC25/339877) Audit Report
- 2023 WCPL EPL Reports (January; December 2023), Wilpinjong Coal Pty Ltd
- 2023 ECA Annual Photo Point Monitoring Report, Environmental Instrument Solutions
- 2022 ECA Annual Photo Point Monitoring Report, Environmental Instrument Solutions
- 2021 ECA Annual Photo Point Monitoring Report, Pacific Environmental Pty Ltd
- 2023 BCT VCA0308 (DOC24/389538) Audit Report
- Conservation Agreement between The Minister Administering the NSW National Parks and Wildlife Act (1974) and Wilpinjong Coal Pty Ltd


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